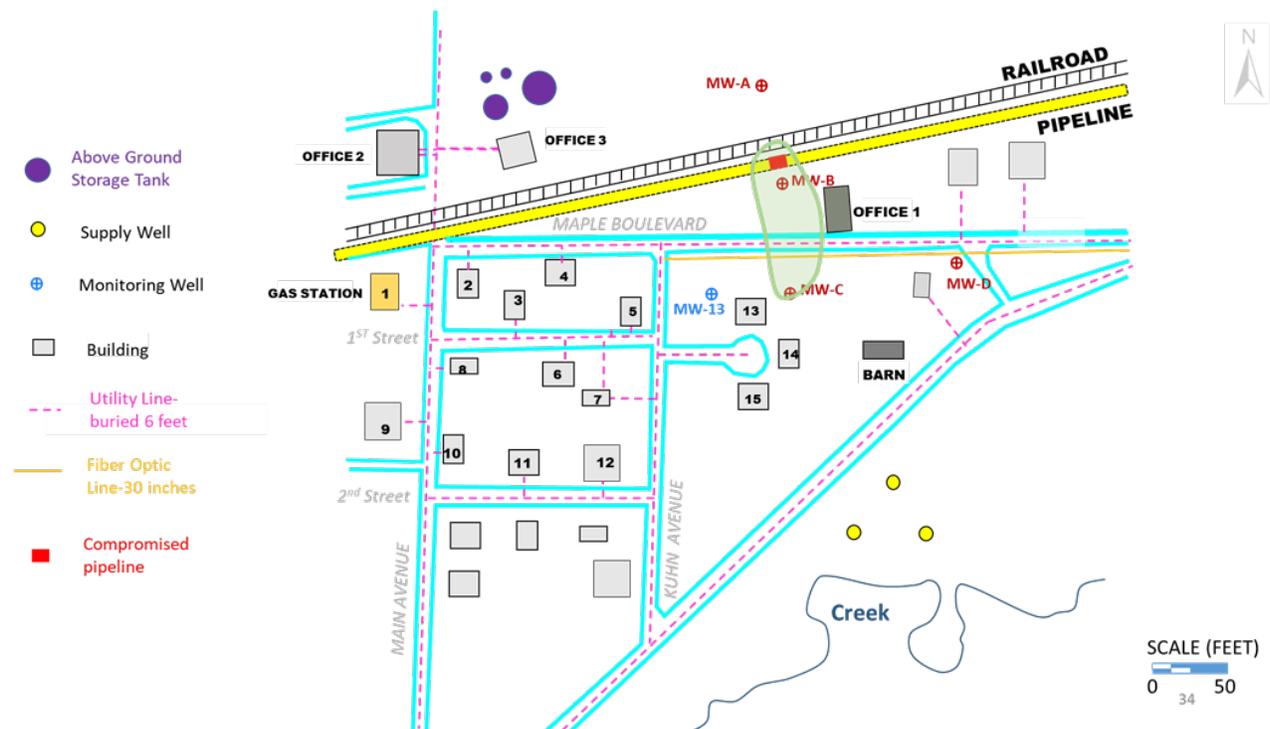




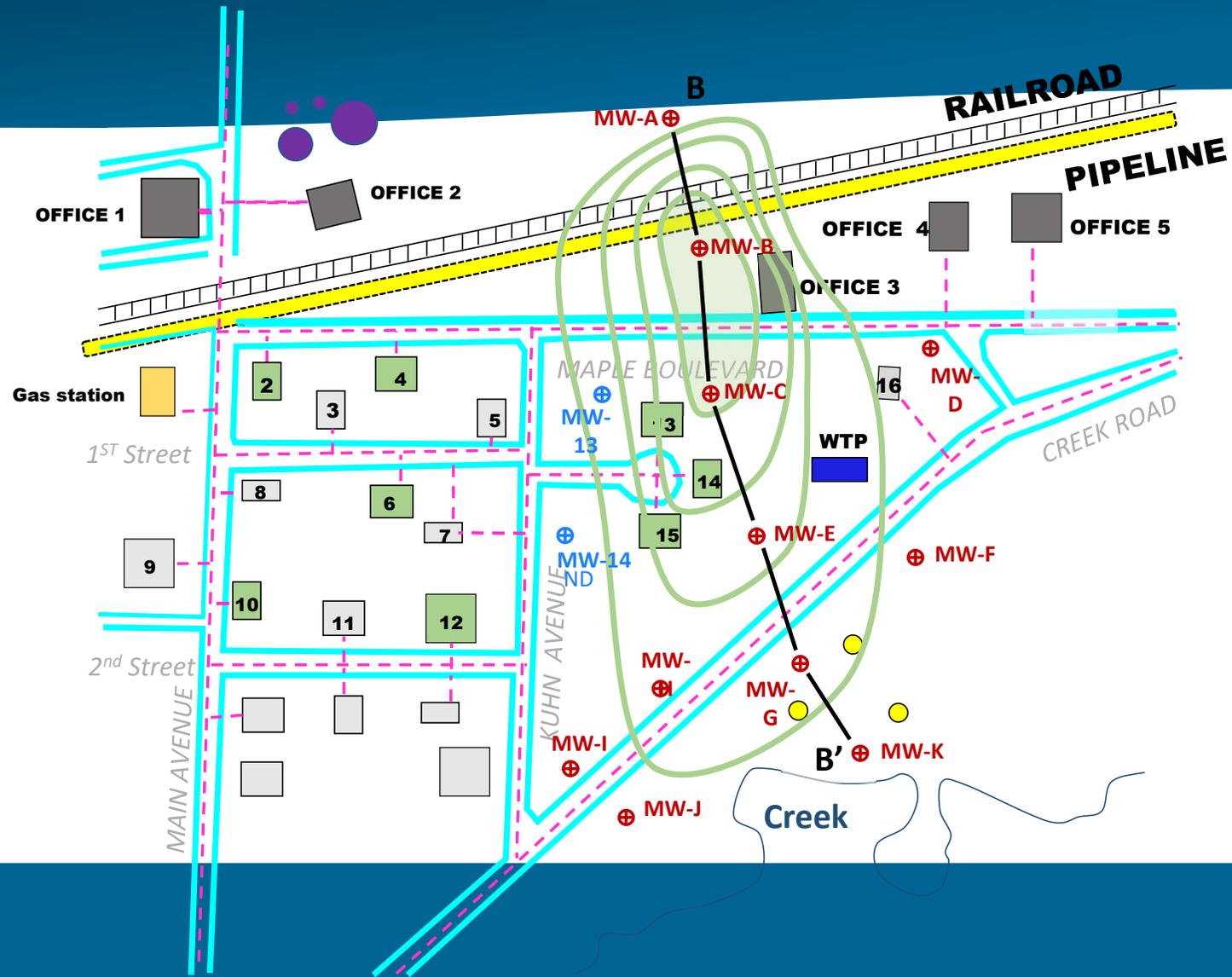
Glacial Fluvial Diesel Scenario

Small town with mixed residential and commercial properties. Area is bounded by wet, low-lying areas and a creek to the south that runs from east to southwest. A railroad and a refined diesel pipeline run parallel through the site east-west. The town's municipal well field is in the south. Geology is a meandering stream within a terraced floodplain that contains fluvial-glacial sediments deposited over glacial till. Groundwater is unconfined 6 to 10 feet bgs with seasonal fluctuation and with general south-southeast flow towards the stream. Workers digging in fiber optic along Maple Boulevard complain of petroleum odors. A previous investigation of a nearby gasoline release had indicated total petroleum hydrocarbon contamination with a diesel signature in monitoring well 13. Source identified as a small continuous leak from the diesel pipeline, the quantity and duration of the leak is unknown. Potential impacts include vapor intrusion, soil, and groundwater contamination.

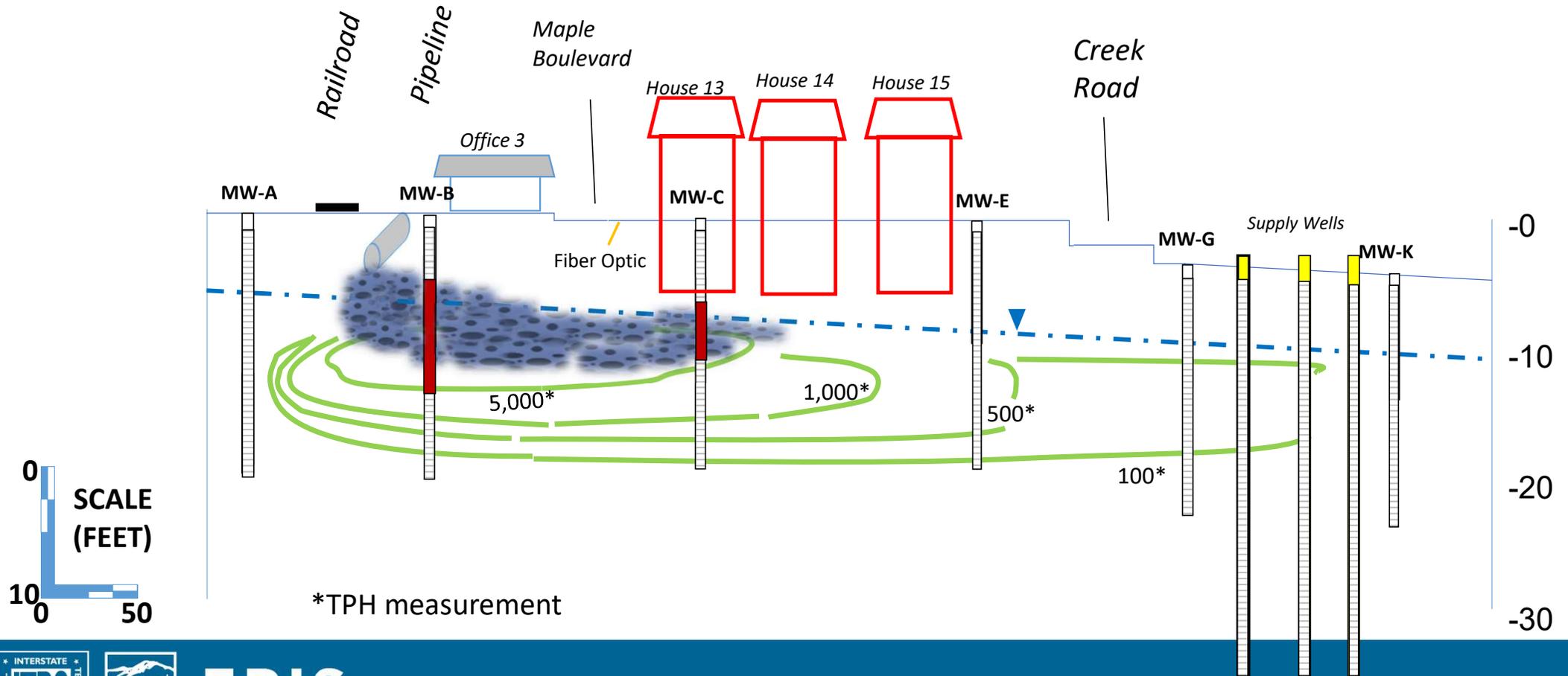




-  Diesel
-  Compromised pipeline
-  Monitoring Well
-  Previous Investigation Well
-  Supply Well
-  House with basement
-  Water Treatment Plant
-  Utility Line-buried 4 feet
-  Fiber Optic Line-30 inches
-  Above Ground Storage Tank
-  Cross Section B-B'

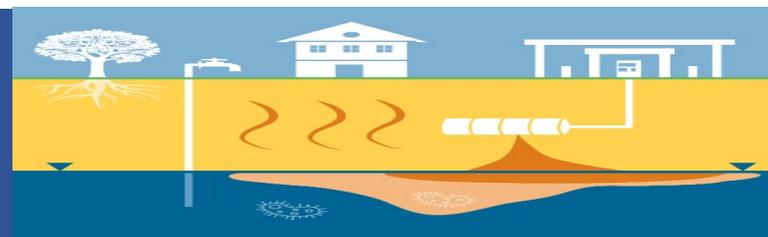


Cross Section View B-B'



Scenario Screening Levels

(for exercise purposes only)

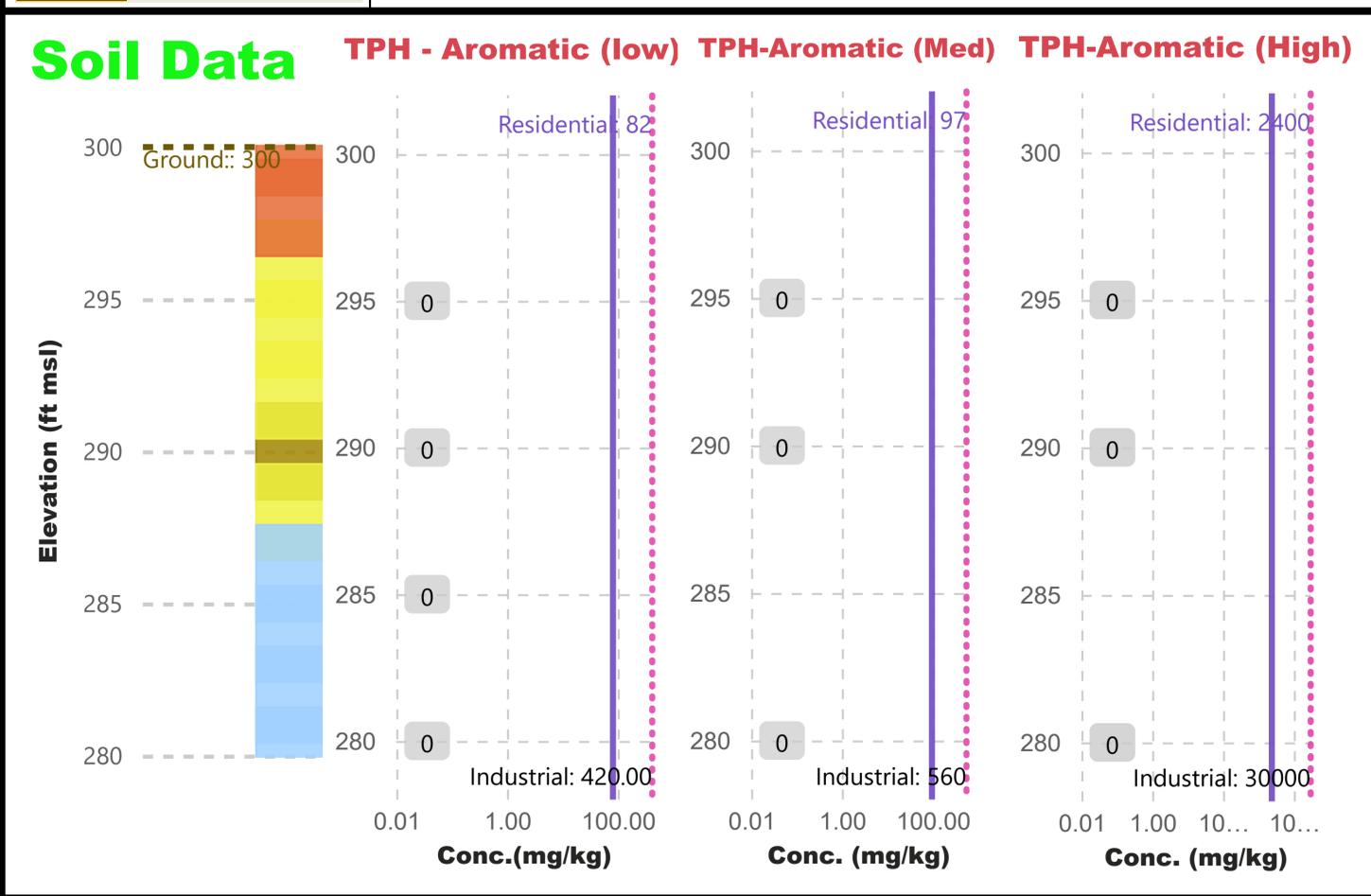
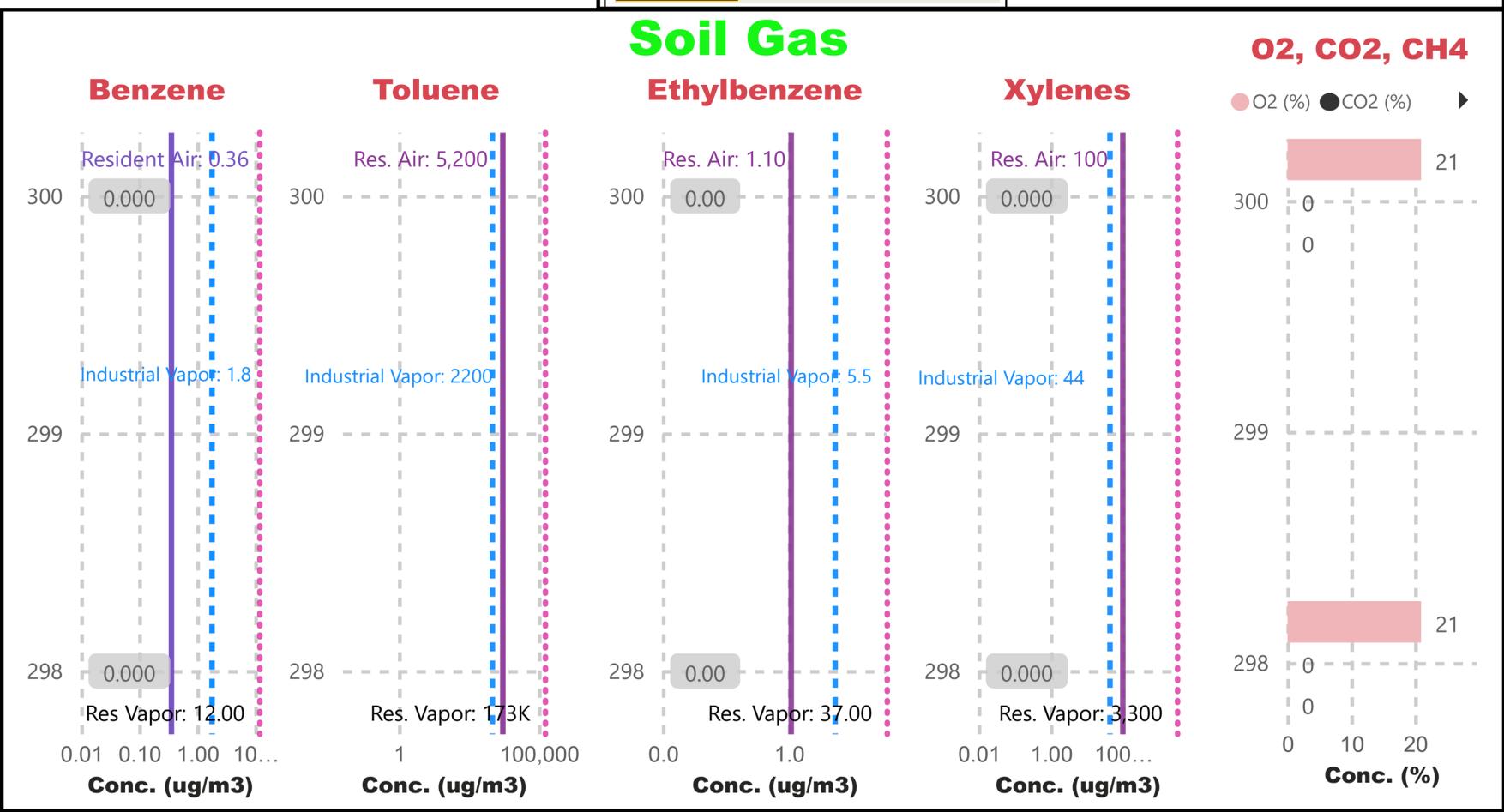
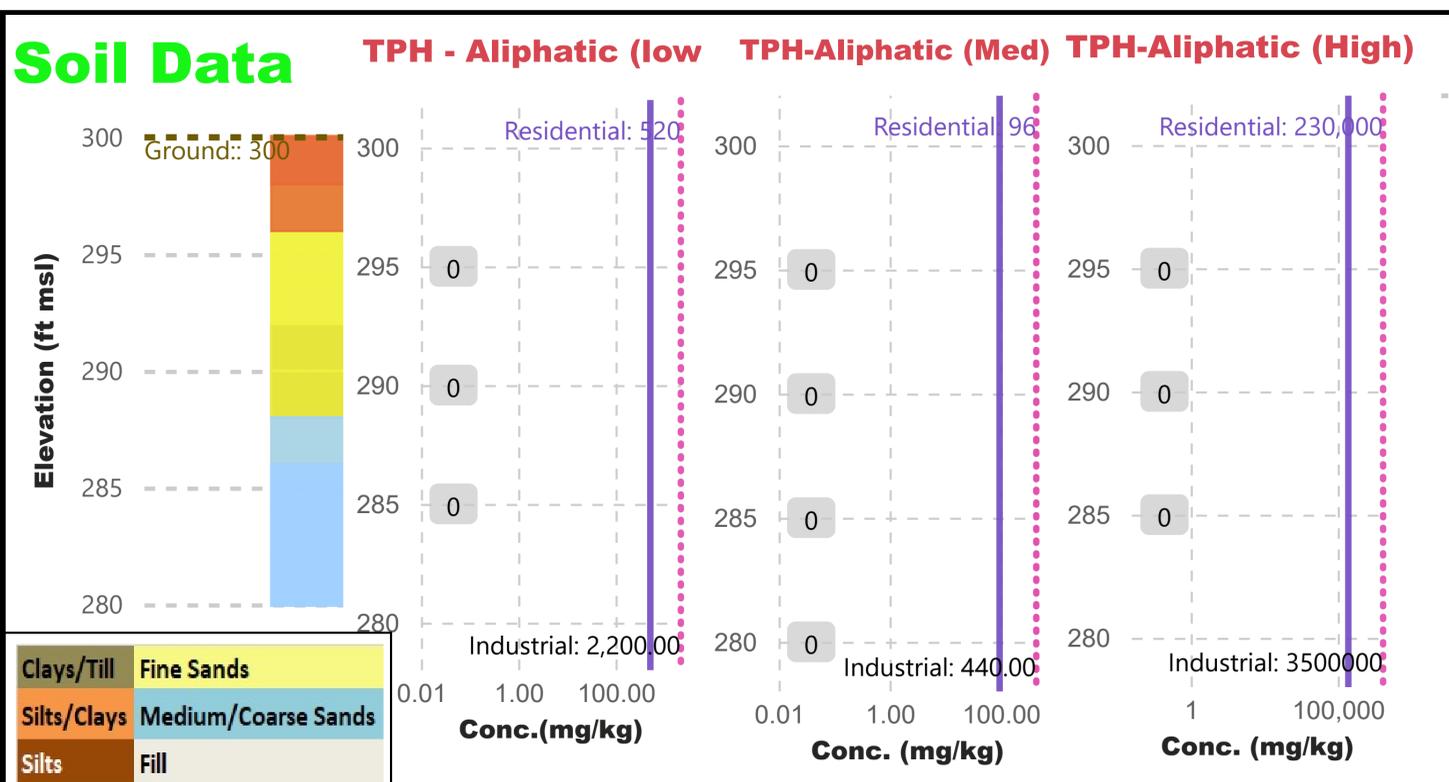
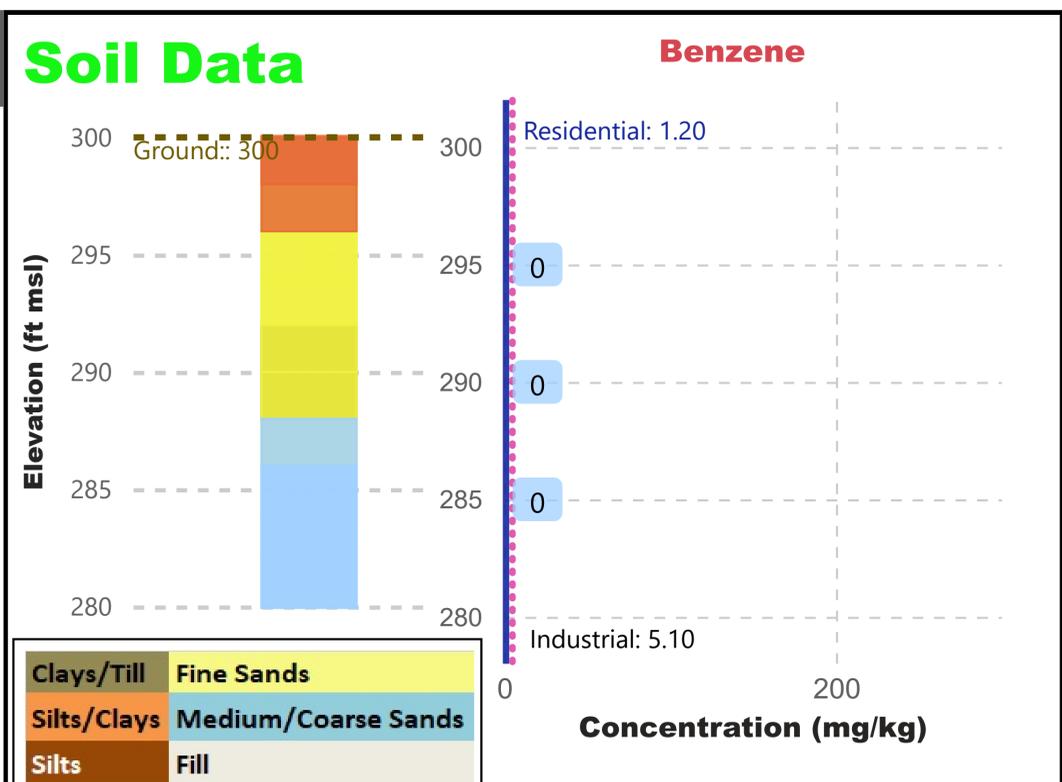
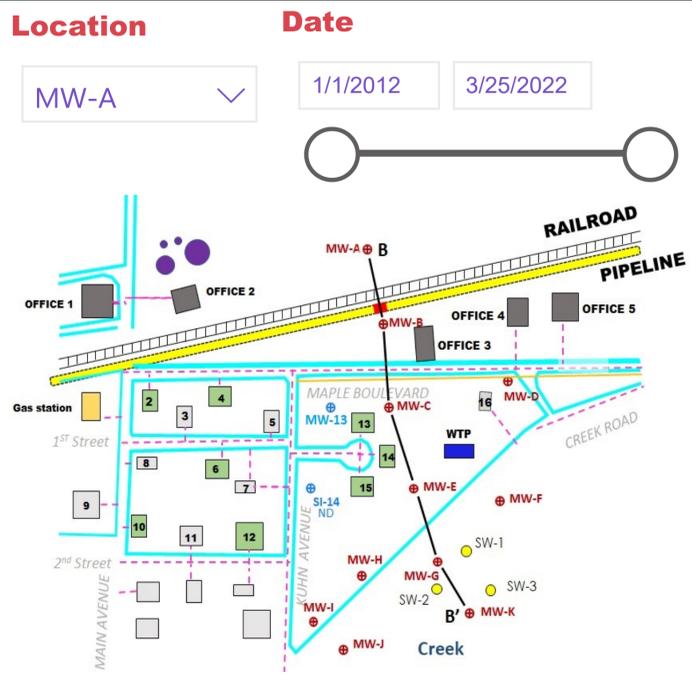


Contaminant	Resident Soil (mg/kg)	Industrial Soil (mg/kg)	Resident Air (ug/m ³)	Resident Soil Vapor (ug/m ³)	Industrial Soil Vapor (ug/m ³)	Groundwater (ug/L)	C _{sat} (mg/kg)
Volatile Organic Compounds:							
Benzene	1.2	5.1	0.36	12	1.8	5	1,820
Toluene	4,900	47,000	5,200	173,000	2,200	1,000	818
Ethylbenzene	5.8	25	1.1	37	5.5	700	480
Xylenes	580	2,500	100	3,300	44	10,000	260
Lead scavengers:							
Dibromoethane, 1,2- (EDB)	0.04	0.16	0.005	0.16	0.022	0.05	1,340
Dichloroethane, 1,2- (DCA)	0.46	2	0.11	3.7	0.520	5	2,980
Polynuclear Aromatic Hydrocarbons:							
Naphthalene	2	8.6	0.08	2.8	0.4	0.12	NA
Total Petroleum Hydrocarbons:							
TPH-GRO (C6-C12)	1,600	3,900	210	290	NA	100	7,000
TPH-DRO (>C12-C28)	2,399	12,000	210	290	NA	100	7,000
TPH-ORO (>C28-C35)	2,300	12,000	210	290	NA	100	7,000
Total Petroleum Hydrocarbons (Aliphatic Low)	520	2,200	630	21,000	2,600	1300	141
Total Petroleum Hydrocarbons (Aliphatic Medium)	96	440	100	3,300	440	100	6.86
Total Petroleum Hydrocarbons (Aliphatic High)	230,000	3,500,000	NA	NA	NA	60,000	0.34
Total Petroleum Hydrocarbons (Aromatic Low)	82	420	31	1,000	130	33	1,820
Total Petroleum Hydrocarbons (Aromatic Medium)	97	560	3.1	100	13	6	NA
Total Petroleum Hydrocarbons (Aromatic High)	2,400	30,000	NA	NA	NA	800	NA

mg/kg = milligram per kilogram
 ug/L = microgram per liter

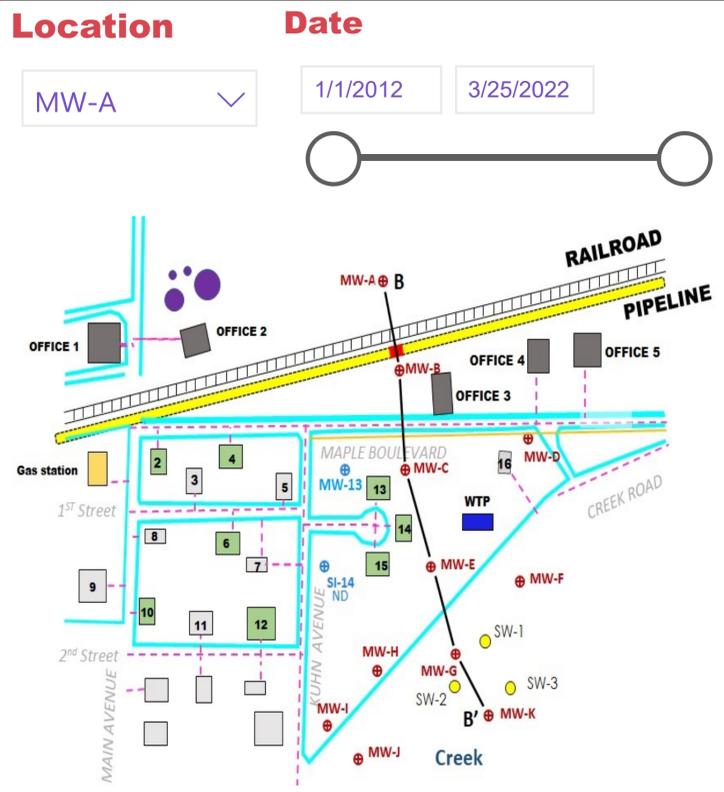
ug/m³ = microgram per cubic meter
 NA = value not available

C_{sat} = soil saturation limit

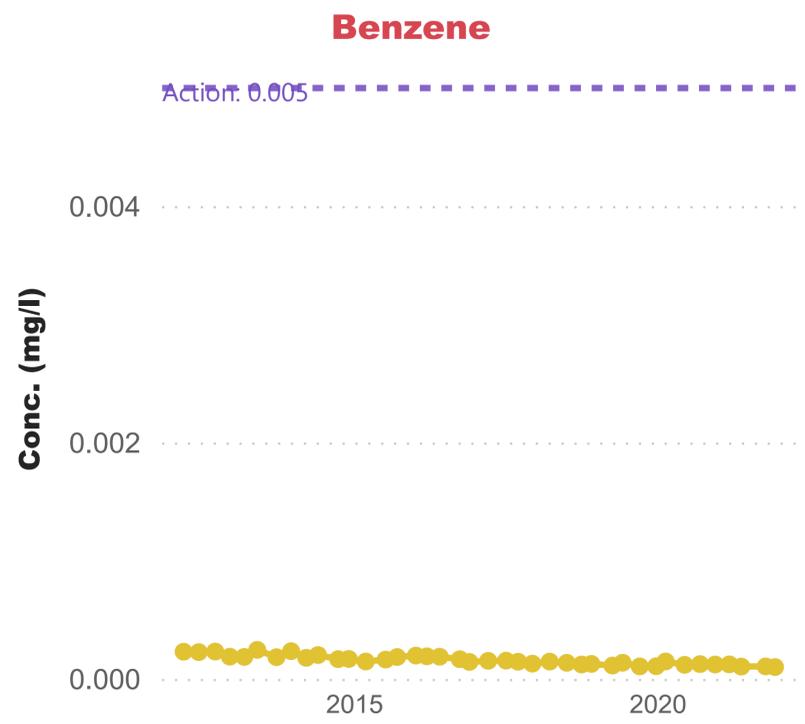


MW-A Soil and Soil Gas Summary

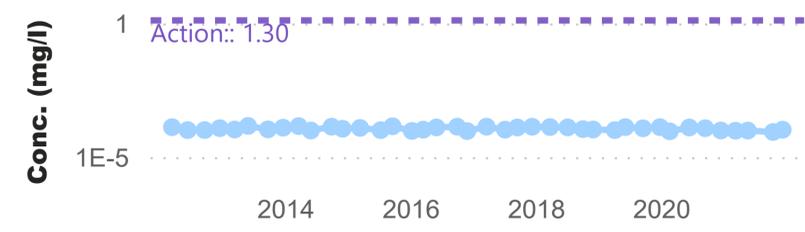
Clays/Till	Fine Sands	<table border="1"> <tr><td>EC5-6</td><td>EC5-7</td><td>EC6-8</td><td>EC8-10</td><td>EC10-12</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35 (same properties as EC16-21) -- not considered a transport fraction--</td></tr> <tr><td>Low</td><td>Low</td><td>Low</td><td>Low</td><td>Low</td><td>Low</td><td>Low</td><td>High</td></tr> </table>				EC5-6	EC5-7	EC6-8	EC8-10	EC10-12	EC12-16	EC16-21	EC21-35 (same properties as EC16-21) -- not considered a transport fraction--	Low	Low	Low	Low	Low	Low	Low	High	EPA 6 Toxicity Fractions Increasing Equivalent Carbon (EC) Number →
EC5-6	EC5-7	EC6-8	EC8-10	EC10-12	EC12-16	EC16-21	EC21-35 (same properties as EC16-21) -- not considered a transport fraction--															
Low	Low	Low	Low	Low	Low	Low	High															
Silts/Clays	Medium/Coarse Sands	<table border="1"> <tr><td>EC9-11</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>Low</td><td>Low</td><td>Medium</td><td>High</td></tr> </table>				EC9-11	EC12-16	EC16-21	EC21-35	Low	Low	Medium	High									
EC9-11	EC12-16	EC16-21	EC21-35																			
Low	Low	Medium	High																			
Silts	Fill	<table border="1"> <tr><td>EC16-21</td><td>EC22-35</td></tr> <tr><td>Low</td><td>High</td></tr> </table>				EC16-21	EC22-35	Low	High													
EC16-21	EC22-35																					
Low	High																					



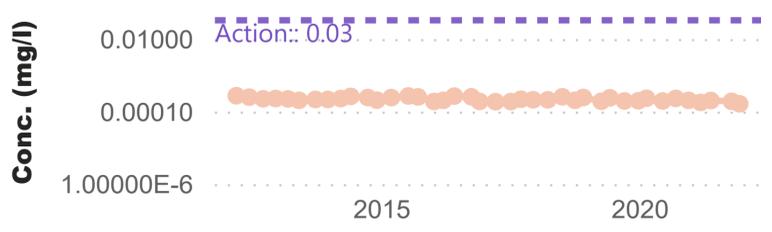
Dissolved Phase



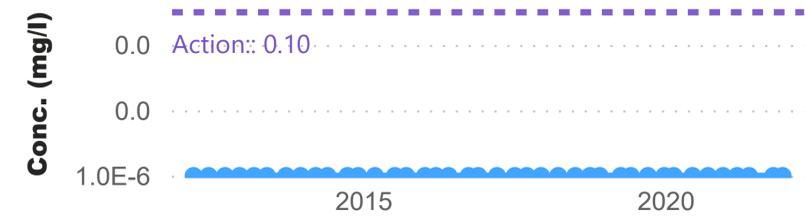
TPH-Aliphatic (Low)



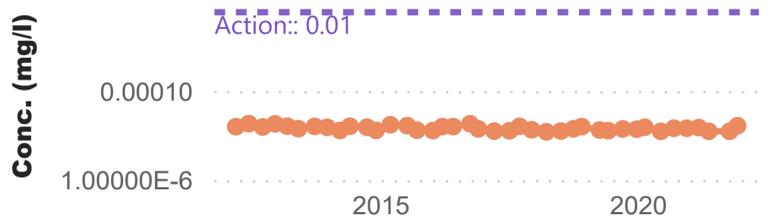
TPH-Aromatic (Low)



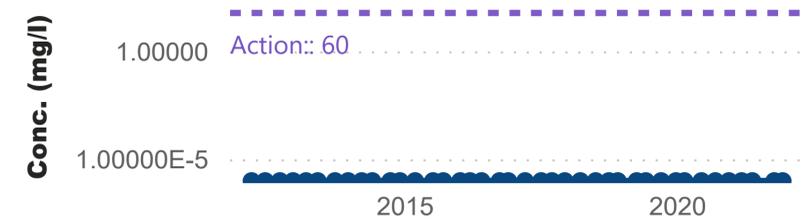
TPH-Aliphatic (Medium)



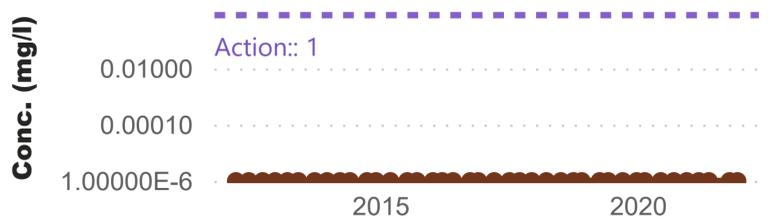
TPH-Aromatic (Medium)



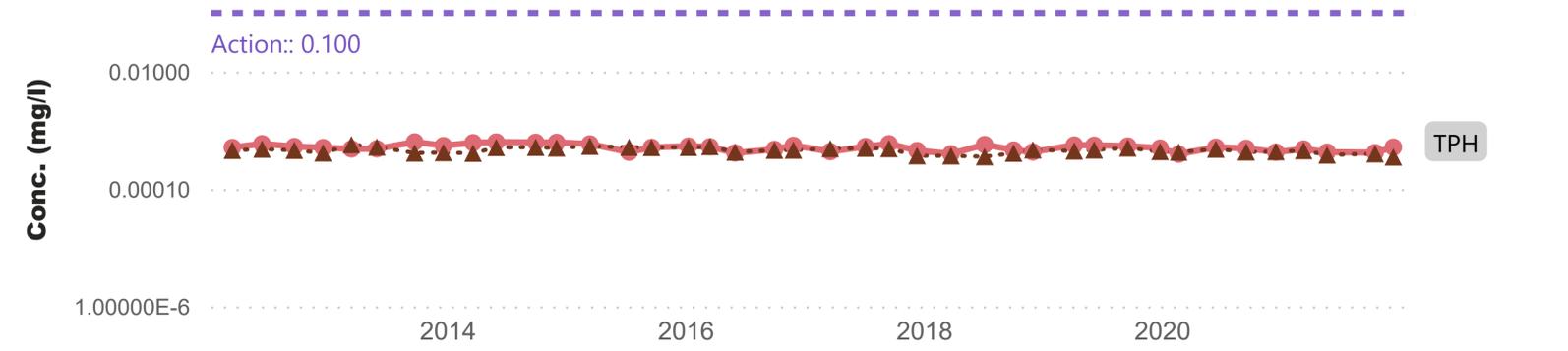
TPH-Aliphatic (High)



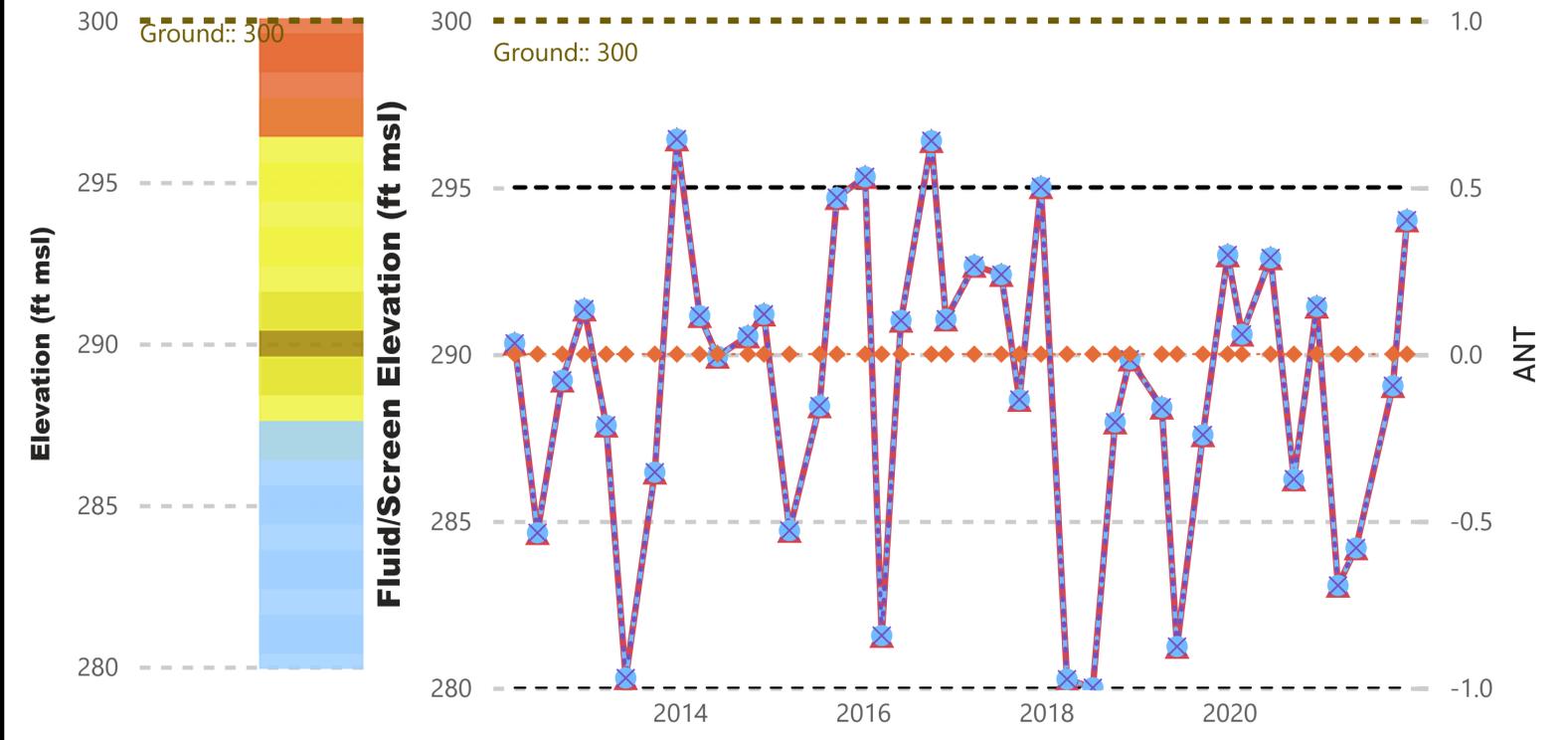
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

Molecular Structure	EC5-7	EC8-10	EC10-12	EC12-16	EC16-21	EC21-35
Aliphatic	EC5-7	EC8-10	EC10-12	EC12-16	EC16-21	EC21-35 (same properties as EC16-21) -- not considered a transport fraction--
Aromatic	EC5-7	EC8-10	EC10-12	EC12-16	EC16-21	EC21-35

Molecular Structure	EC5-8	EC8-16	EC16-35
Aliphatic	EC5-8	EC8-16	EC16-35
Aromatic	EC5-8	EC9-22	EC22-35

TPH Criteria Working Group 13 Transport Fractions

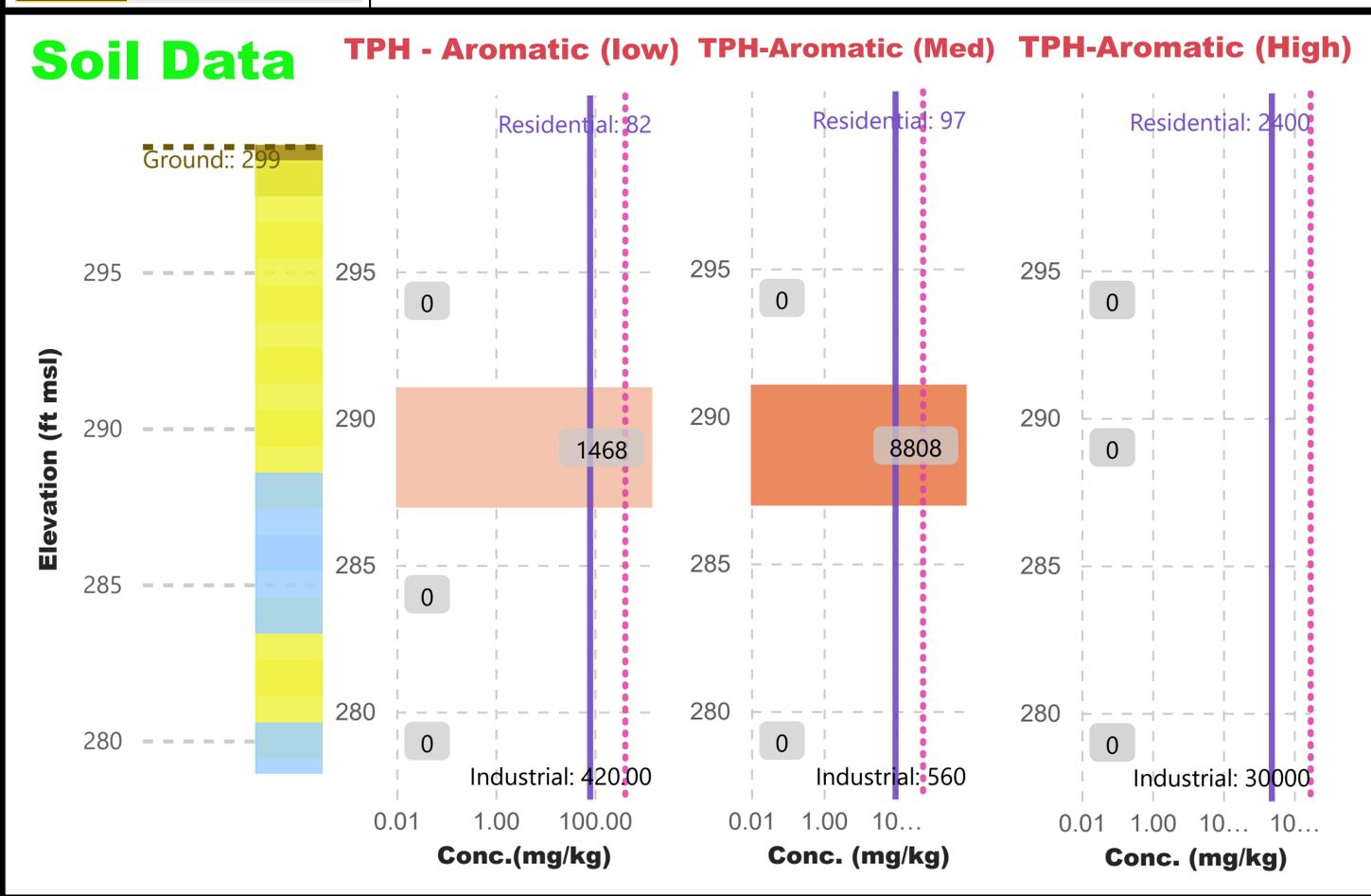
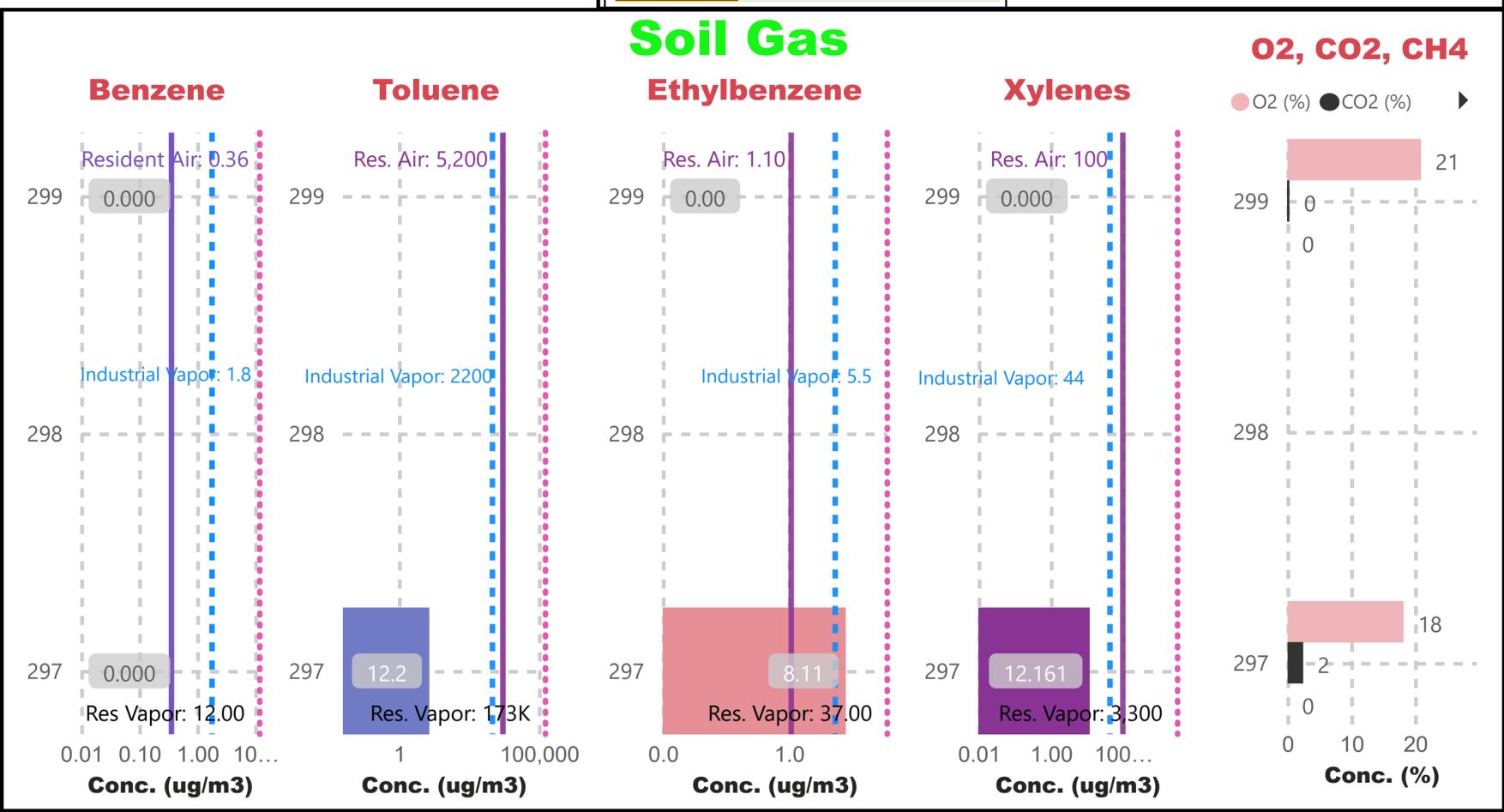
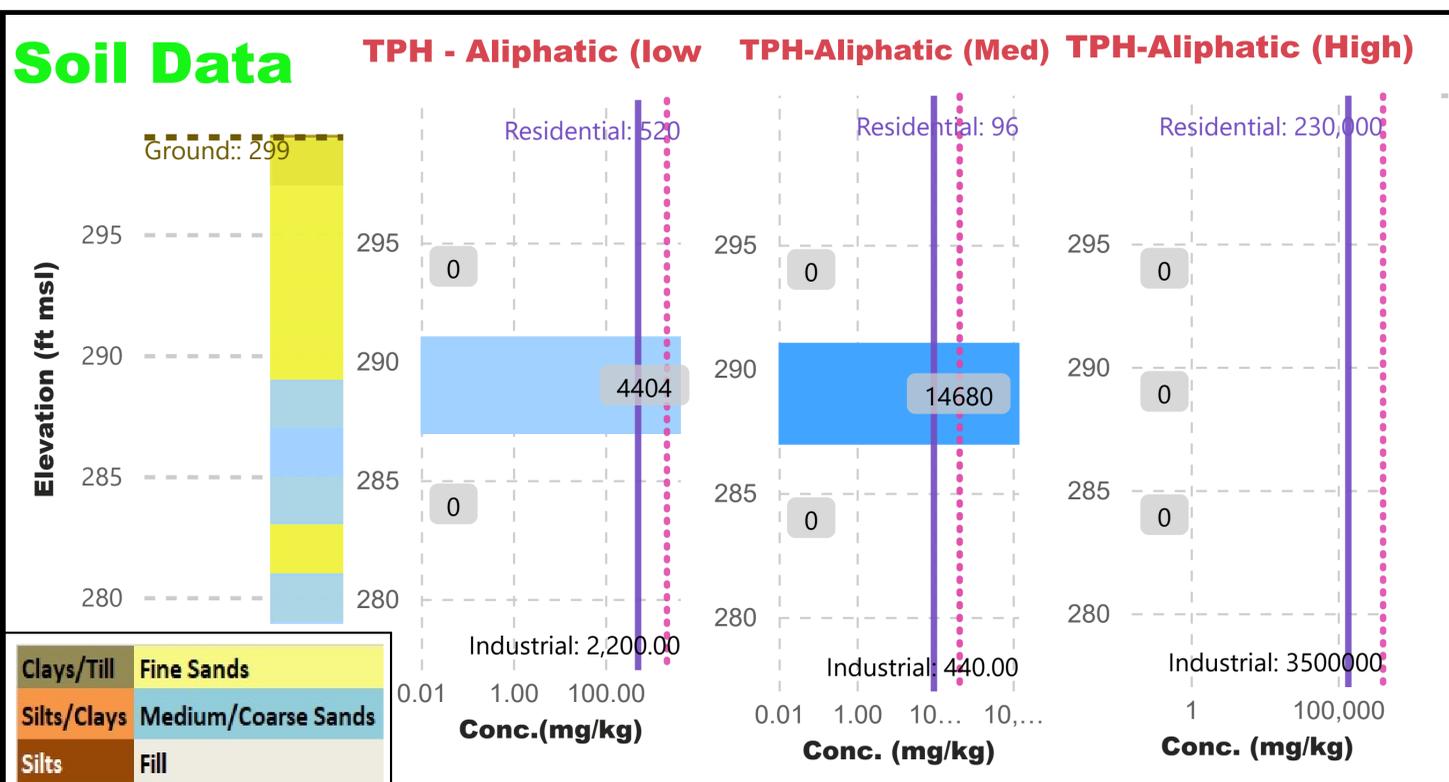
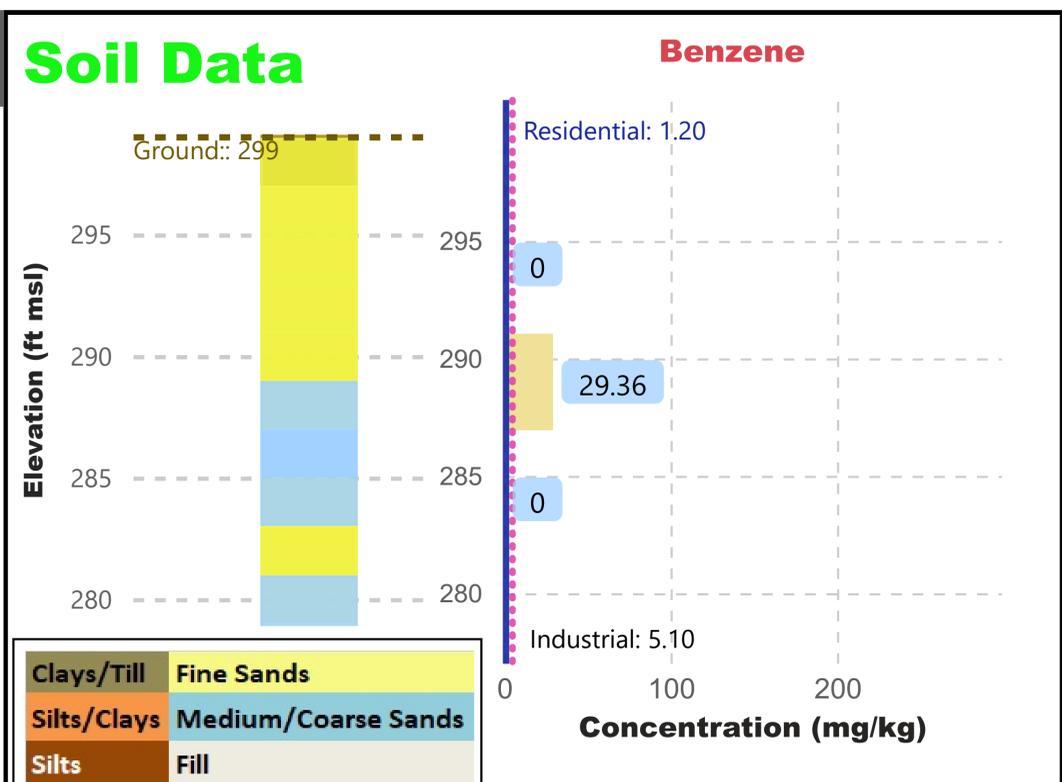
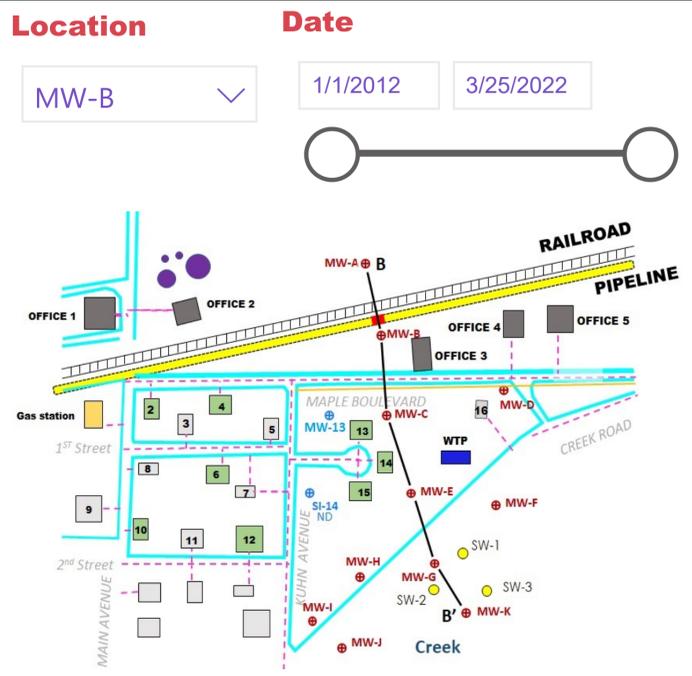
Increasing Equivalent Carbon (EC) Number →

EPA 6 Toxicity Fractions

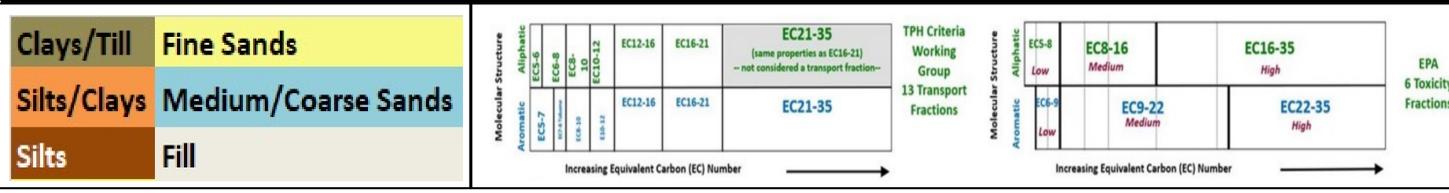
Clays/Till	Fine Sands	--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
Silts	Fill	● NAPL/Water Interface	NWI	

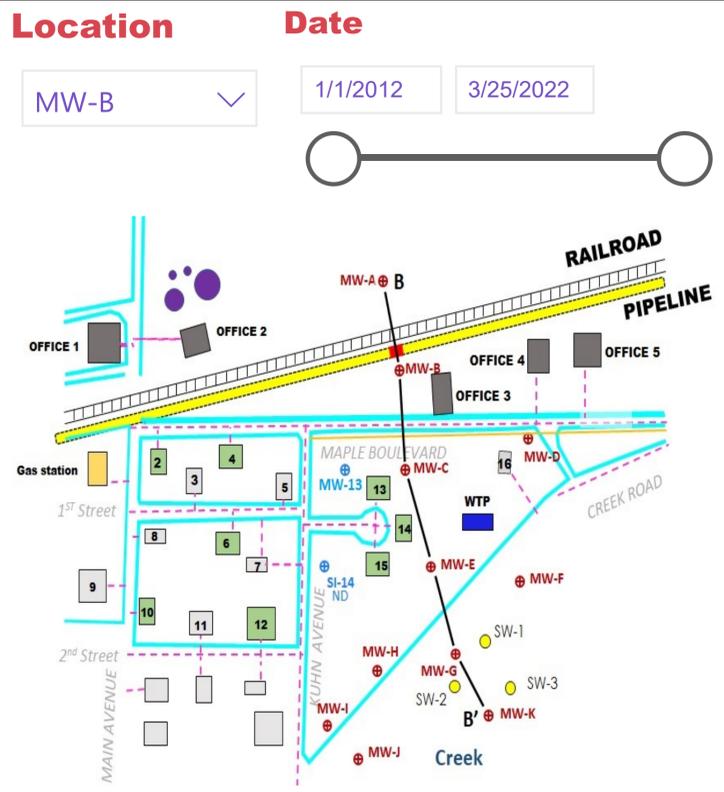
MW-A

Hydrograph & Dissolved Summary

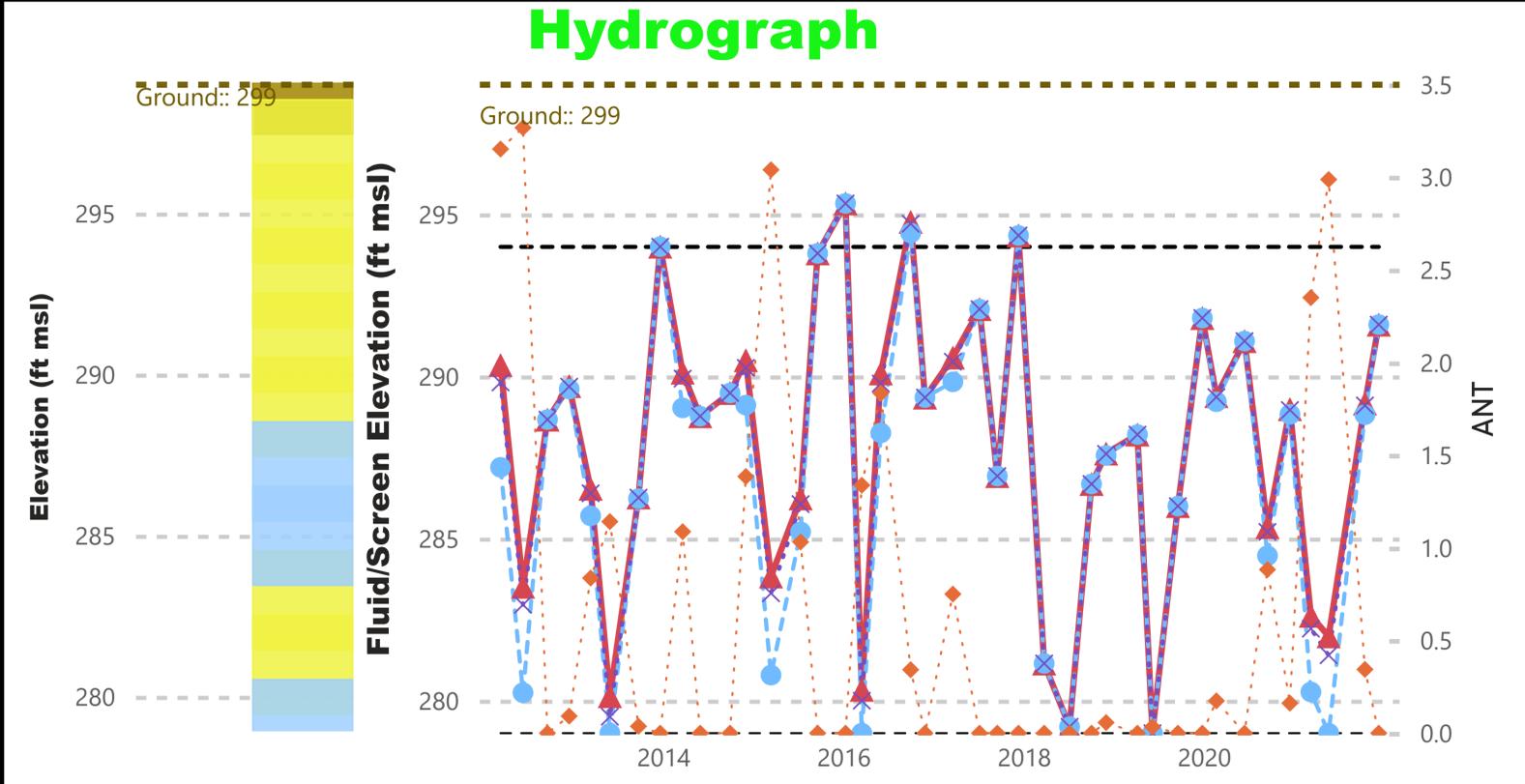
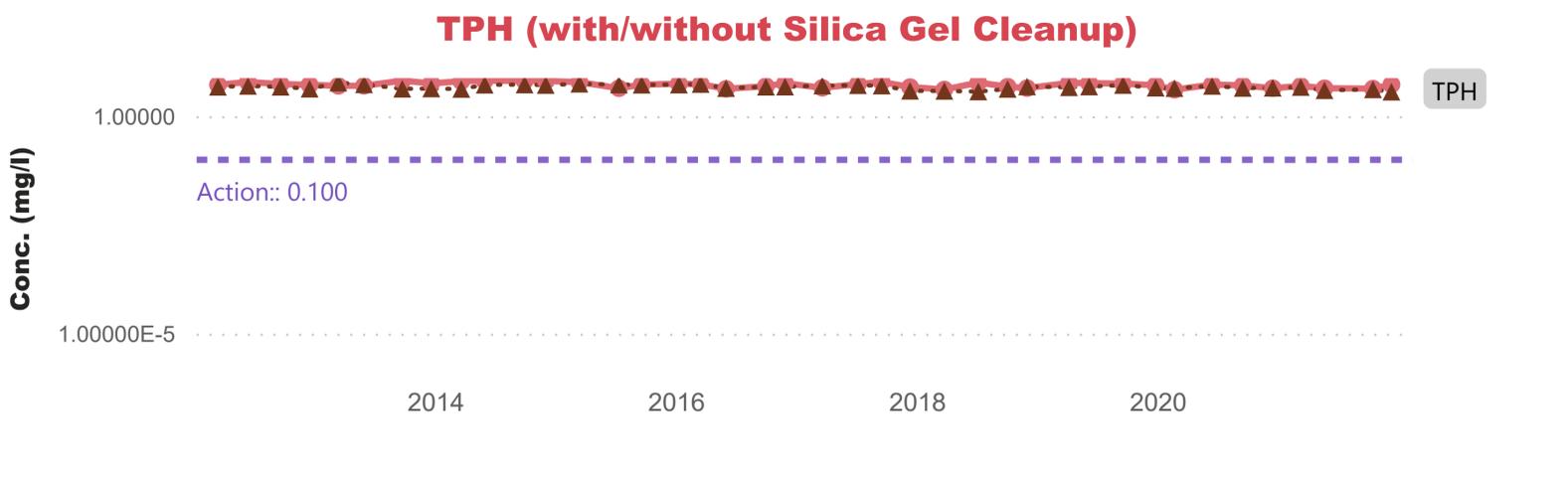
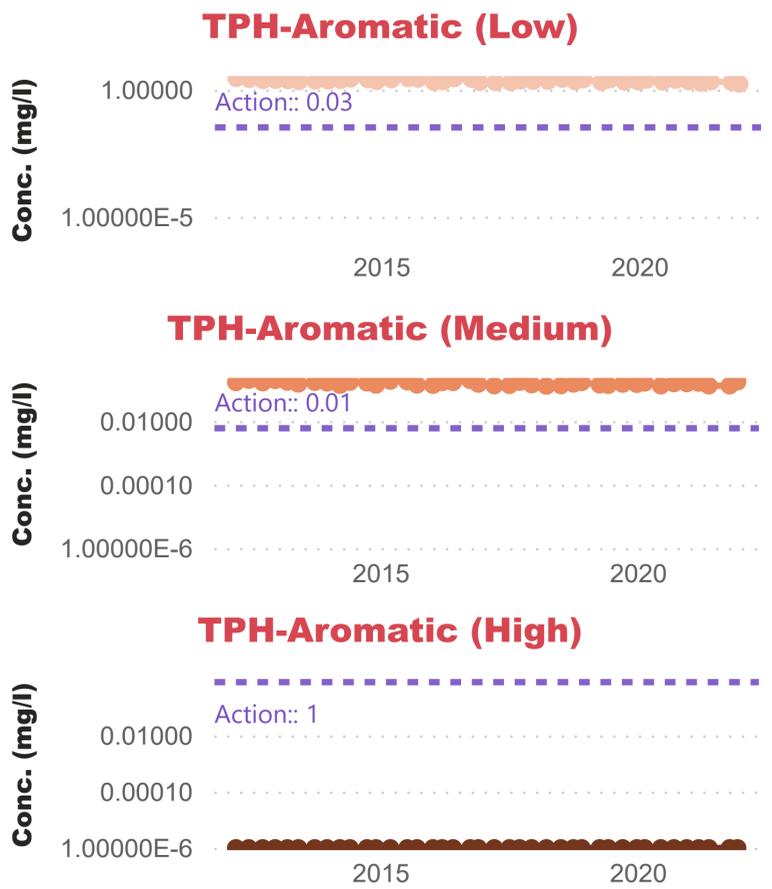
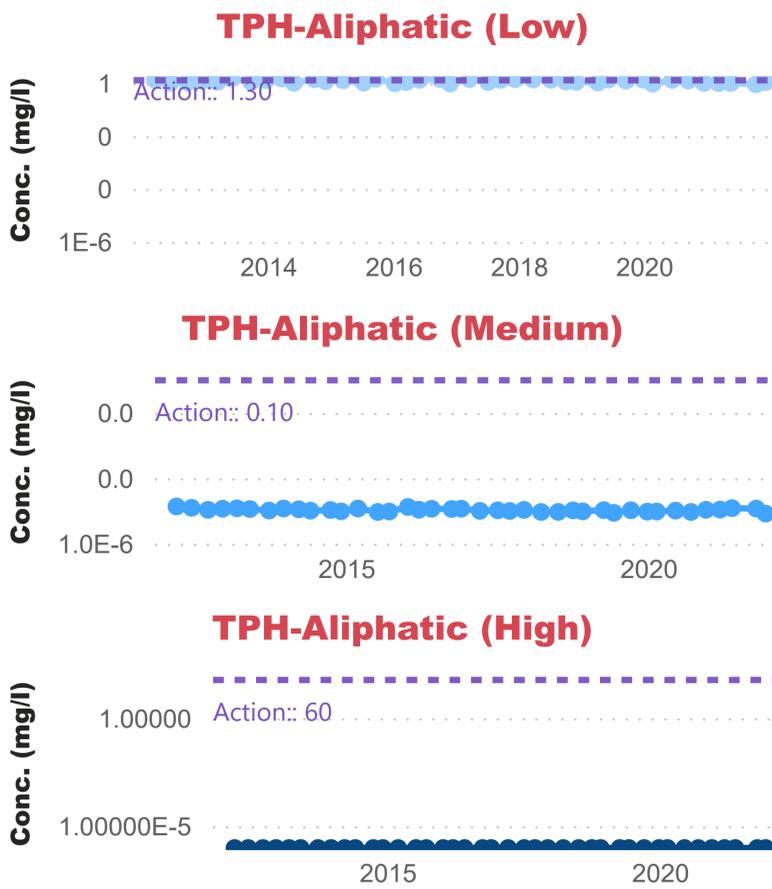
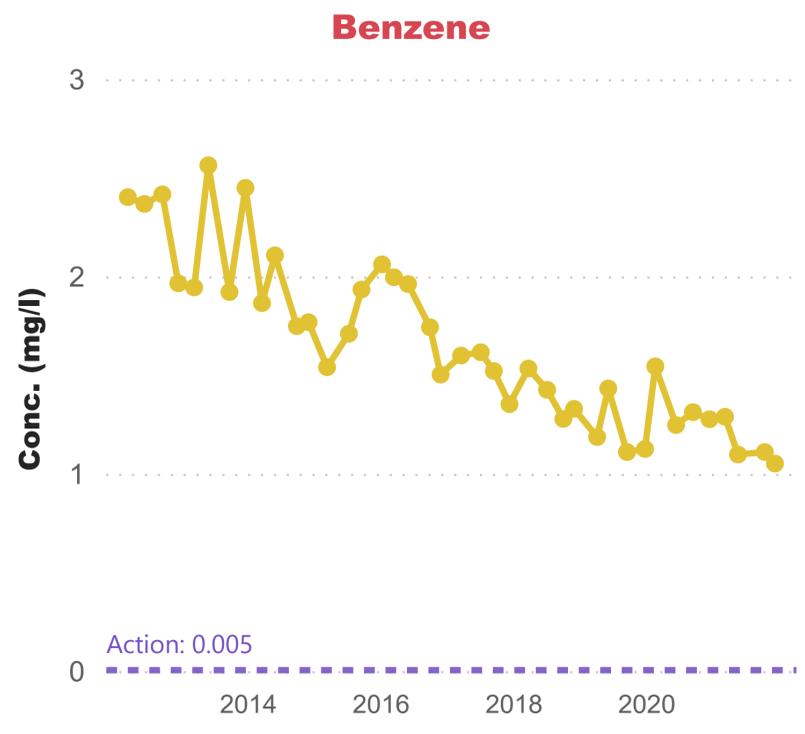


MW-B Soil and Soil Gas Summary





Dissolved Phase



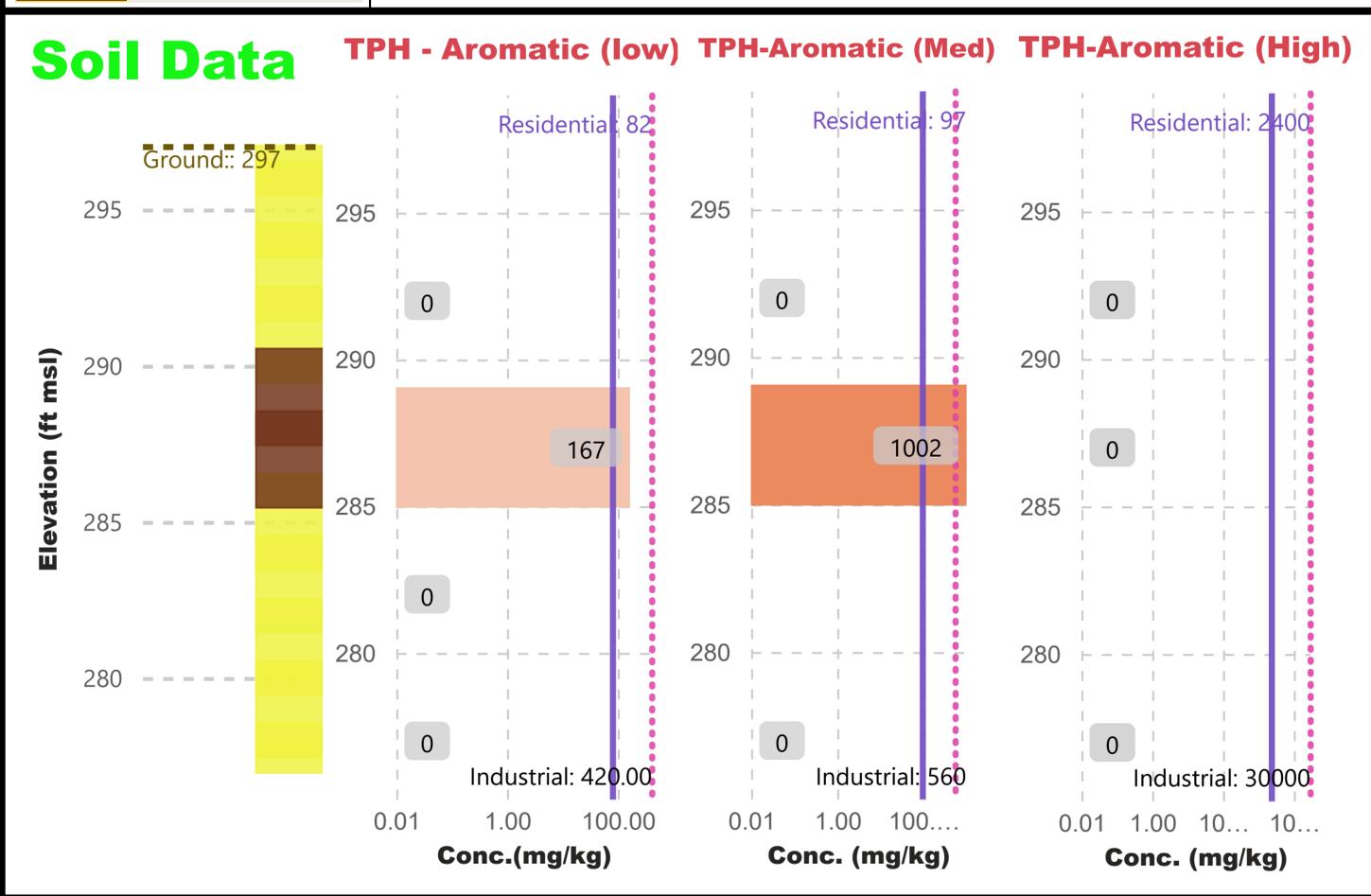
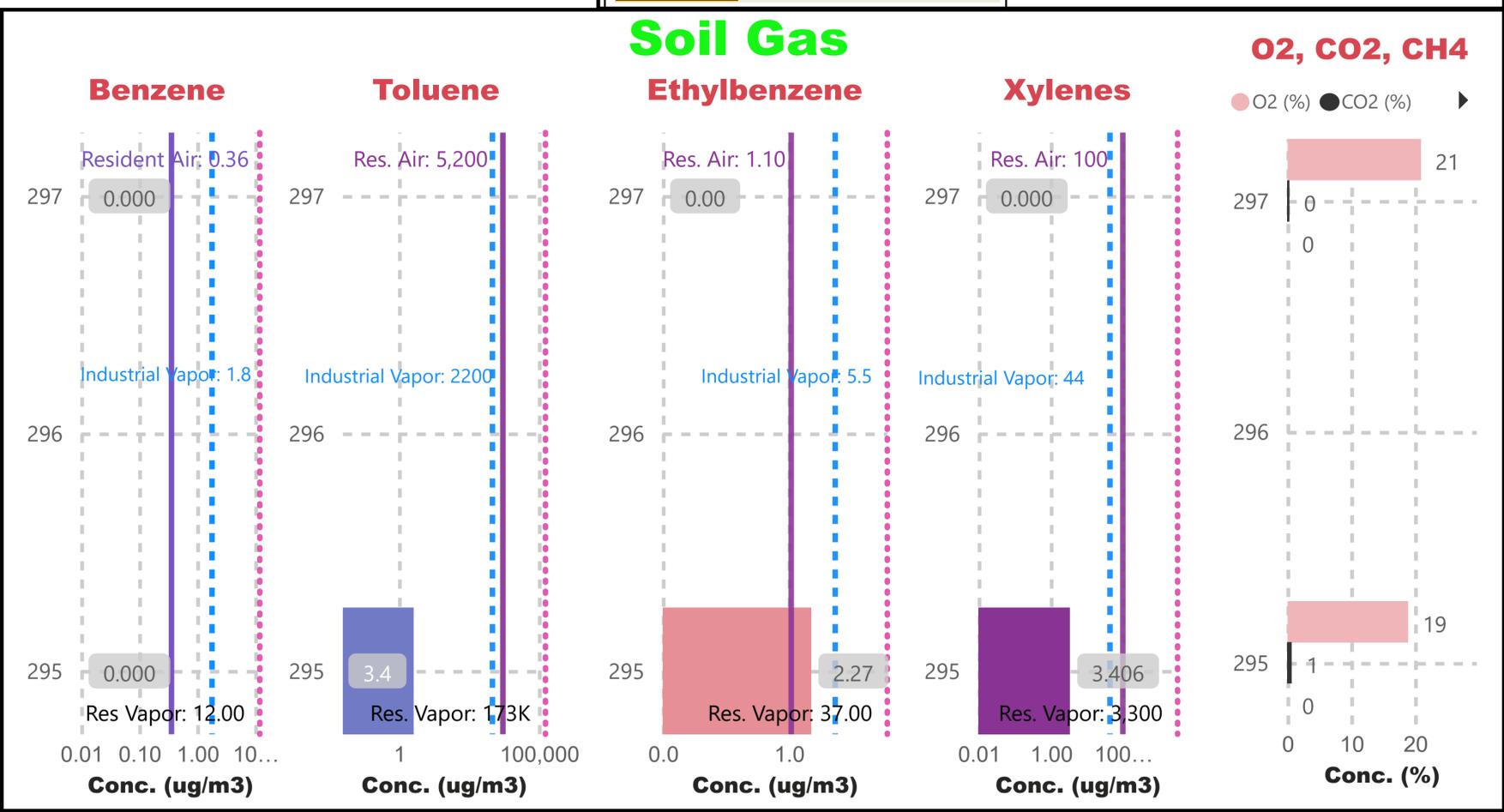
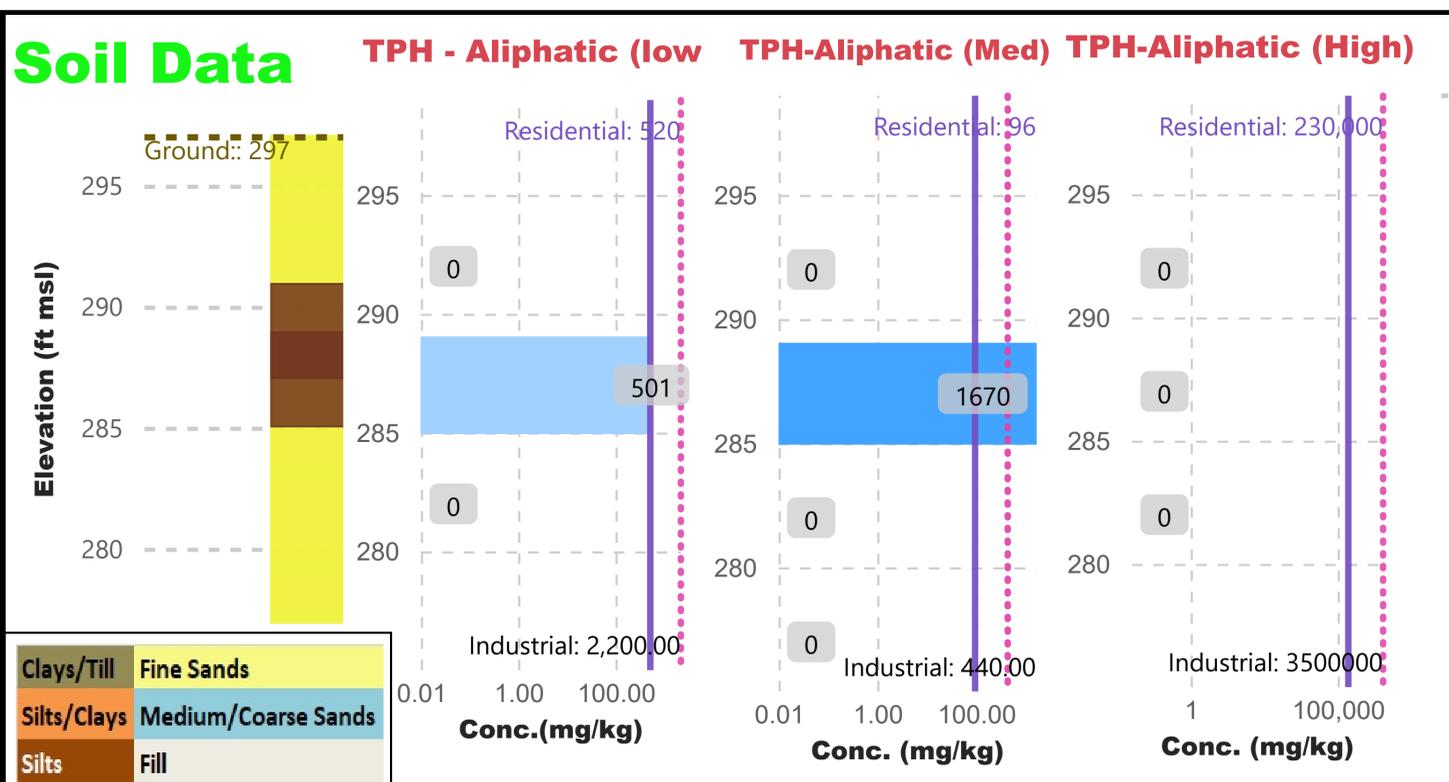
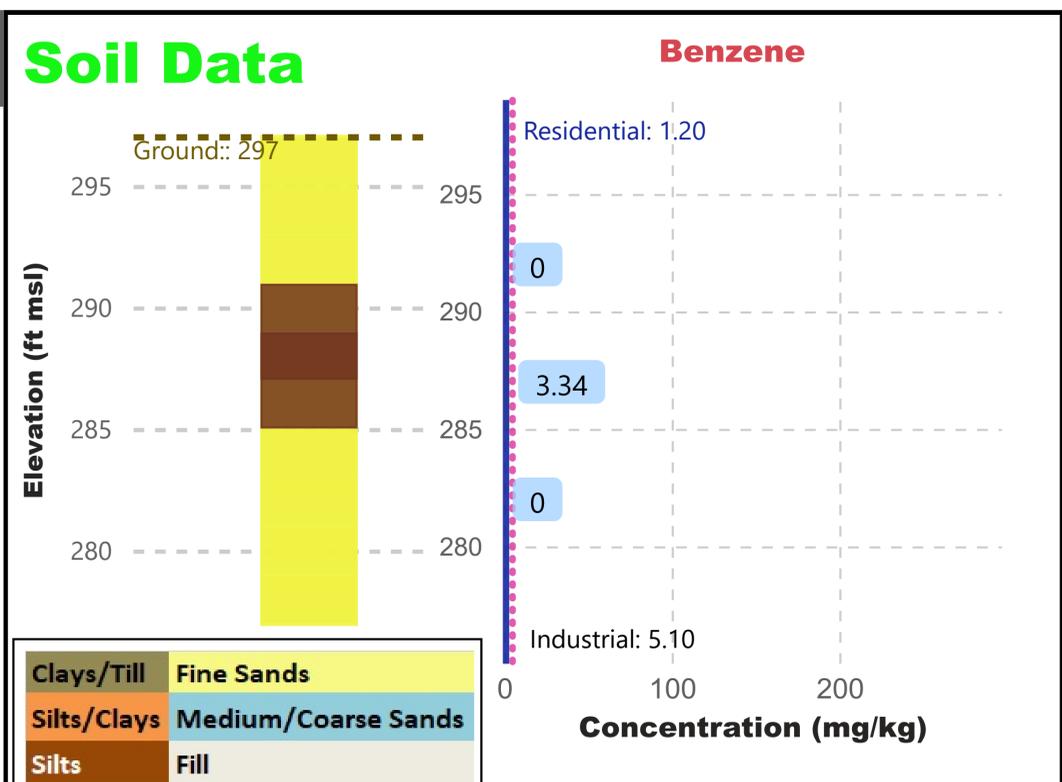
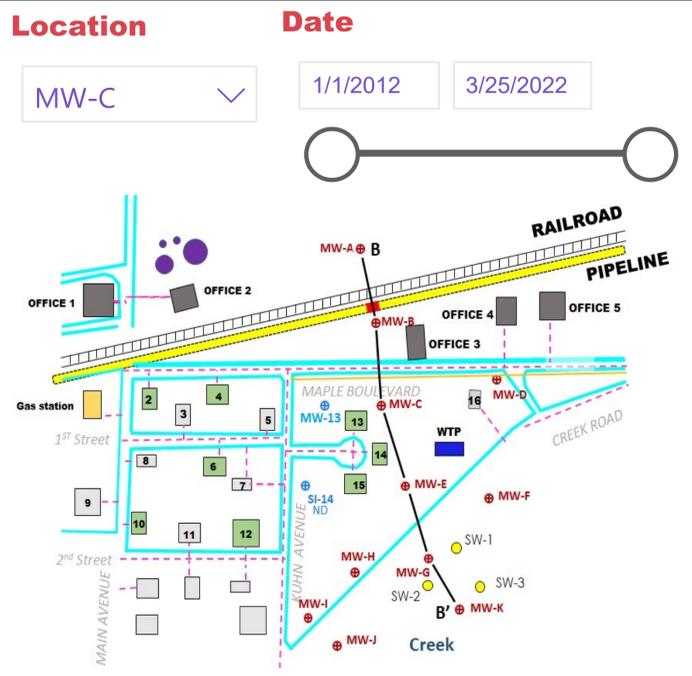
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Molecular Structure	Aliphatic	Aromatic	Working Group	13 Transport Fractions	EPA 6 Toxicity Fractions
EC5-6	Low	EC8-16	Medium	EC16-35	High
EC7-10	Low	EC9-22	Medium	EC22-35	High
EC11-12	Low	EC12-16	Medium	EC16-21	High
EC13-14	Low	EC15-16	Medium	EC17-21	High
EC15-16	Low	EC17-21	Medium	EC21-35	High
EC17-21	Low	EC21-35	Medium	EC21-35	High

Increasing Equivalent Carbon (EC) Number

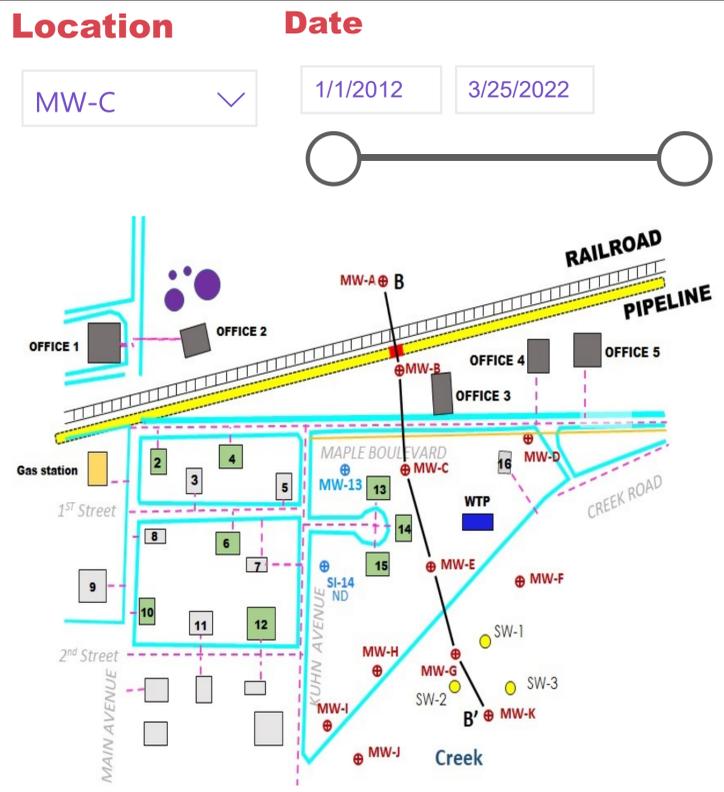
Clays/Till	Fine Sands	---	Screen	TOS/BOS	X	Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲	Air/NAPL Interface	ANI	◆	Apparent NAPL Thickness ANT
Silts	Fill	●	NAPL/Water Interface	NWI		

MW-B Hydrograph & Dissolved Summary



MW-C Soil and Soil Gas Summary

Clays/Till	Fine Sands	<table border="1"> <tr><td>EC5-6</td><td>EC8-16</td><td>EC16-35</td></tr> <tr><td>Low</td><td>Medium</td><td>High</td></tr> </table>		EC5-6	EC8-16	EC16-35	Low	Medium	High	EPA 6 Toxicity Fractions Increasing Equivalent Carbon (EC) Number →		
EC5-6	EC8-16	EC16-35										
Low	Medium	High										
Silts/Clays	Medium/Coarse Sands	<table border="1"> <tr><td>EC7-10</td><td>EC9-22</td><td>EC22-35</td></tr> <tr><td>Low</td><td>Medium</td><td>High</td></tr> </table>		EC7-10	EC9-22	EC22-35	Low	Medium	High			
EC7-10	EC9-22	EC22-35										
Low	Medium	High										
Silts	Fill	<table border="1"> <tr><td>EC11-12</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>Low</td><td>Medium</td><td>High</td><td>High</td></tr> </table>		EC11-12	EC12-16	EC16-21	EC21-35	Low	Medium	High	High	EPA 6 Toxicity Fractions Increasing Equivalent Carbon (EC) Number →
EC11-12	EC12-16	EC16-21	EC21-35									
Low	Medium	High	High									

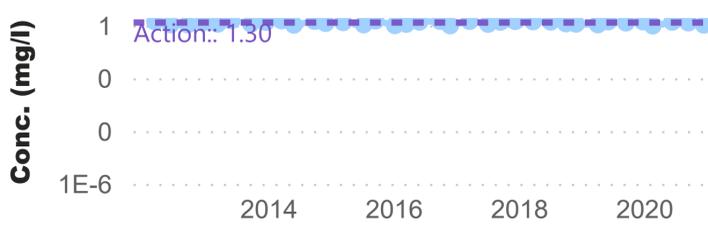


Dissolved Phase

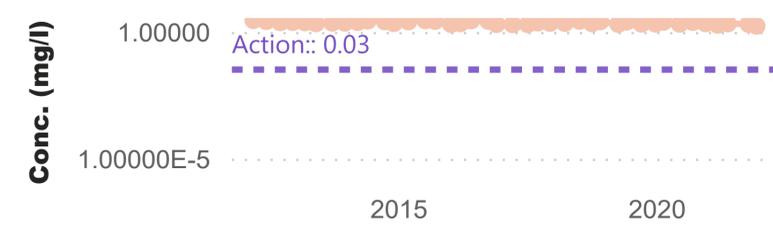
Benzene



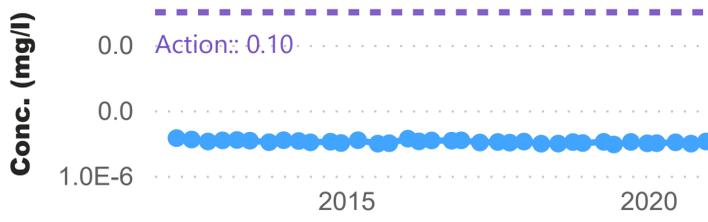
TPH-Aliphatic (Low)



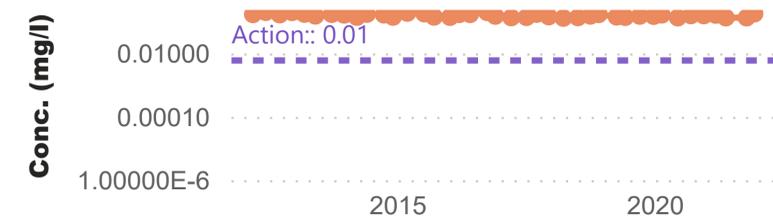
TPH-Aromatic (Low)



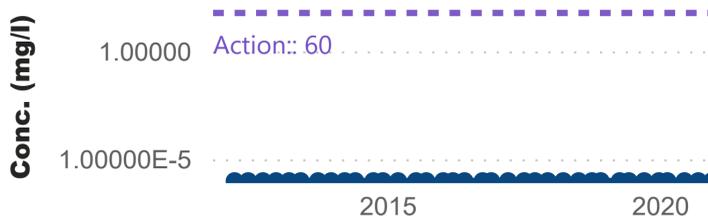
TPH-Aliphatic (Medium)



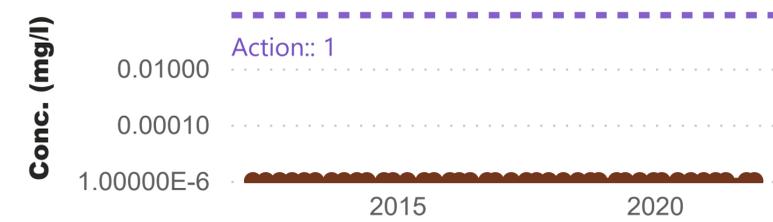
TPH-Aromatic (Medium)



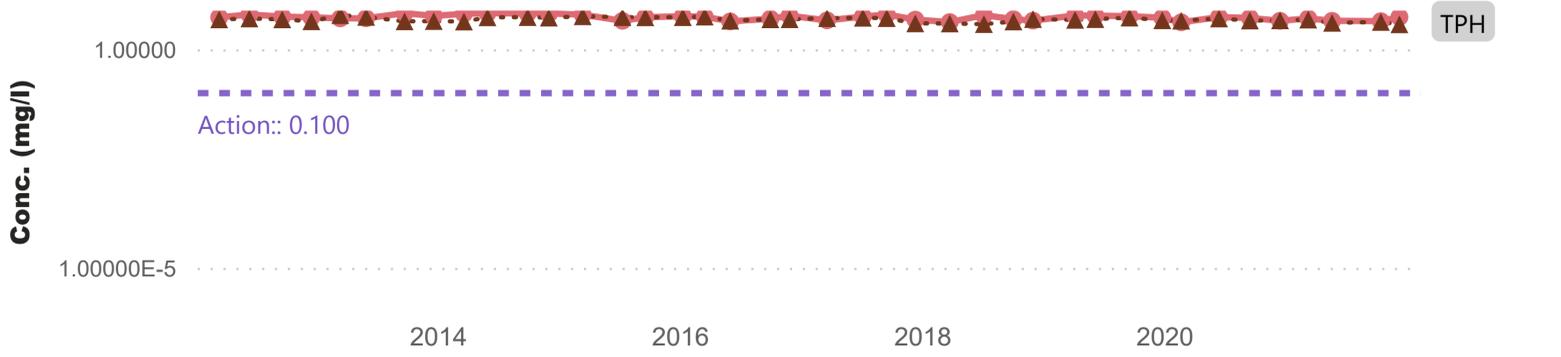
TPH-Aliphatic (High)



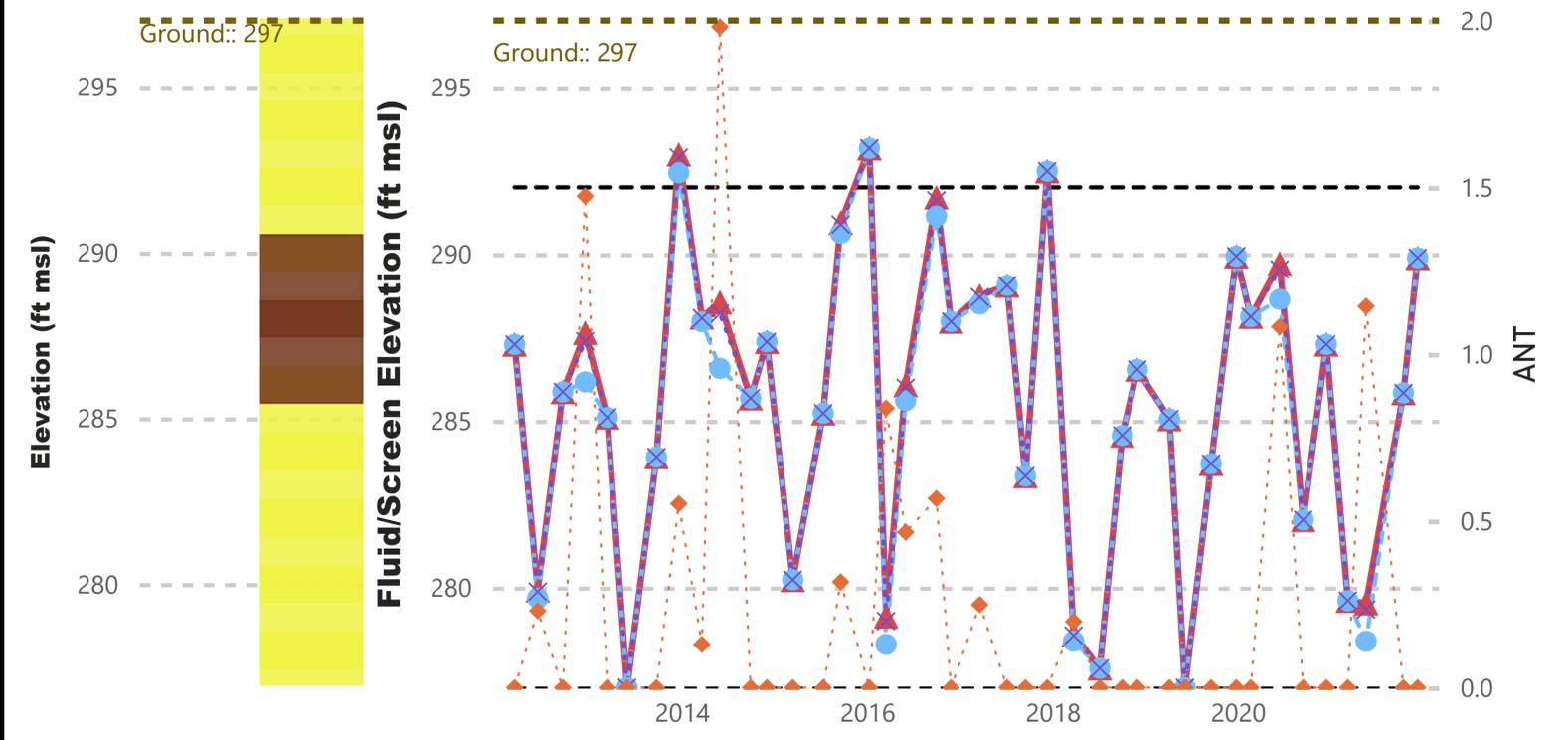
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



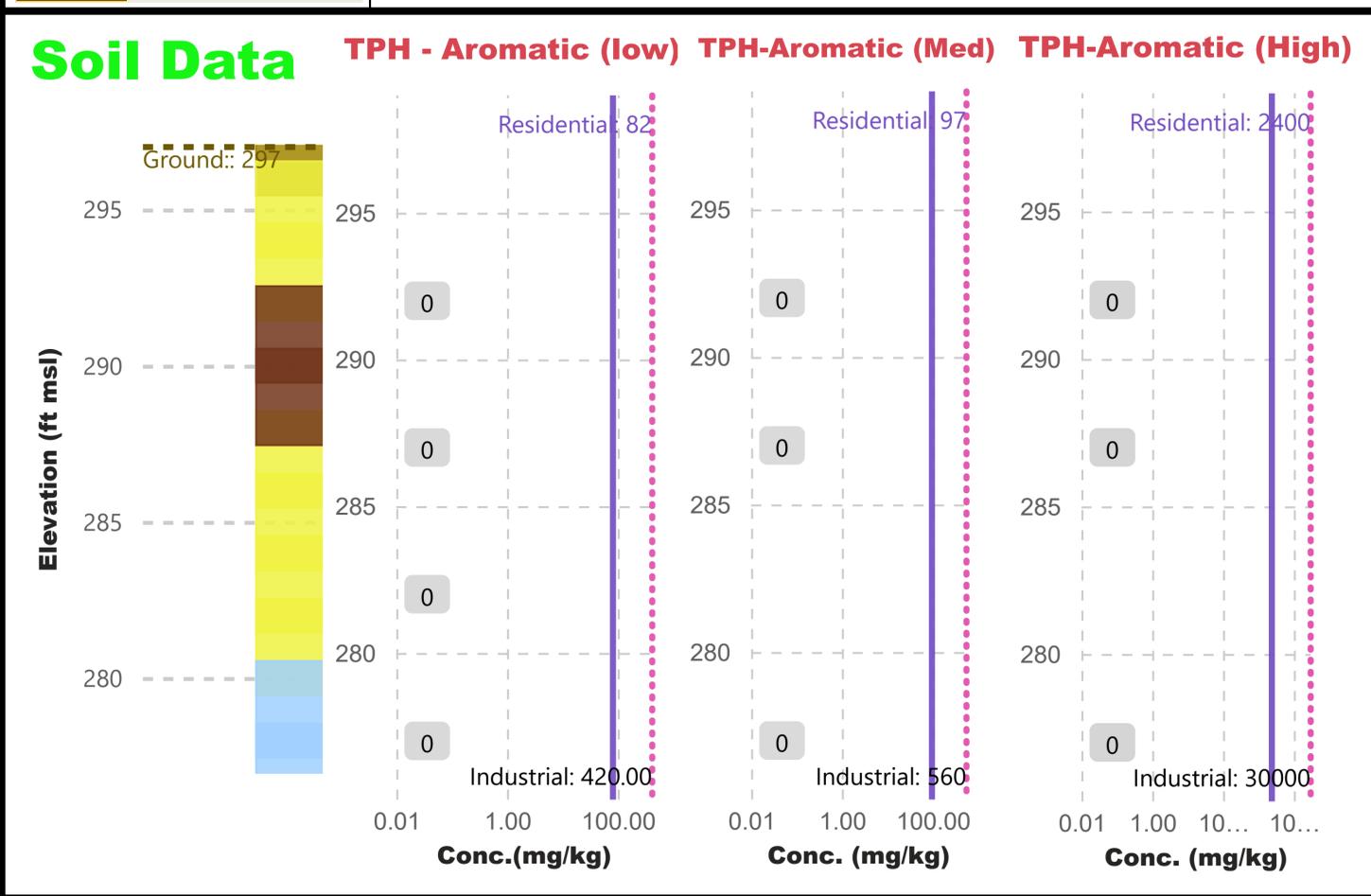
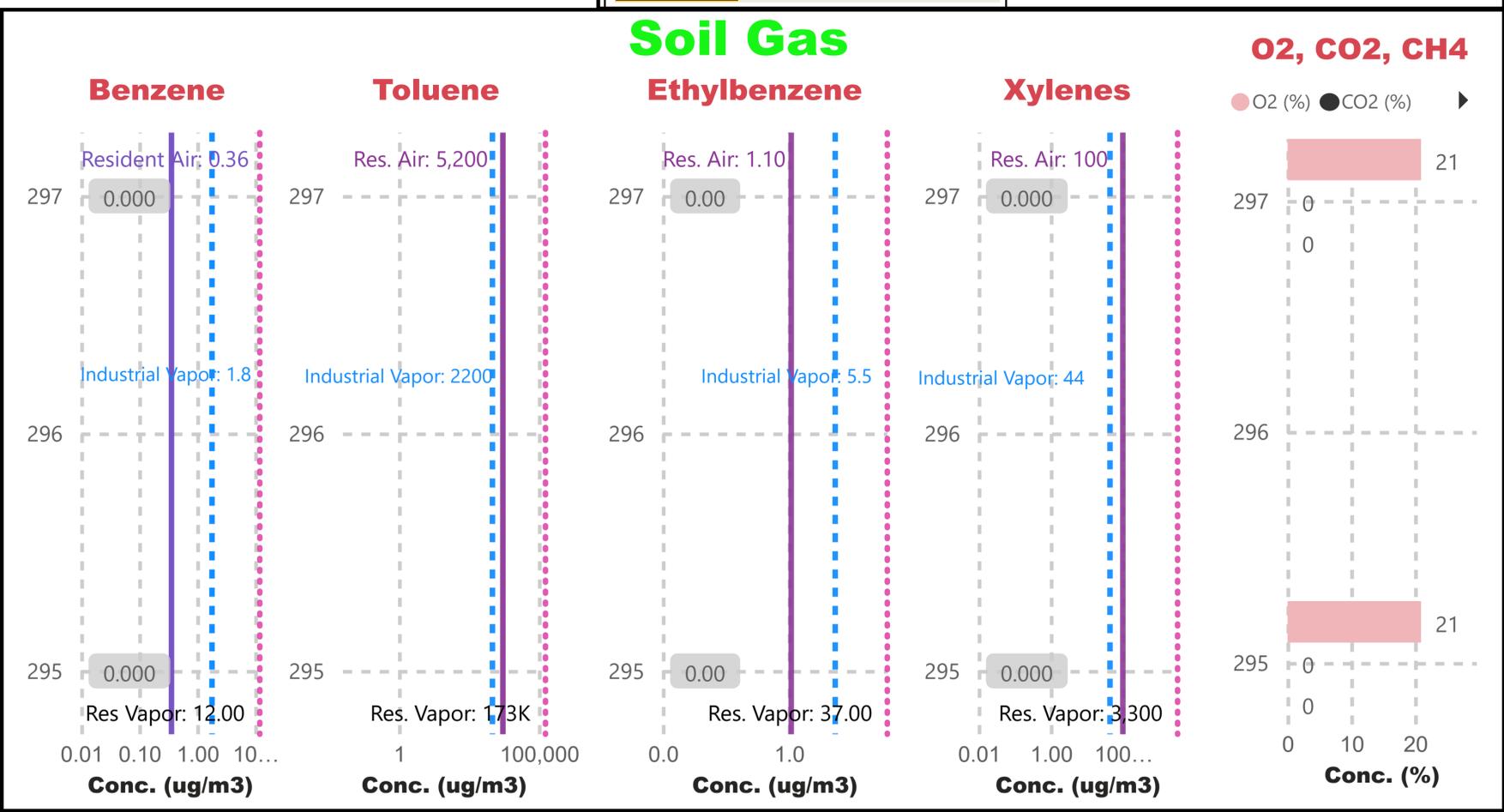
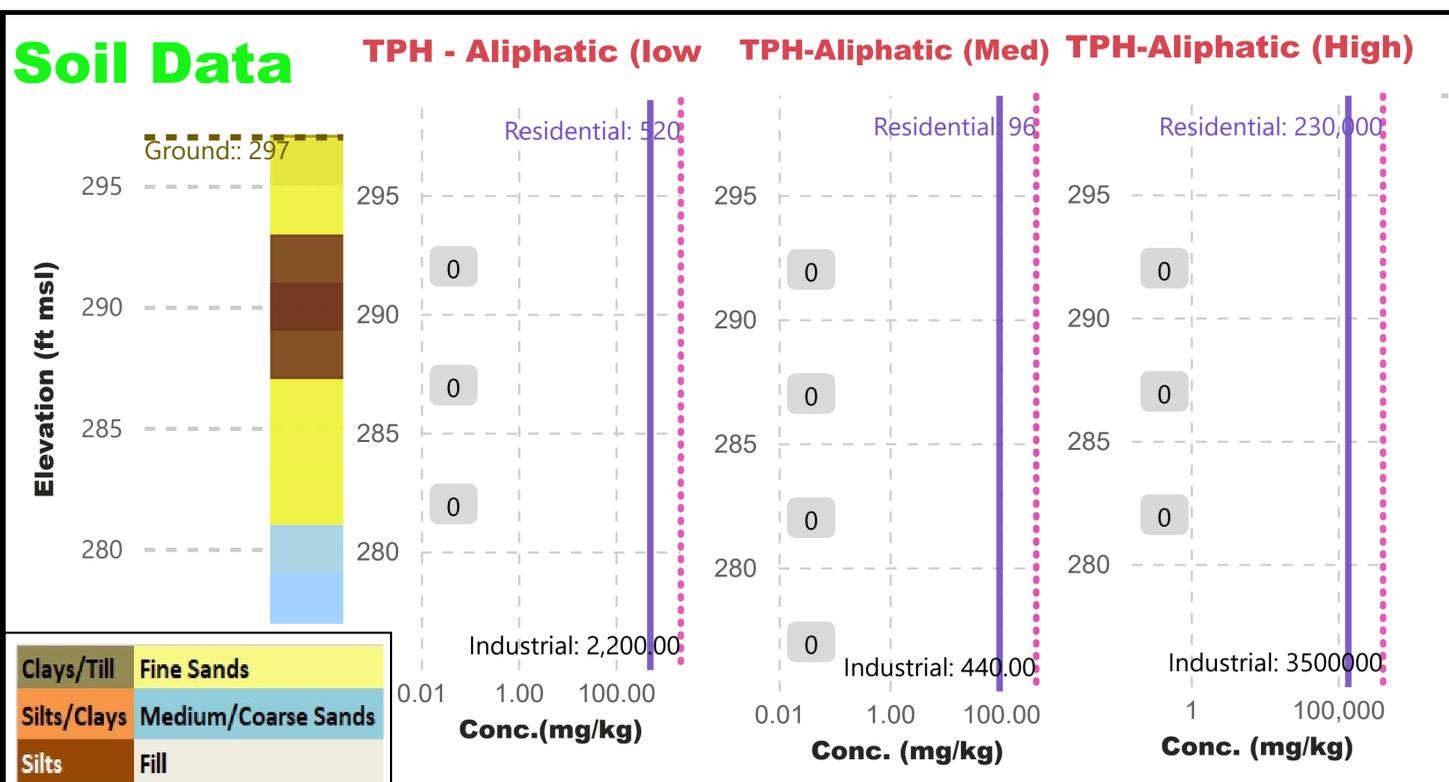
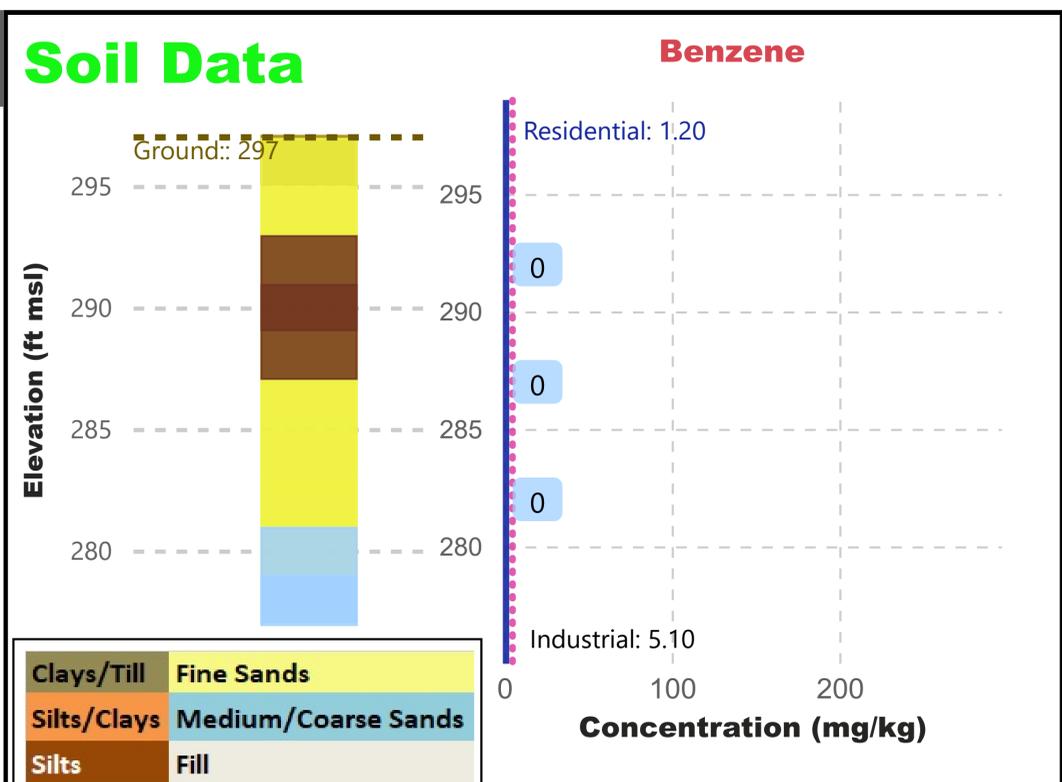
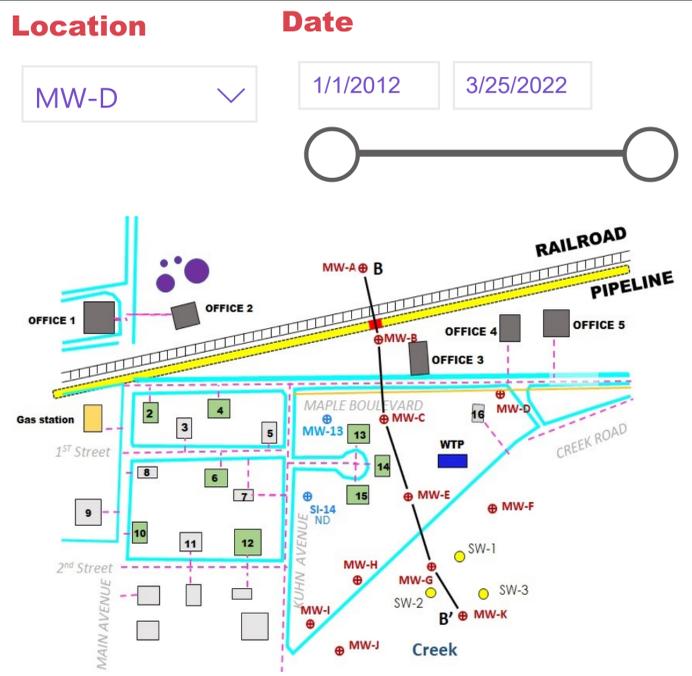
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Molecular Structure	Aliphatic	Aromatic	TPH Criteria Working Group 13 Transport Fractions	EPA 6 Toxicity Fractions
EC5-6	EC5-6	EC5-6	Low	Low
EC7-8	EC7-8	EC7-8	Low	Low
EC9-10	EC9-10	EC9-10	Medium	Medium
EC11-12	EC11-12	EC11-12	Medium	Medium
EC13-14	EC13-14	EC13-14	Medium	Medium
EC15-16	EC15-16	EC15-16	High	High
EC17-18	EC17-18	EC17-18	High	High
EC19-20	EC19-20	EC19-20	High	High
EC21-22	EC21-22	EC21-22	High	High
EC23-24	EC23-24	EC23-24	High	High
EC25-26	EC25-26	EC25-26	High	High
EC27-28	EC27-28	EC27-28	High	High
EC29-30	EC29-30	EC29-30	High	High
EC31-32	EC31-32	EC31-32	High	High
EC33-34	EC33-34	EC33-34	High	High
EC35	EC35	EC35	High	High

Clays/Till	Fine Sands	---	Screen	TOS/BOS	X	Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲	Air/NAPL Interface	ANI	◆	Apparent NAPL Thickness ANT
Silts	Fill	●	NAPL/Water Interface	NWI		

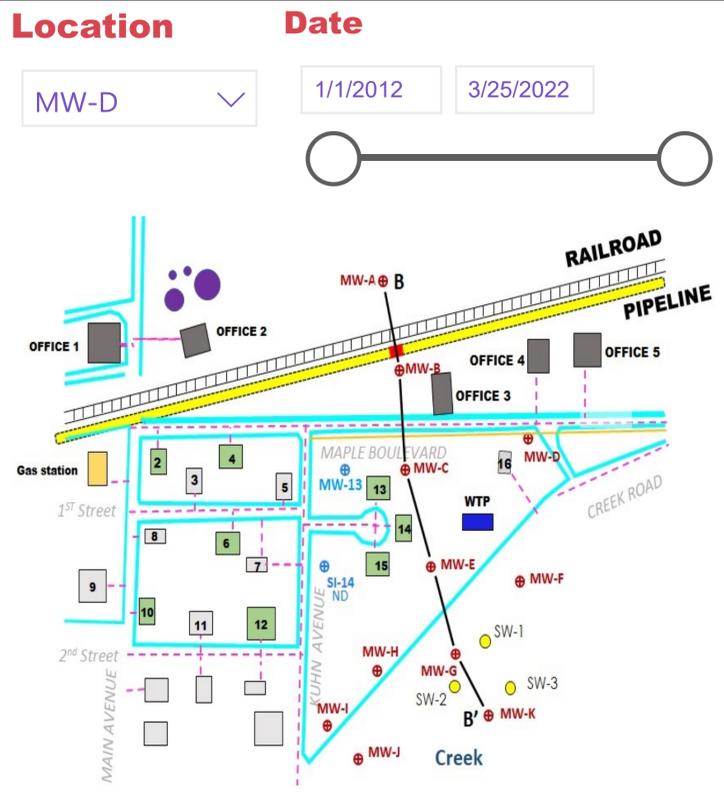
MW-C

Hydrograph & Dissolved Summary

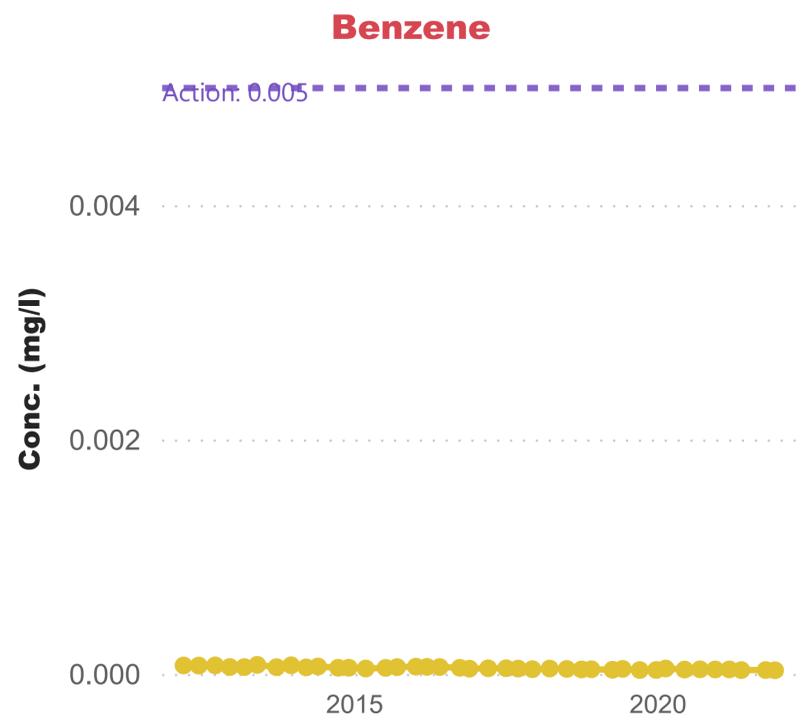


MW-D Soil and Soil Gas Summary

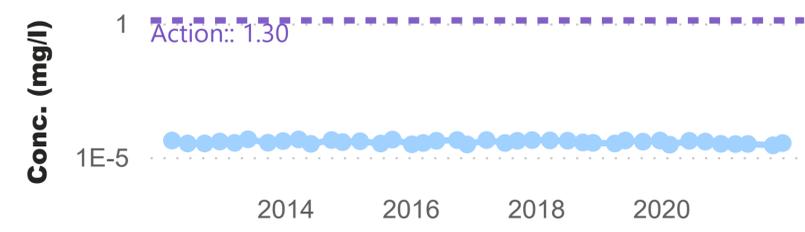
Clays/Till	Fine Sands	<table border="1"> <tr><td>EC5-6</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC6-8</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC7-9</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC10-12</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC13-15</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC14-17</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC18-20</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC19-22</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC23-25</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> </table>		EC5-6	EC12-16	EC16-21	EC21-35	EC6-8	EC12-16	EC16-21	EC21-35	EC7-9	EC12-16	EC16-21	EC21-35	EC10-12	EC12-16	EC16-21	EC21-35	EC13-15	EC12-16	EC16-21	EC21-35	EC14-17	EC12-16	EC16-21	EC21-35	EC18-20	EC12-16	EC16-21	EC21-35	EC19-22	EC12-16	EC16-21	EC21-35	EC23-25	EC12-16	EC16-21	EC21-35	<p>TPH Criteria Working Group 13 Transport Fractions</p> <table border="1"> <tr><td>EC5-8</td><td>EC8-16</td><td>EC16-35</td></tr> <tr><td>Low</td><td>Medium</td><td>High</td></tr> <tr><td>EC6-9</td><td>EC9-22</td><td>EC22-35</td></tr> <tr><td>Low</td><td>Medium</td><td>High</td></tr> </table>	EC5-8	EC8-16	EC16-35	Low	Medium	High	EC6-9	EC9-22	EC22-35	Low	Medium	High	EPA 6 Toxicity Fractions
EC5-6	EC12-16	EC16-21	EC21-35																																																		
EC6-8	EC12-16	EC16-21	EC21-35																																																		
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EC10-12	EC12-16	EC16-21	EC21-35																																																		
EC13-15	EC12-16	EC16-21	EC21-35																																																		
EC14-17	EC12-16	EC16-21	EC21-35																																																		
EC18-20	EC12-16	EC16-21	EC21-35																																																		
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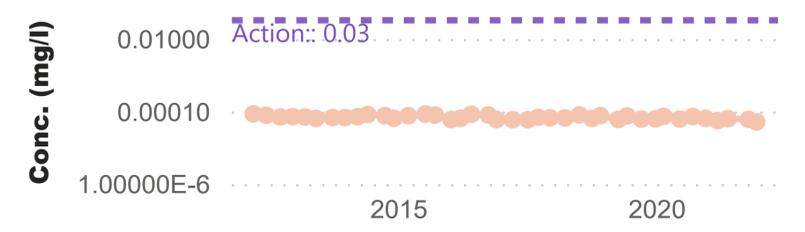
Dissolved Phase



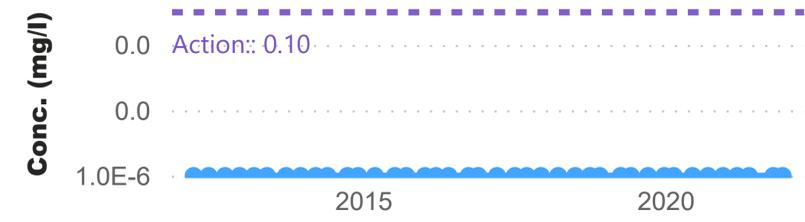
TPH-Aliphatic (Low)



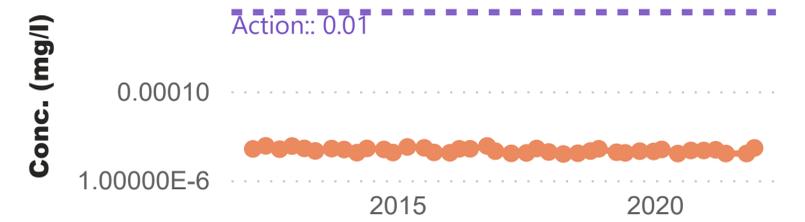
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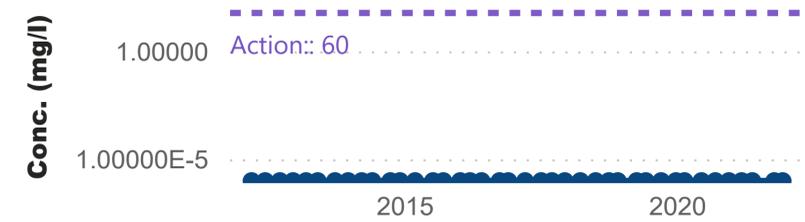
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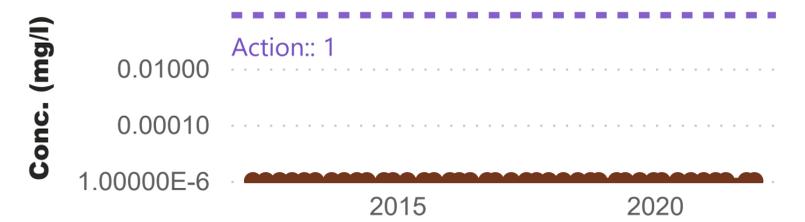
TPH-Aromatic (Medium)



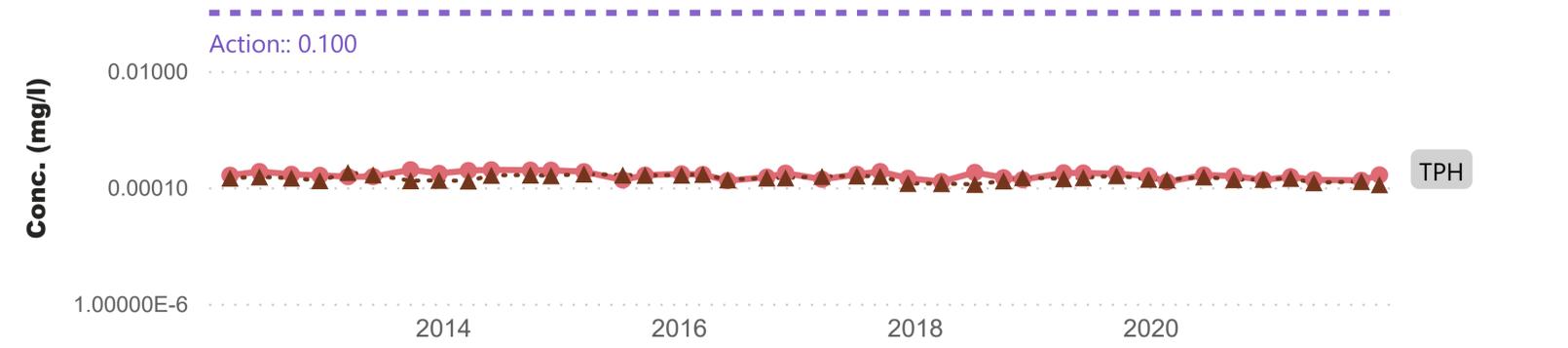
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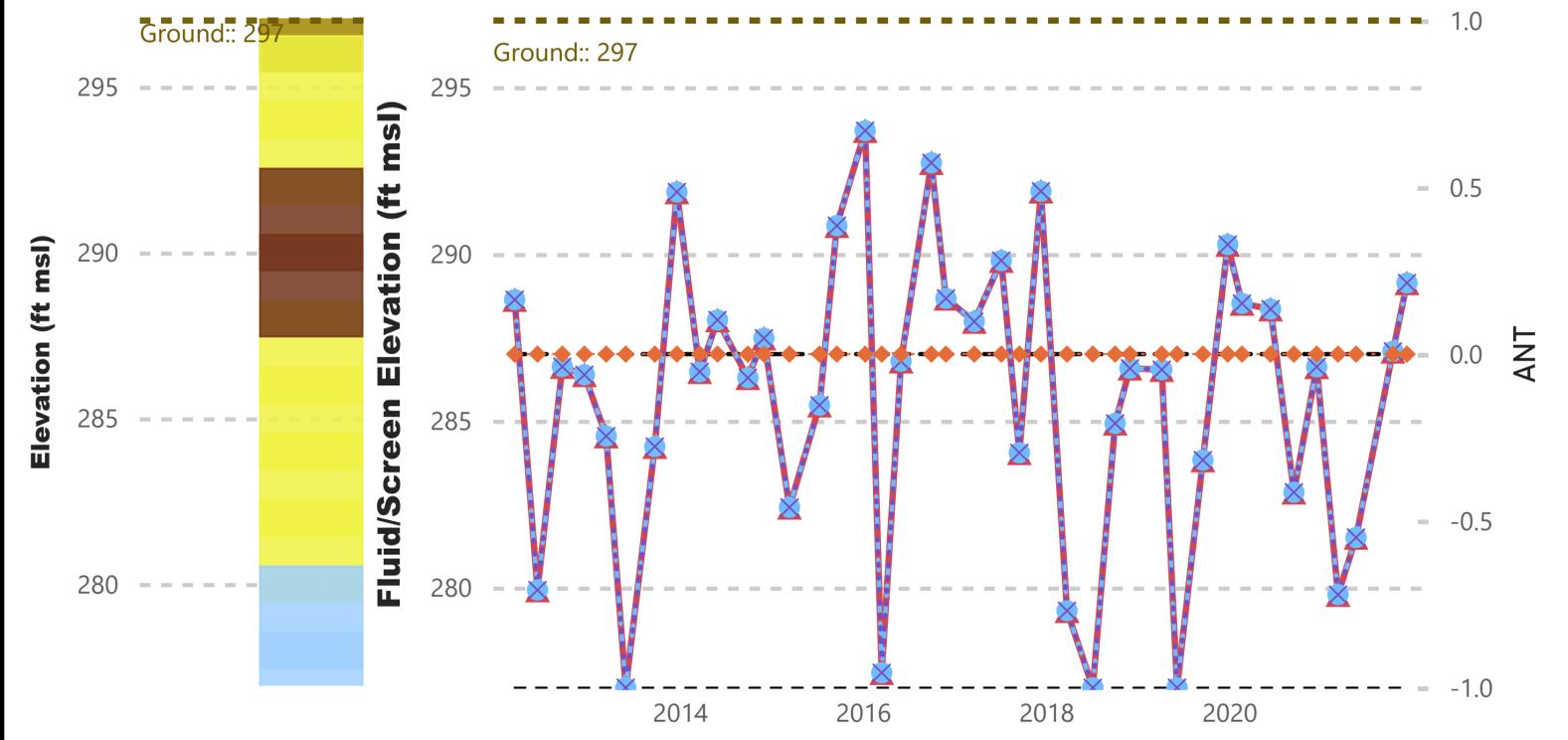
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

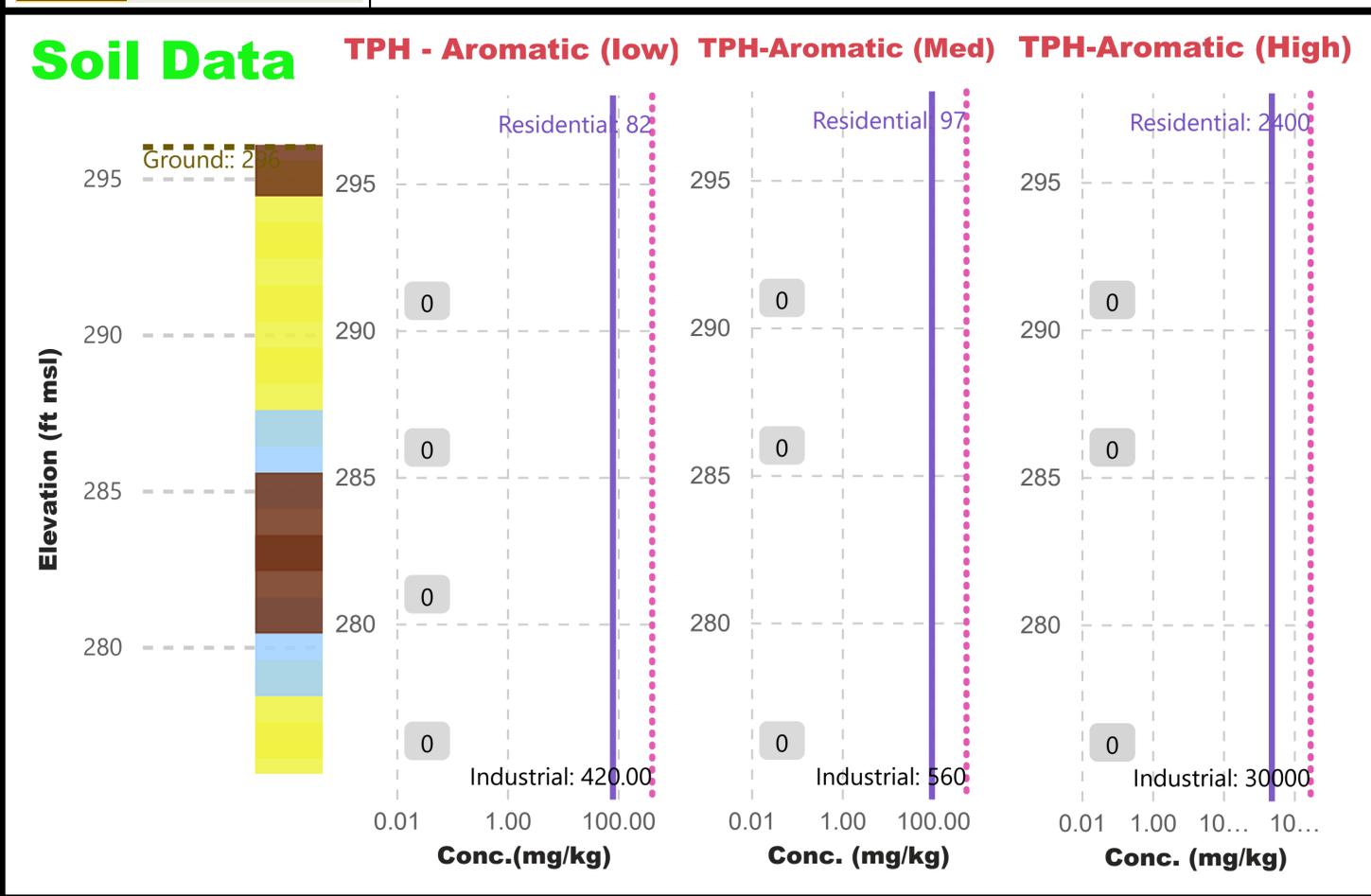
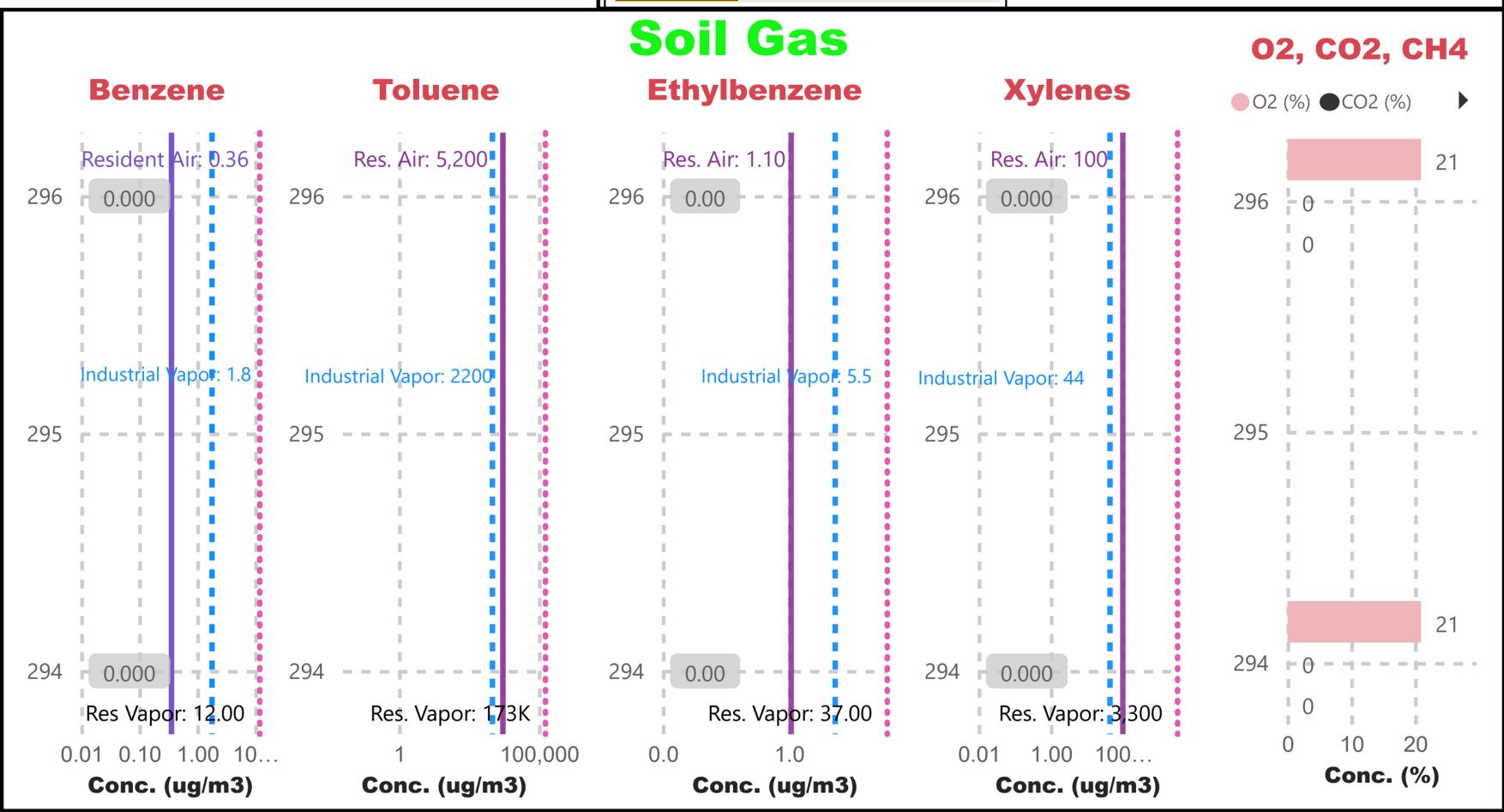
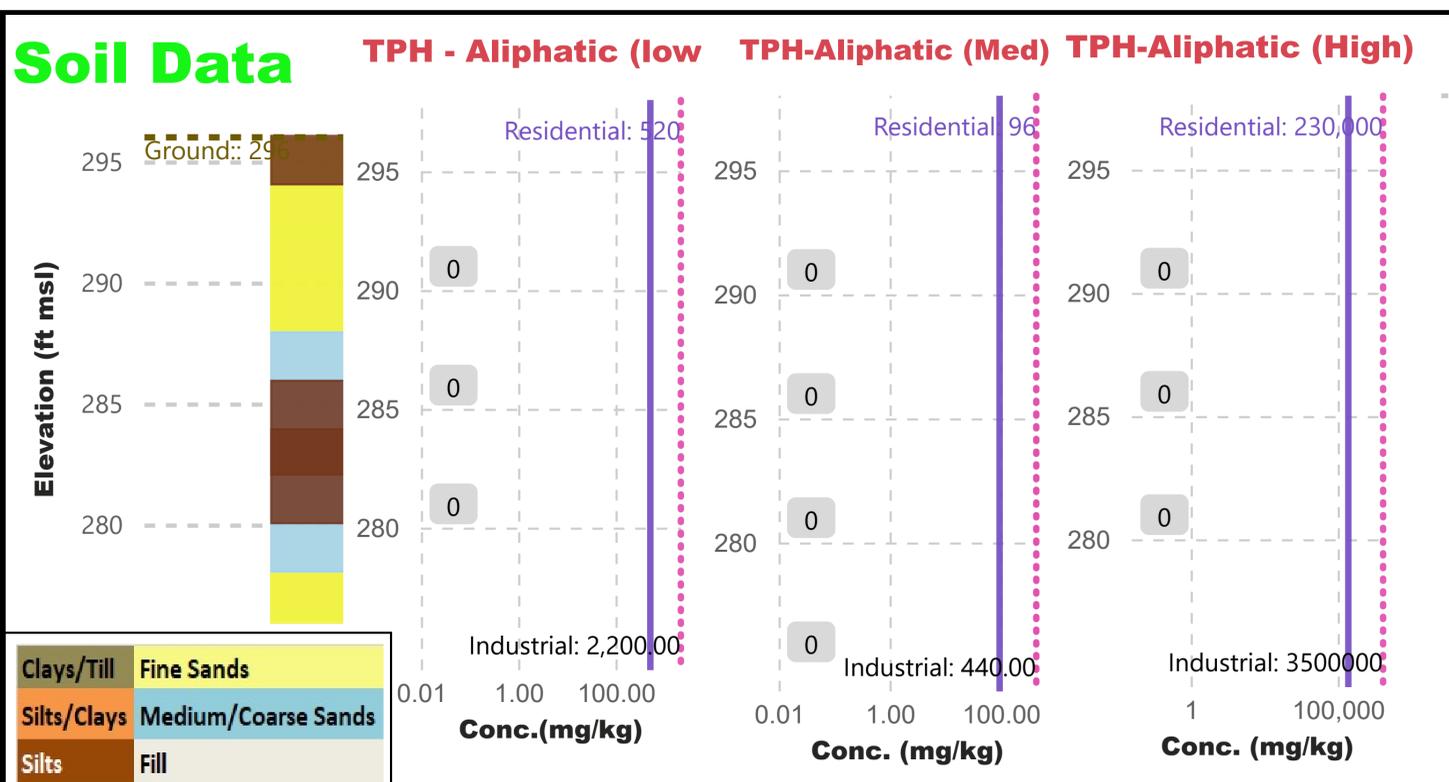
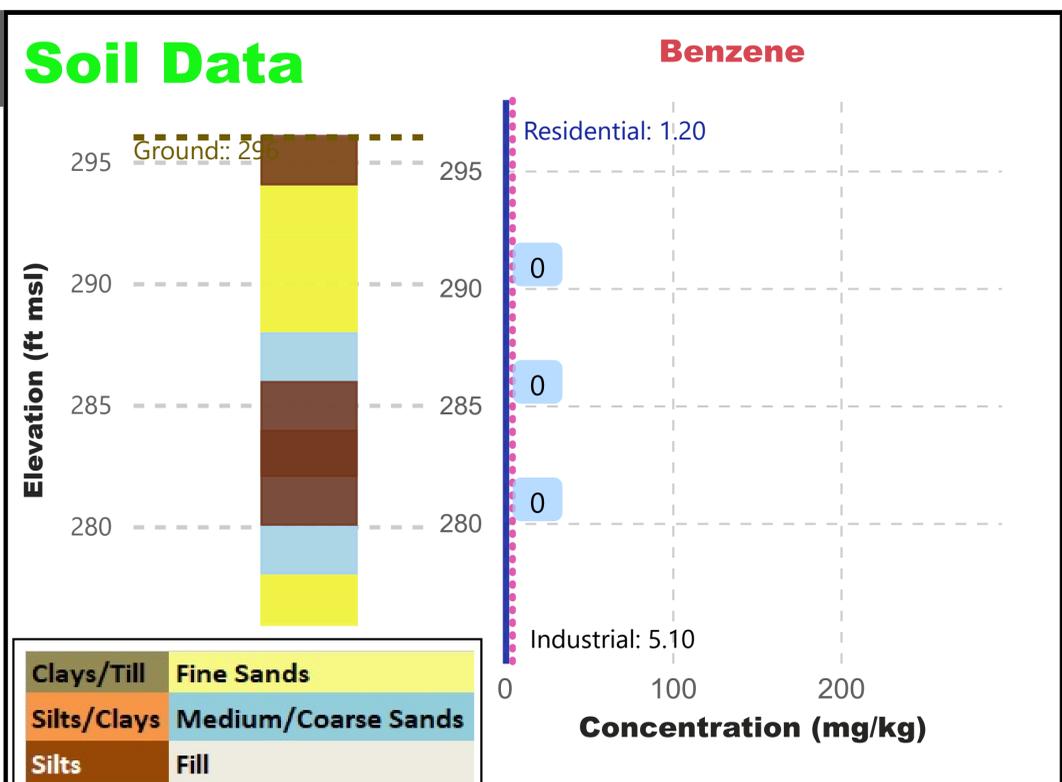
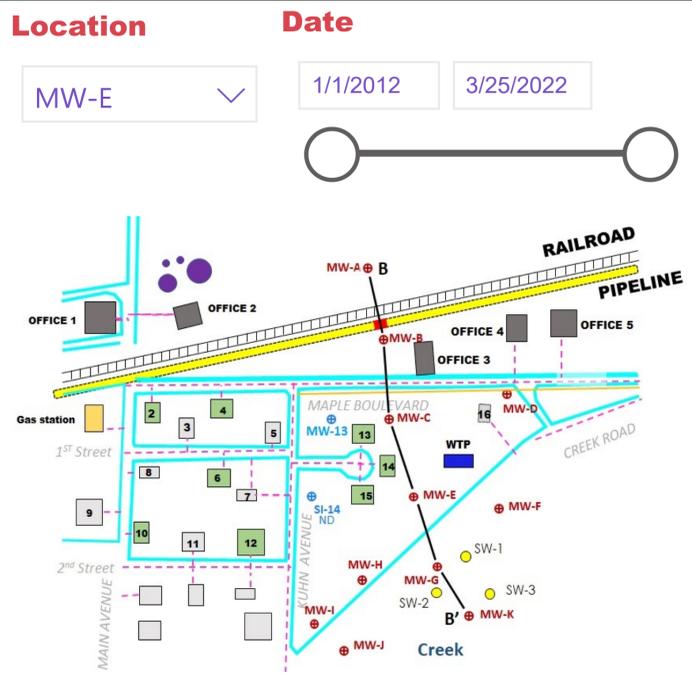
Molecular Structure	Increasing Equivalent Carbon (EC) Number					EPA 6 Toxicity Fractions
	EC5-7	EC8-10	EC11-12	EC13-15	EC16-21	
Aliphatic	EC5-7	EC8-10	EC11-12	EC13-15	EC16-21	TPH Criteria Working Group 13 Transport Fractions
Aromatic	EC5-7	EC8-10	EC11-12	EC13-15	EC16-21	
Aliphatic	EC5-7	EC8-10	EC11-12	EC13-15	EC16-21	EPA 6 Toxicity Fractions
Aromatic	EC5-7	EC8-10	EC11-12	EC13-15	EC16-21	

Clays/Till	Fine Sands
Silts/Clays	Medium/Coarse Sands
Silts	Fill

--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
● NAPL/Water Interface NWI		

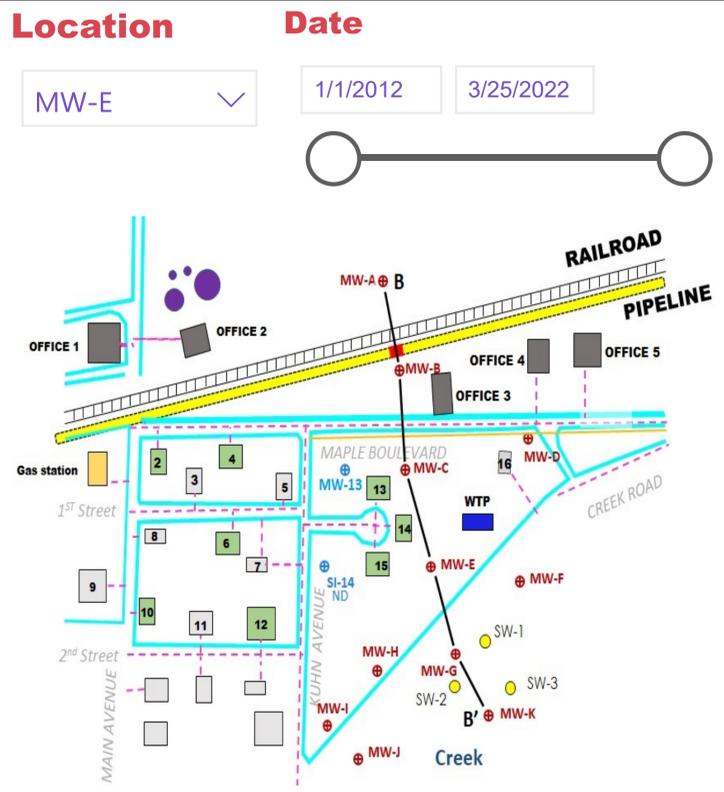
MW-D

Hydrograph & Dissolved Summary



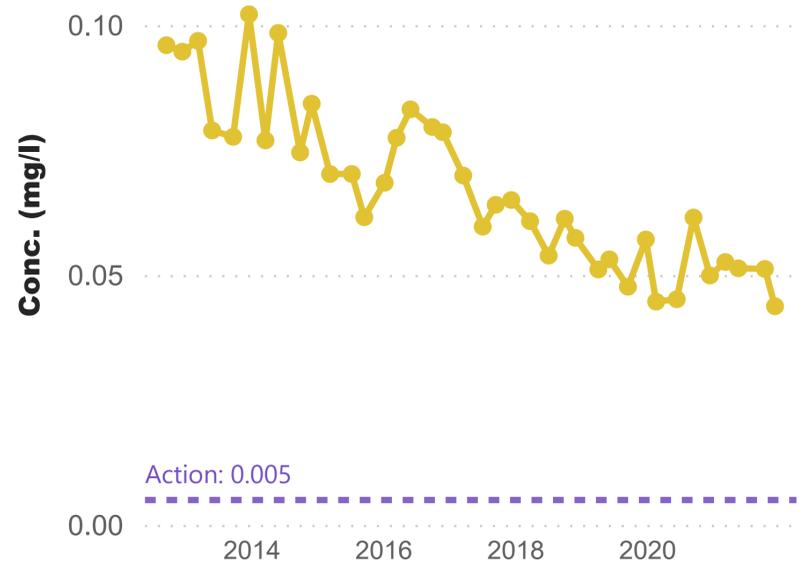
MW-E Soil and Soil Gas Summary

Clays/Till	Fine Sands	
Silts/Clays	Medium/Coarse Sands	
Silts	Fill	

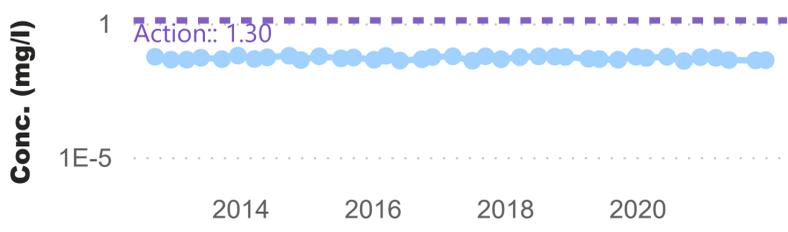


Dissolved Phase

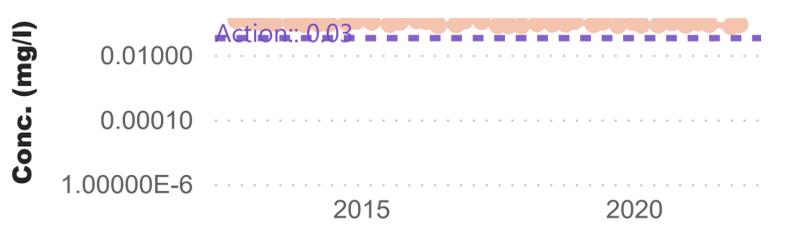
Benzene



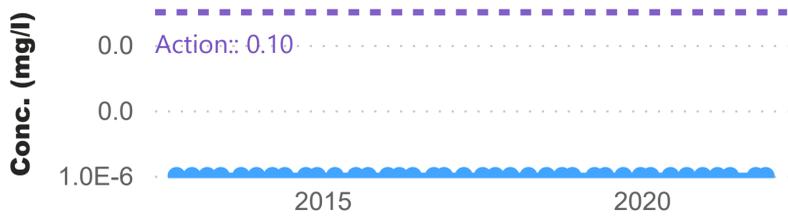
TPH-Aliphatic (Low)



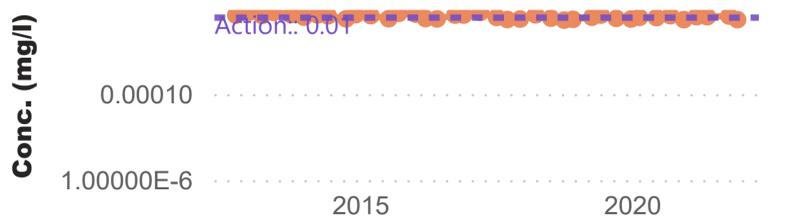
TPH-Aromatic (Low)



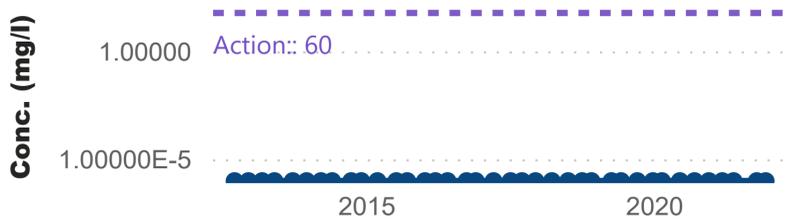
TPH-Aliphatic (Medium)



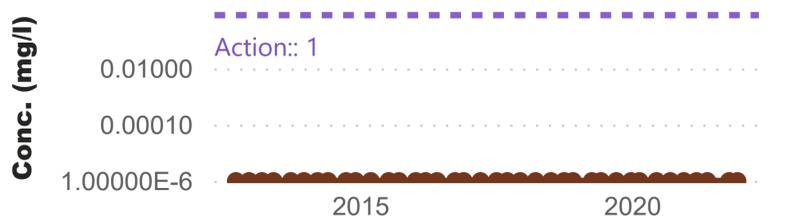
TPH-Aromatic (Medium)



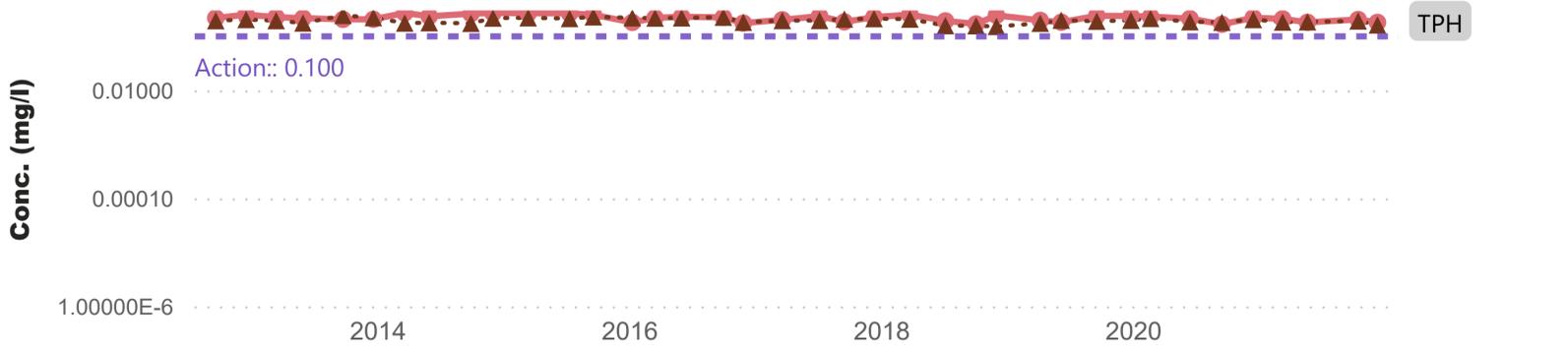
TPH-Aliphatic (High)



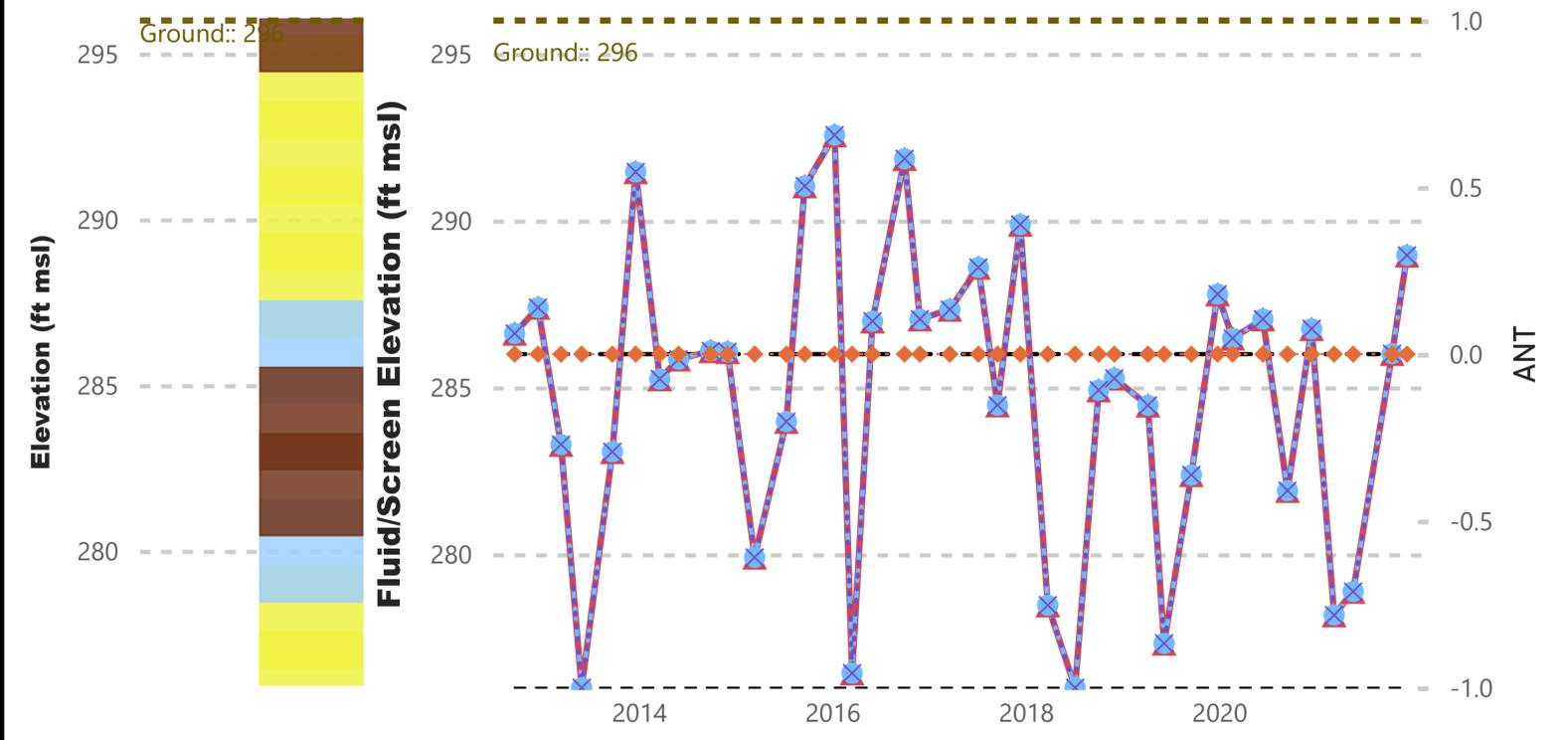
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



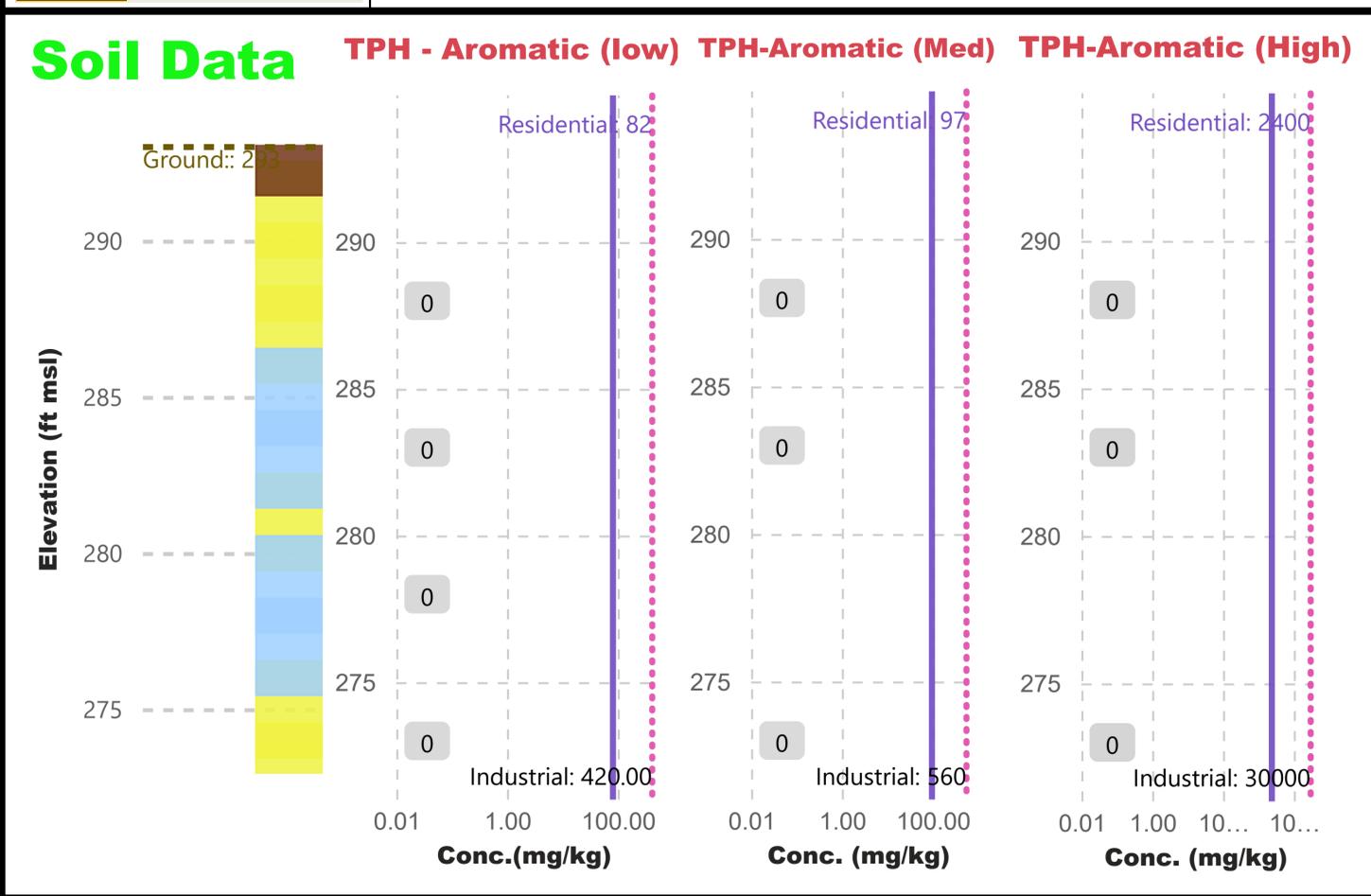
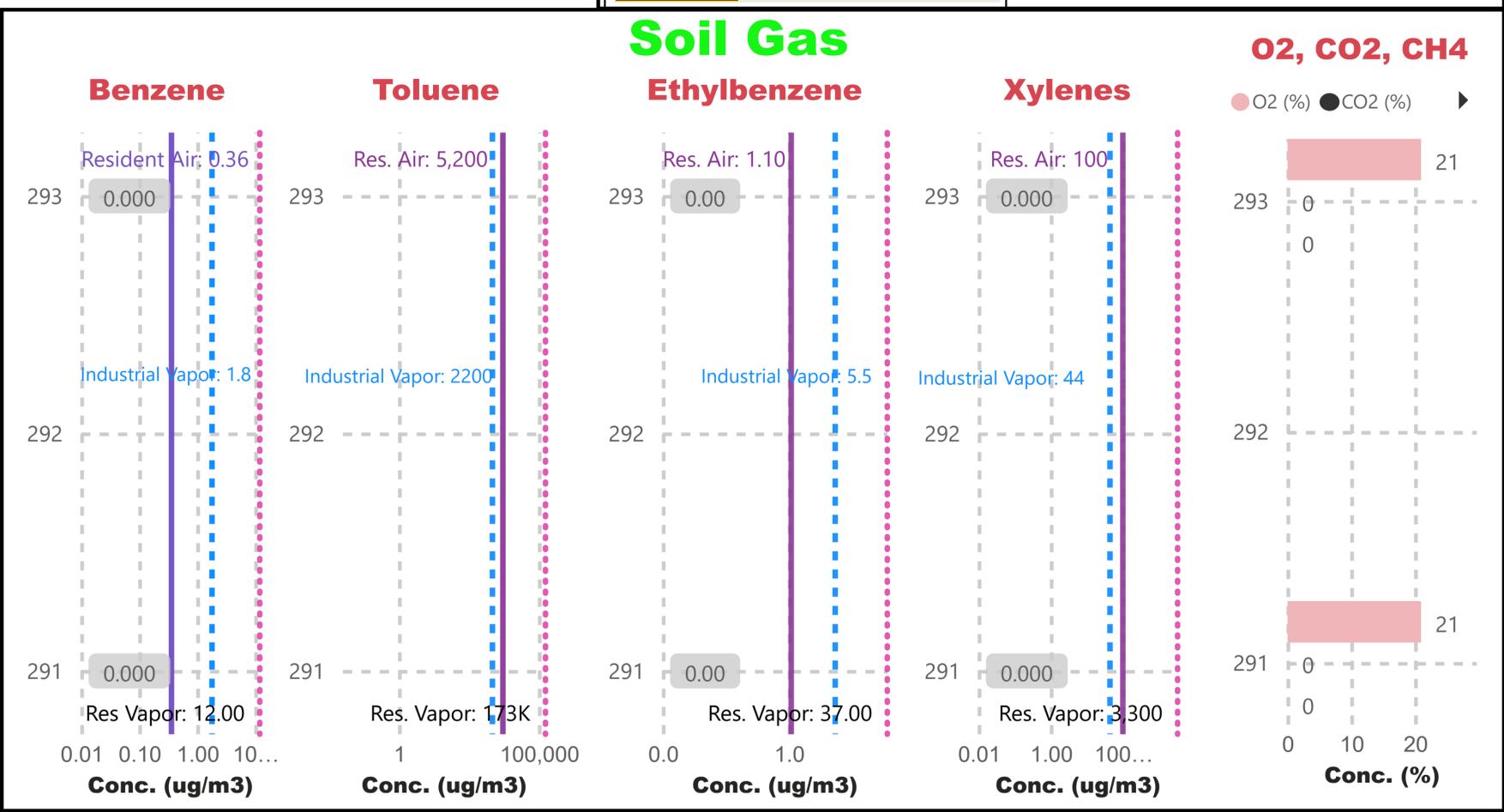
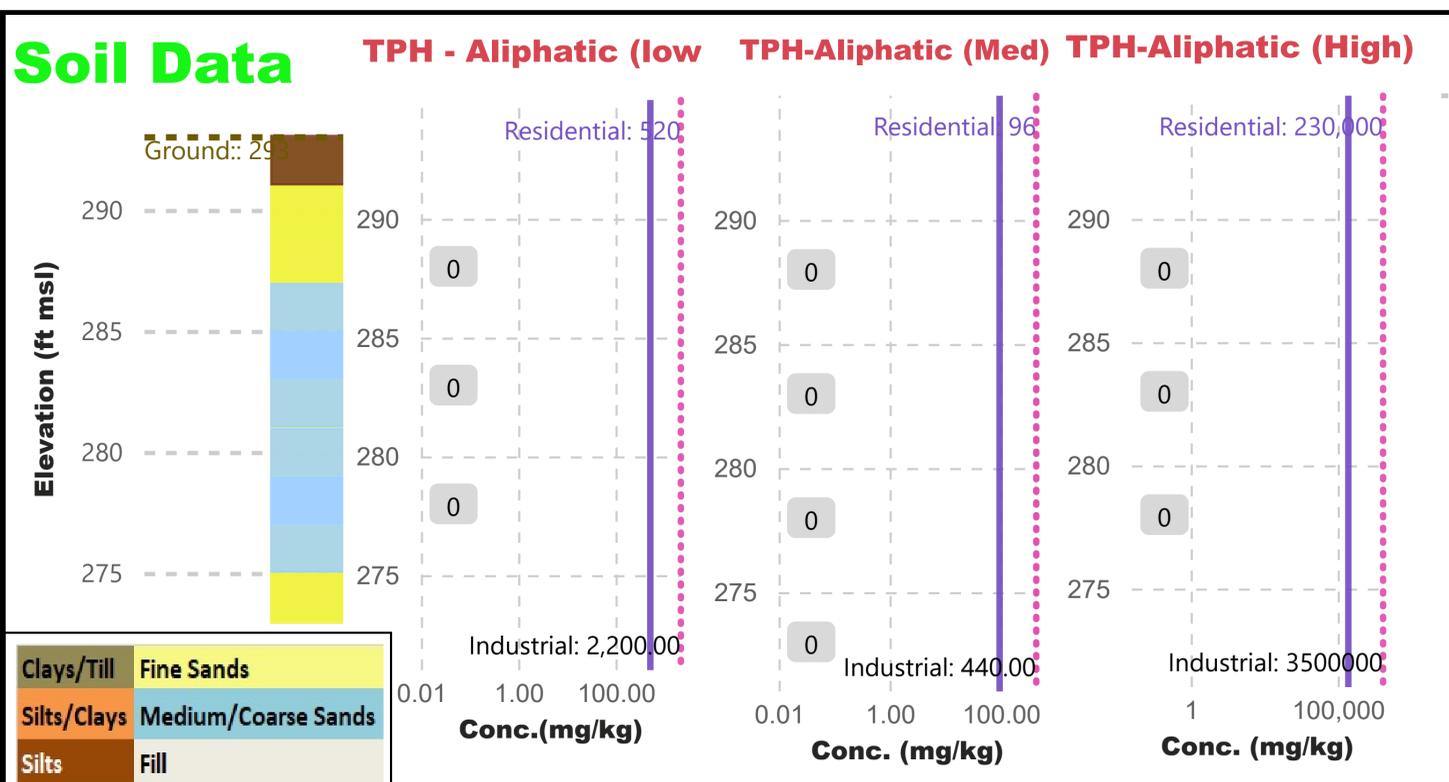
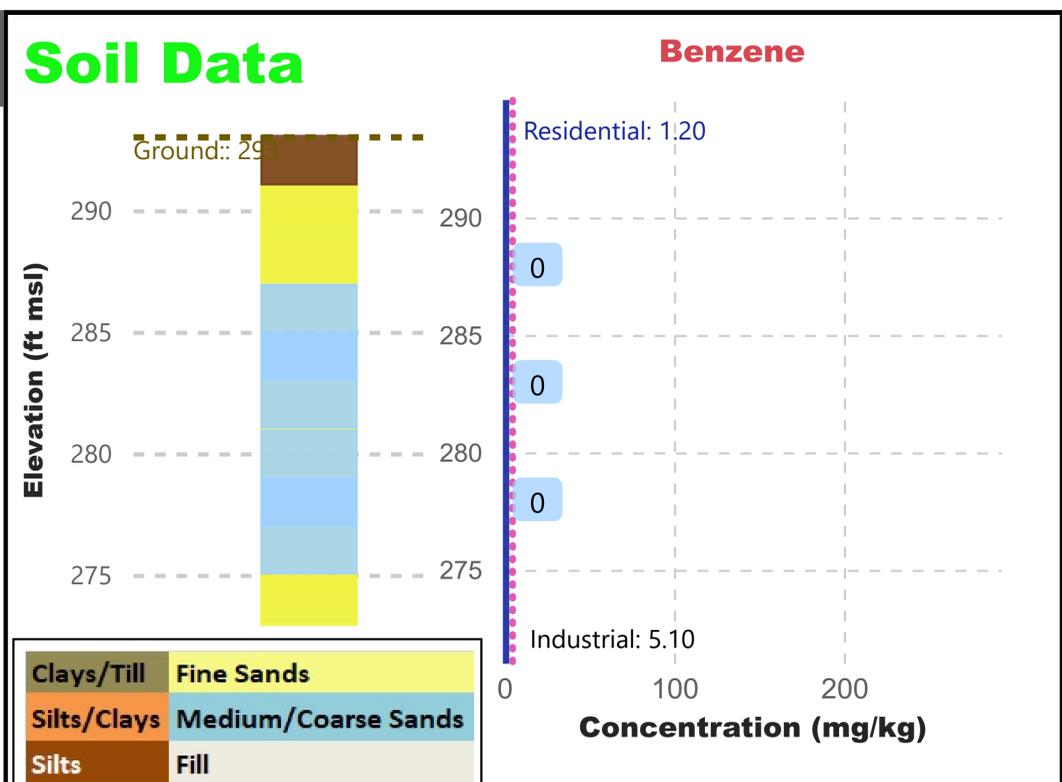
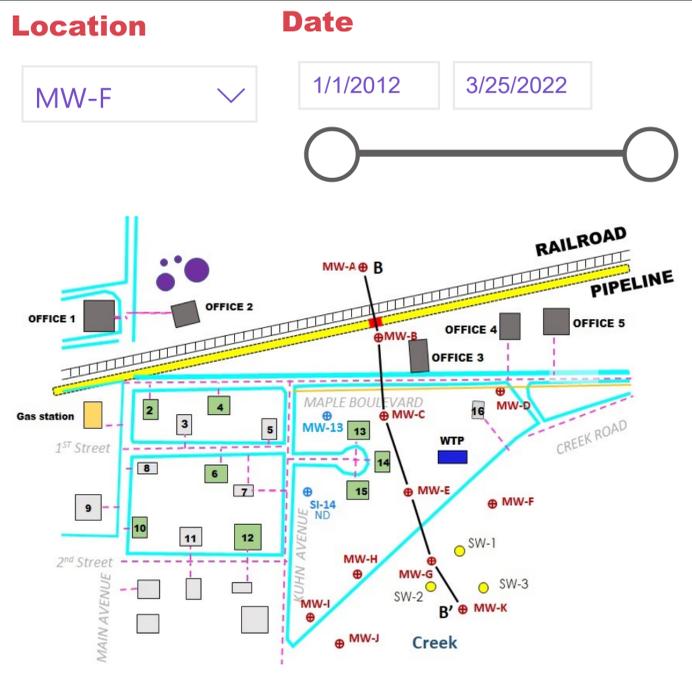
The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

Molecular Structure	Aliphatic	Aromatic	Working Group	13 Transport Fractions	EPA 6 Toxicity Fractions
Aliphatic	EC5-6	EC8-10	Low	EC5-6	Low
Aliphatic	EC6-8	EC9-10	Medium	EC6-8	Medium
Aliphatic	EC10-12	EC12-16	High	EC10-12	High
Aliphatic	EC12-16	EC16-21	High	EC12-16	High
Aliphatic	EC16-21	EC21-35	High	EC16-21	High
Aliphatic	EC21-35	EC21-35	High	EC21-35	High
Aromatic	EC6-9	EC9-22	Medium	EC6-9	Medium
Aromatic	EC9-22	EC22-35	High	EC9-22	High
Aromatic	EC8-16	EC16-35	High	EC8-16	High

Clays/Till	Fine Sands	--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
Silts	Fill	● NAPL/Water Interface	NWI	

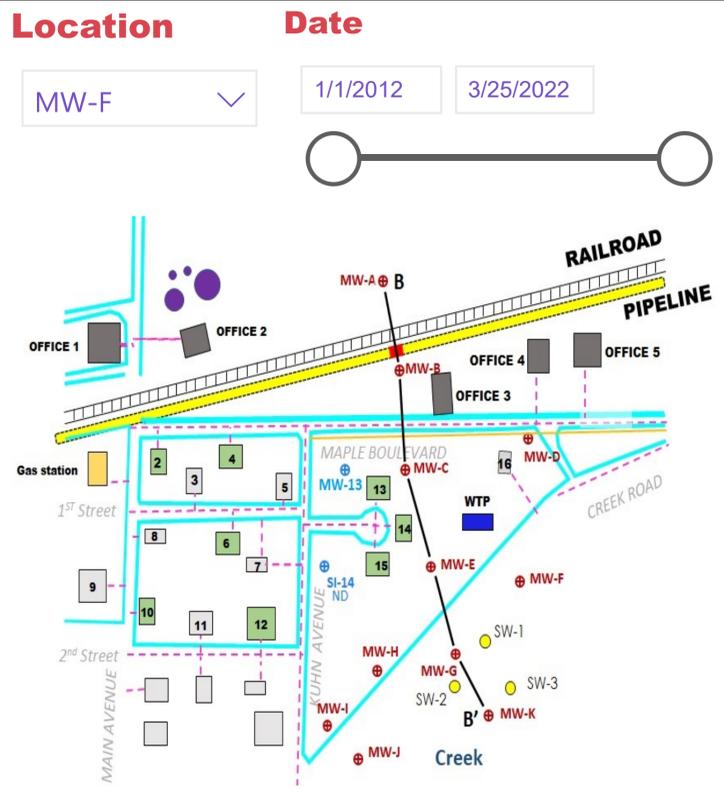
MW-E

Hydrograph & Dissolved Summary



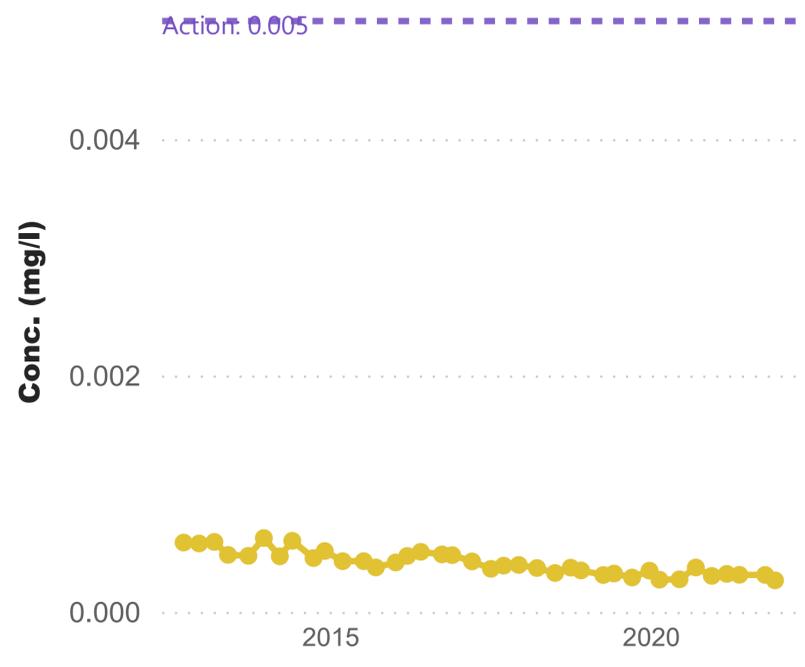
MW-F Soil and Soil Gas Summary

Clays/Till	Fine Sands	<table border="1"> <tr><td>EC5-6</td><td>EC6-8</td><td>EC9-12</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC7</td><td>EC9-12</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td><td>EC21-35</td></tr> </table>		EC5-6	EC6-8	EC9-12	EC12-16	EC16-21	EC21-35	EC7	EC9-12	EC12-16	EC16-21	EC21-35	EC21-35	TPH Criteria Working Group 13 Transport Fractions Increasing Equivalent Carbon (EC) Number →
EC5-6	EC6-8	EC9-12	EC12-16	EC16-21	EC21-35											
EC7	EC9-12	EC12-16	EC16-21	EC21-35	EC21-35											
Silts/Clays	Medium/Coarse Sands	<table border="1"> <tr><td>EC5-8</td><td>EC8-16</td><td>EC16-35</td></tr> <tr><td>EC9-12</td><td>EC9-22</td><td>EC22-35</td></tr> </table>		EC5-8	EC8-16	EC16-35	EC9-12	EC9-22	EC22-35	EPA 6 Toxicity Fractions Increasing Equivalent Carbon (EC) Number →						
EC5-8	EC8-16	EC16-35														
EC9-12	EC9-22	EC22-35														
Silts	Fill															

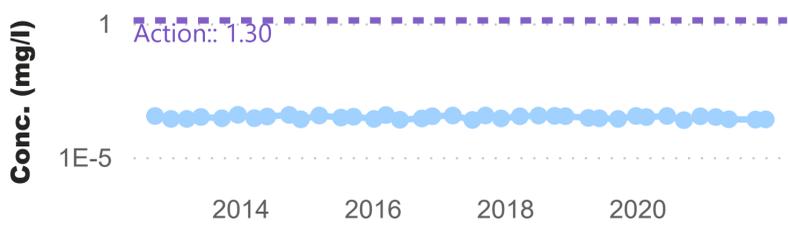


Dissolved Phase

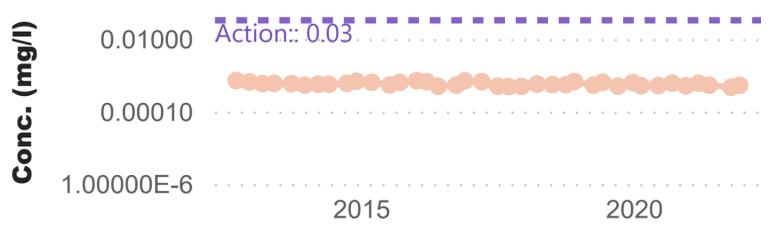
Benzene



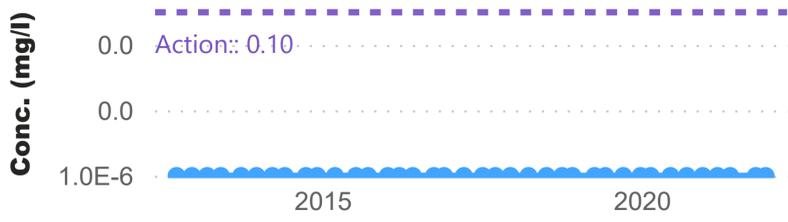
TPH-Aliphatic (Low)



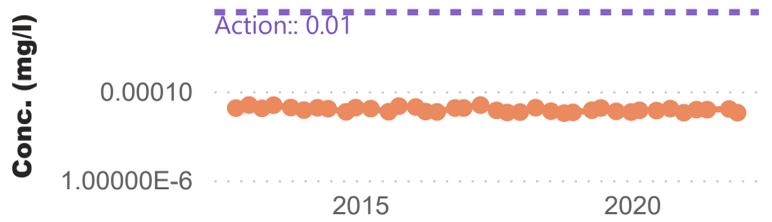
TPH-Aromatic (Low)



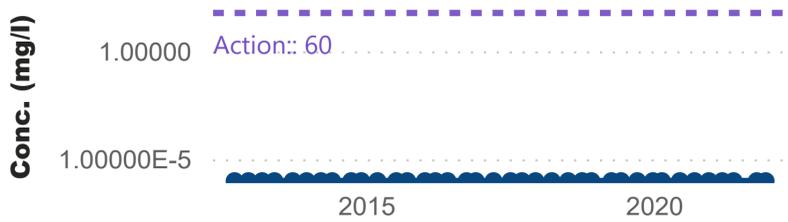
TPH-Aliphatic (Medium)



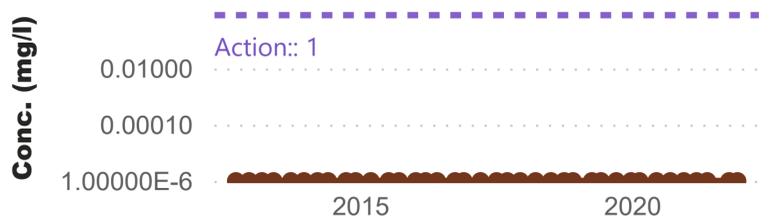
TPH-Aromatic (Medium)



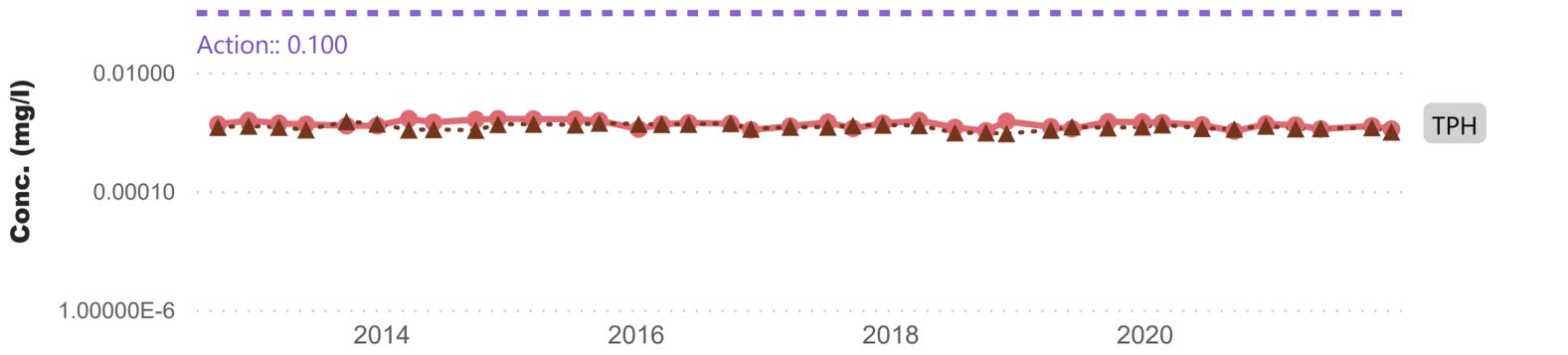
TPH-Aliphatic (High)



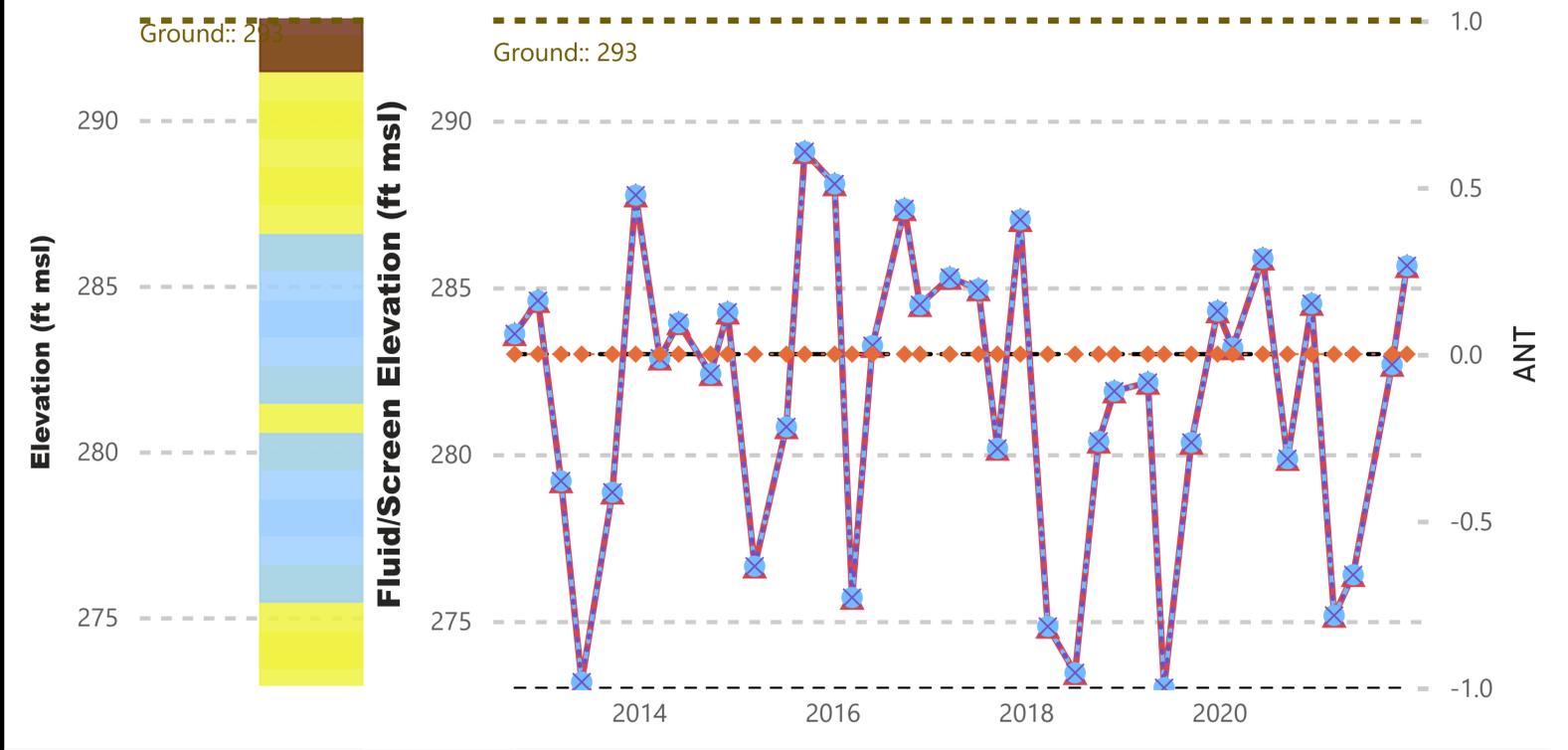
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



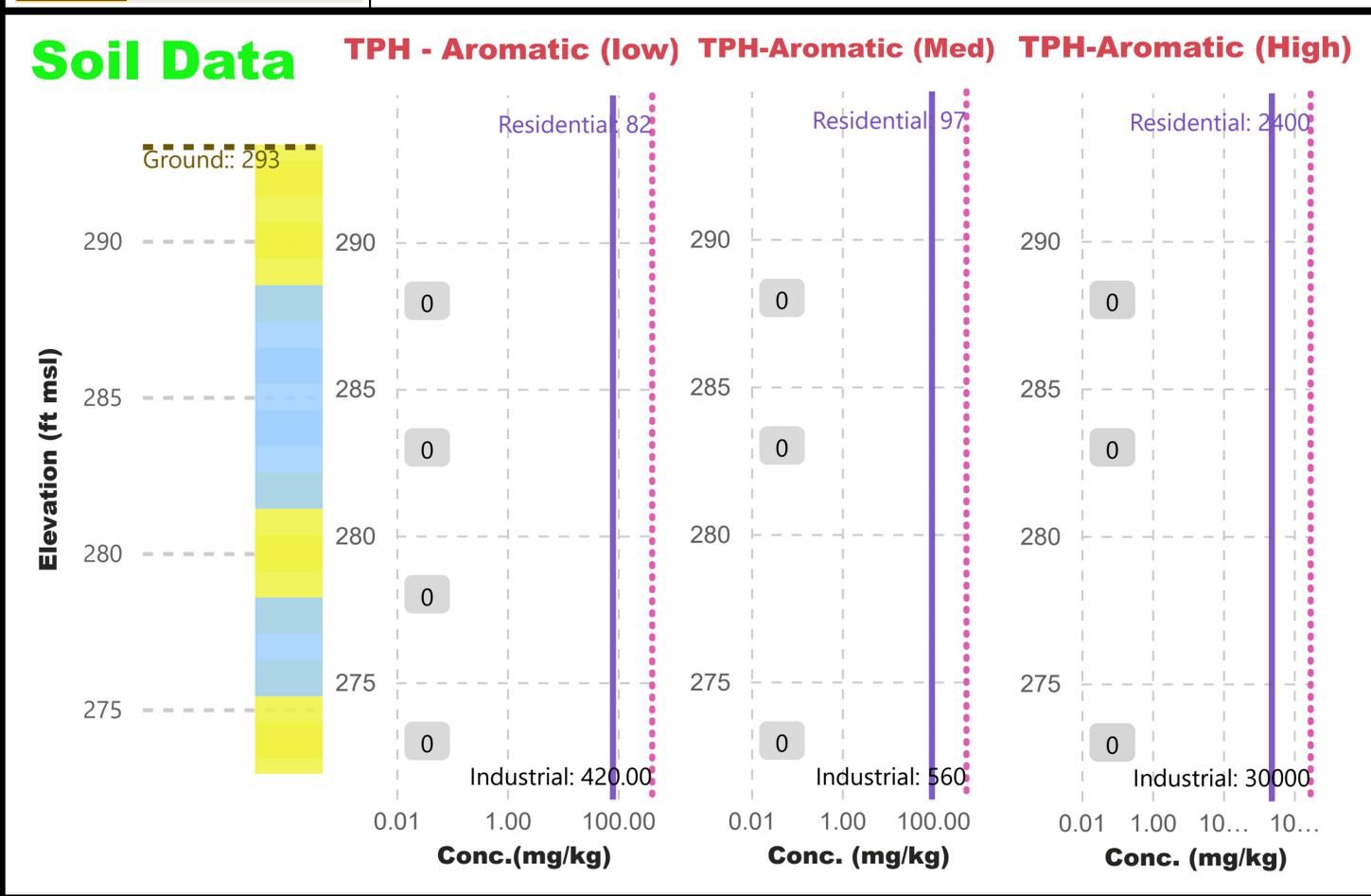
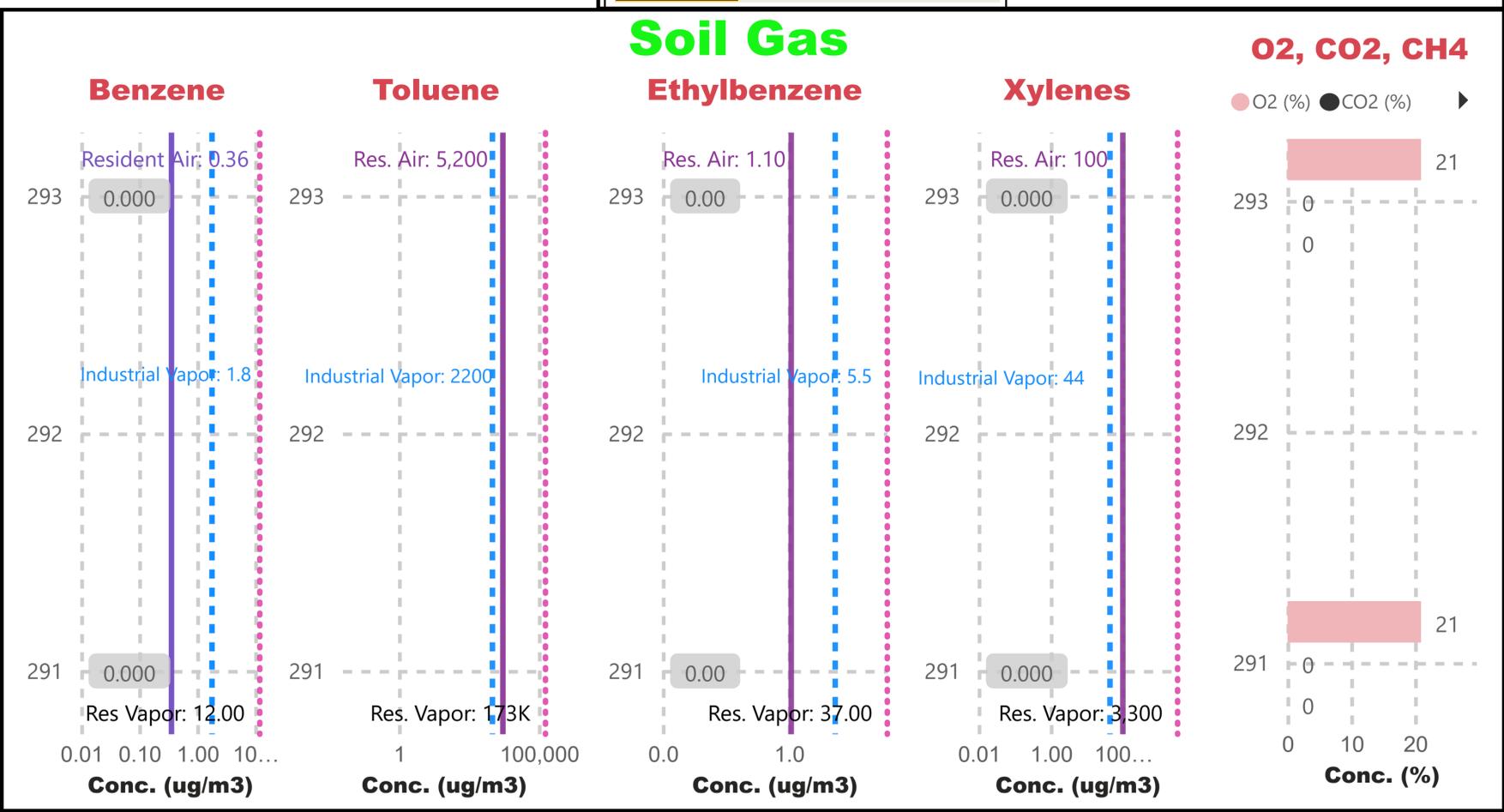
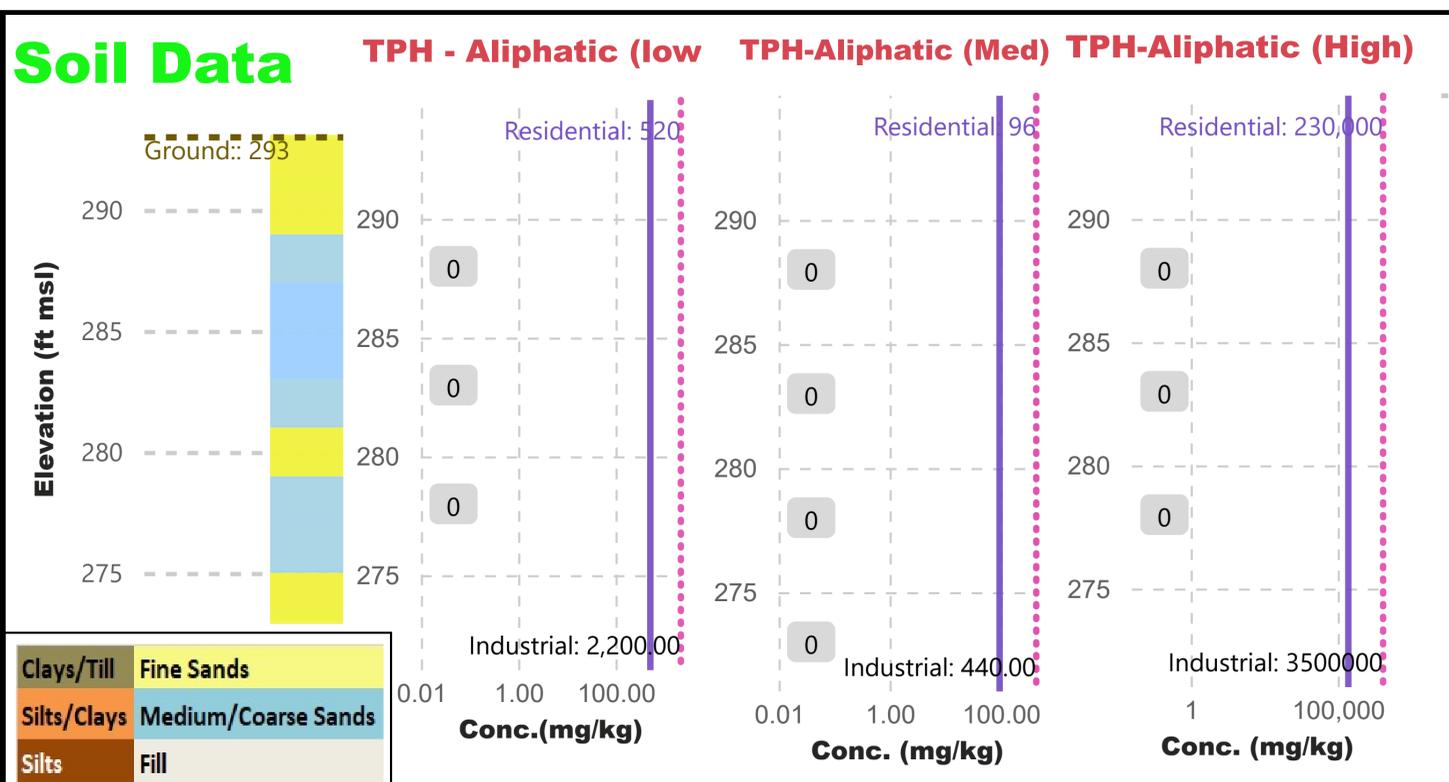
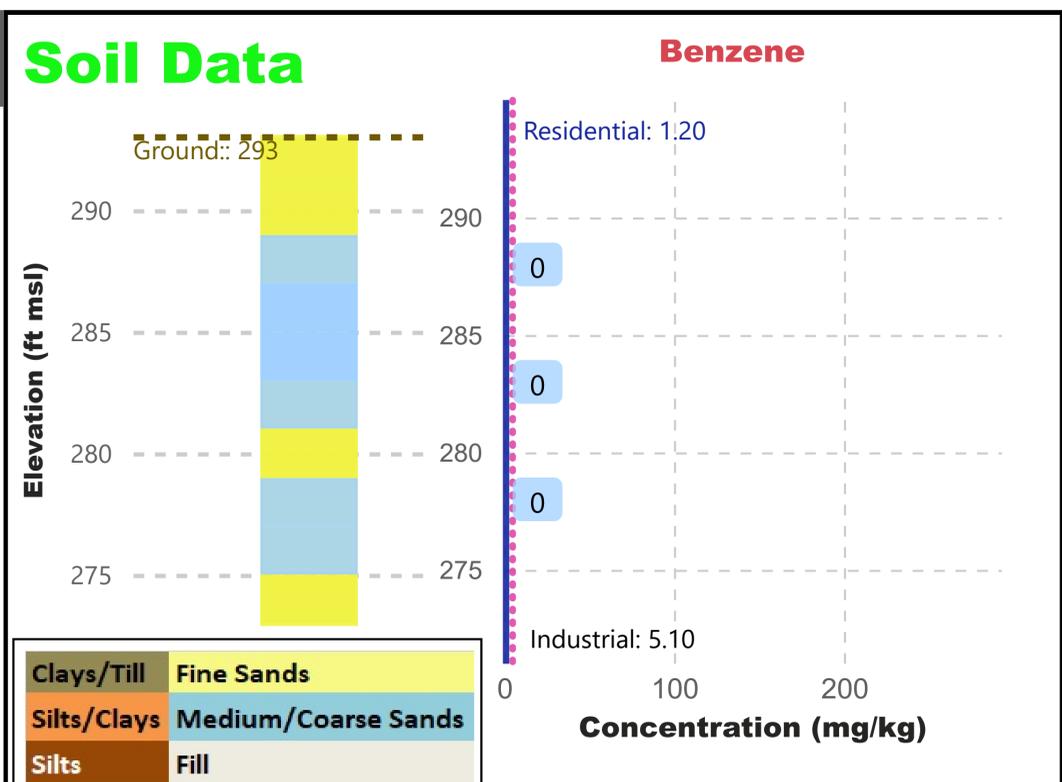
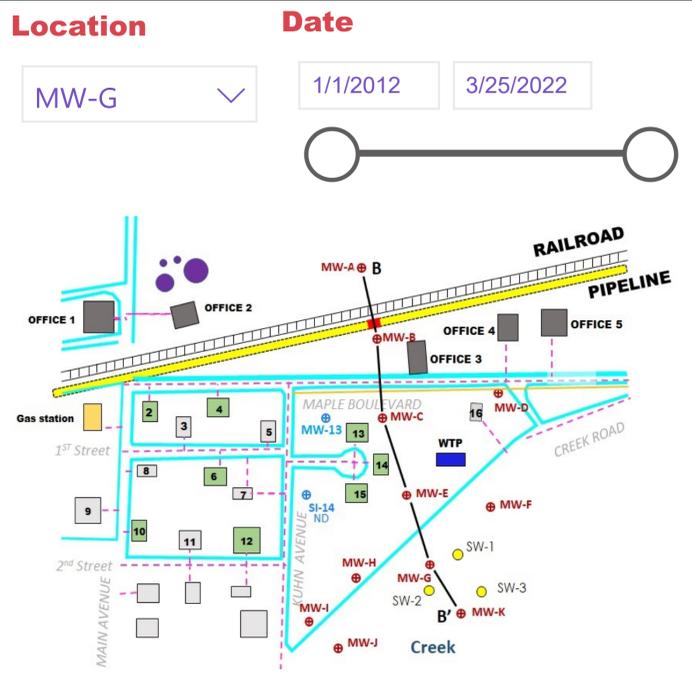
The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

Molecular Structure	Aliphatic	Aromatic	TPH Criteria Working Group	13 Transport Fractions	EPA 6 Toxicity Fractions
EC5-6	EC5-6	EC5-6	Low	EC5-6	Low
EC7-8	EC7-8	EC7-8	Low	EC7-8	Low
EC9-10	EC9-10	EC9-10	Medium	EC9-10	Medium
EC11-12	EC11-12	EC11-12	Medium	EC11-12	Medium
EC13-14	EC13-14	EC13-14	Medium	EC13-14	Medium
EC15-16	EC15-16	EC15-16	High	EC15-16	High
EC17-18	EC17-18	EC17-18	High	EC17-18	High
EC19-20	EC19-20	EC19-20	High	EC19-20	High
EC21-22	EC21-22	EC21-22	High	EC21-22	High
EC23-24	EC23-24	EC23-24	High	EC23-24	High
EC25-26	EC25-26	EC25-26	High	EC25-26	High
EC27-28	EC27-28	EC27-28	High	EC27-28	High
EC29-30	EC29-30	EC29-30	High	EC29-30	High
EC31-32	EC31-32	EC31-32	High	EC31-32	High
EC33-34	EC33-34	EC33-34	High	EC33-34	High
EC35	EC35	EC35	High	EC35	High

MW-F

Hydrograph & Dissolved Summary

Clays/Till	Fine Sands	--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
Silts	Fill	● NAPL/Water Interface	NWI	



MW-G Soil and Soil Gas Summary

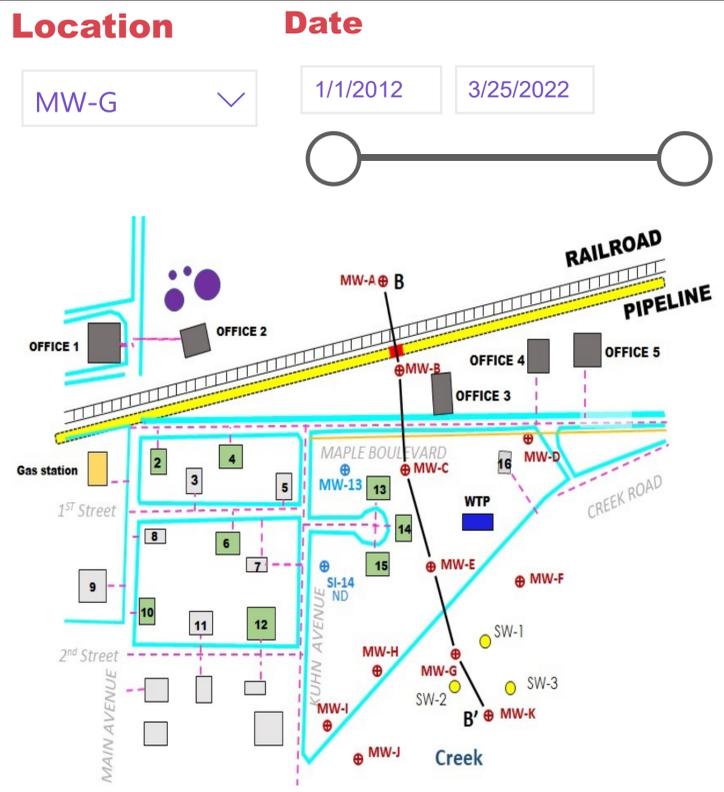
Clays/Till	Fine Sands
Silts/Clays	Medium/Coarse Sands
Silts	Fill

EC5-6	EC6-8	EC9-12	EC12-16	EC16-21	EC21-35
Low	Low	Low	Low	Low	High

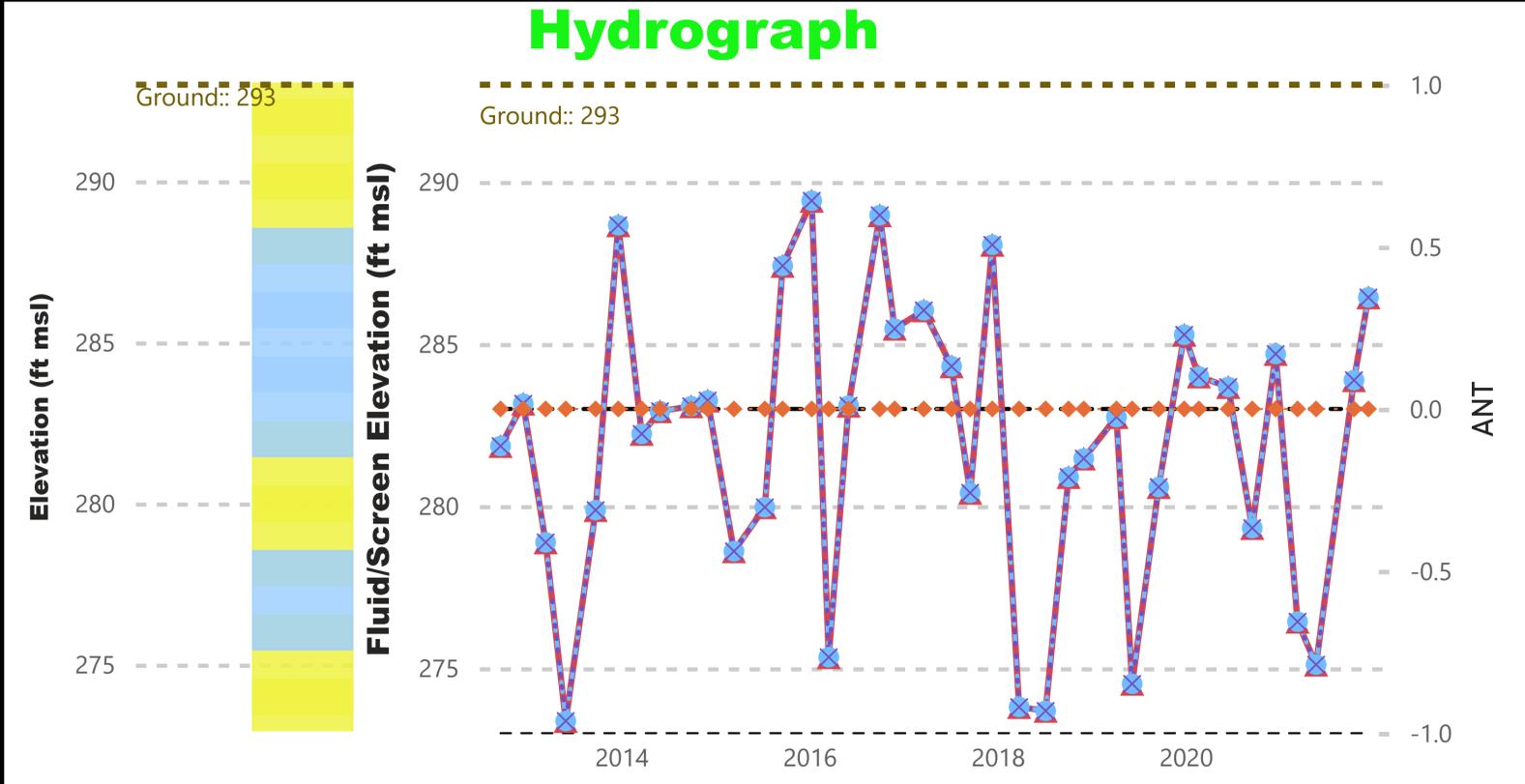
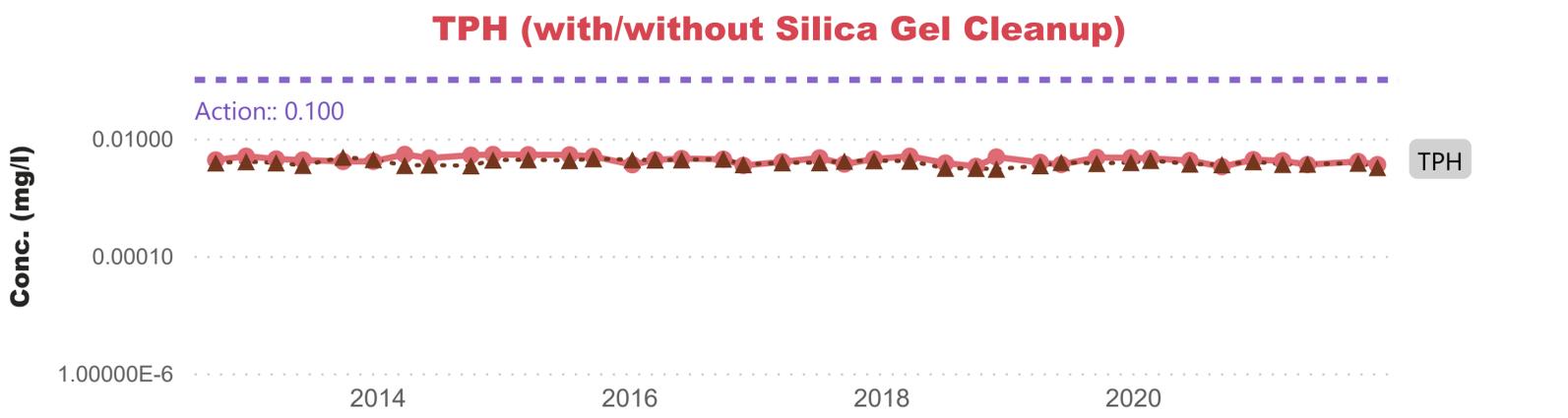
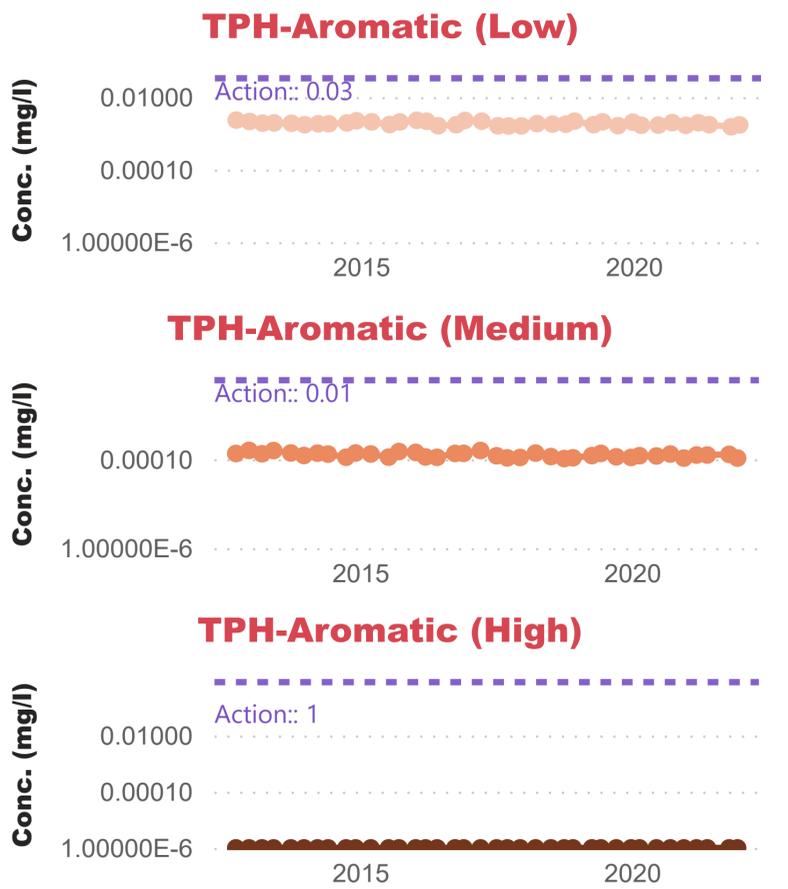
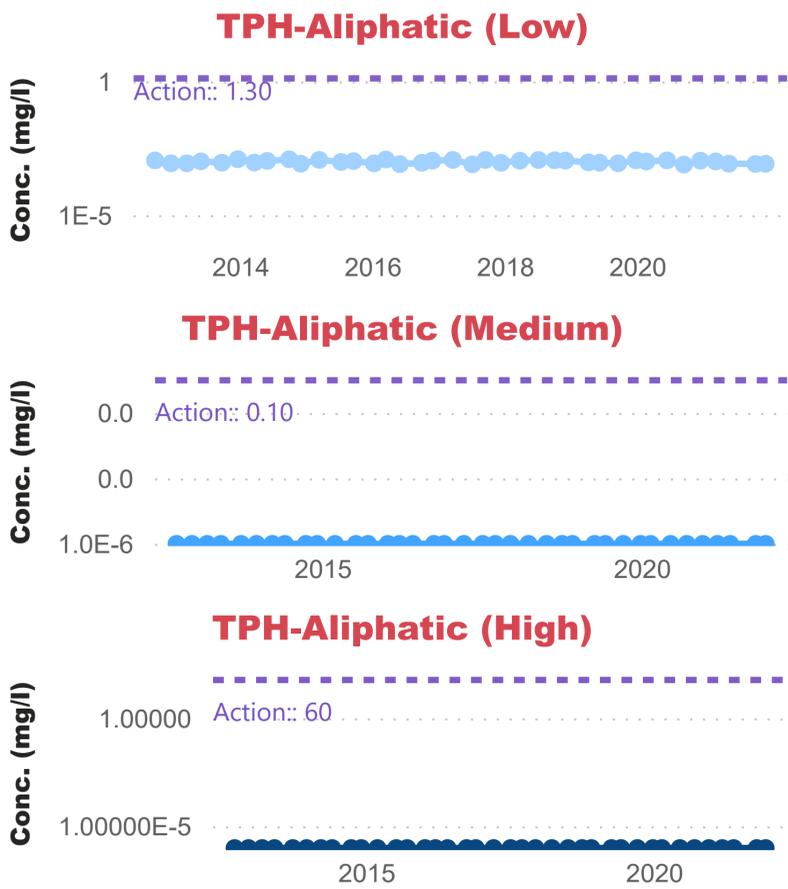
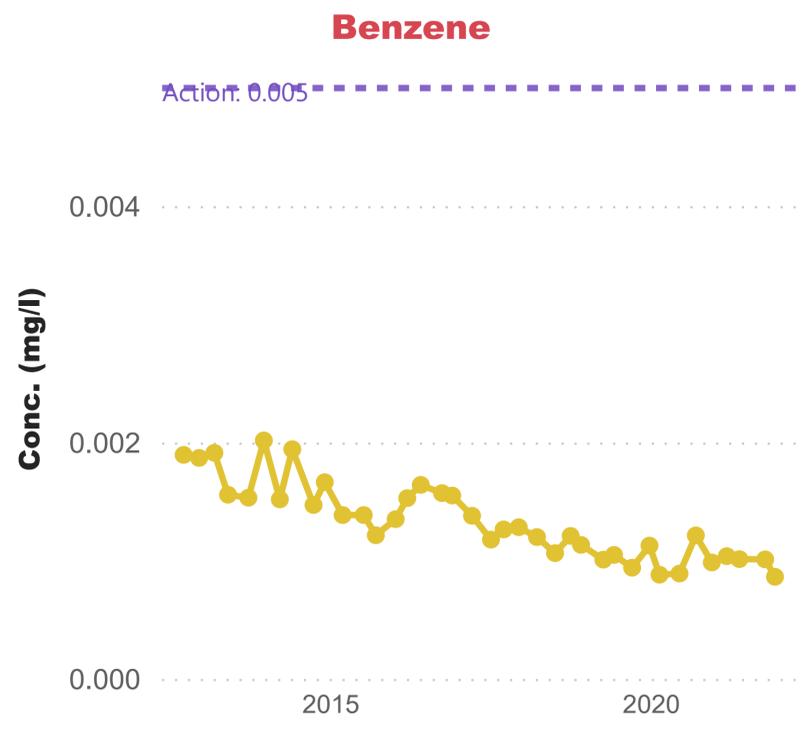
EC5-8	EC8-16	EC16-35
Low	Medium	High

EC6-9	EC9-22	EC22-35
Low	Medium	High

EPA 6 Toxicity Fractions



Dissolved Phase



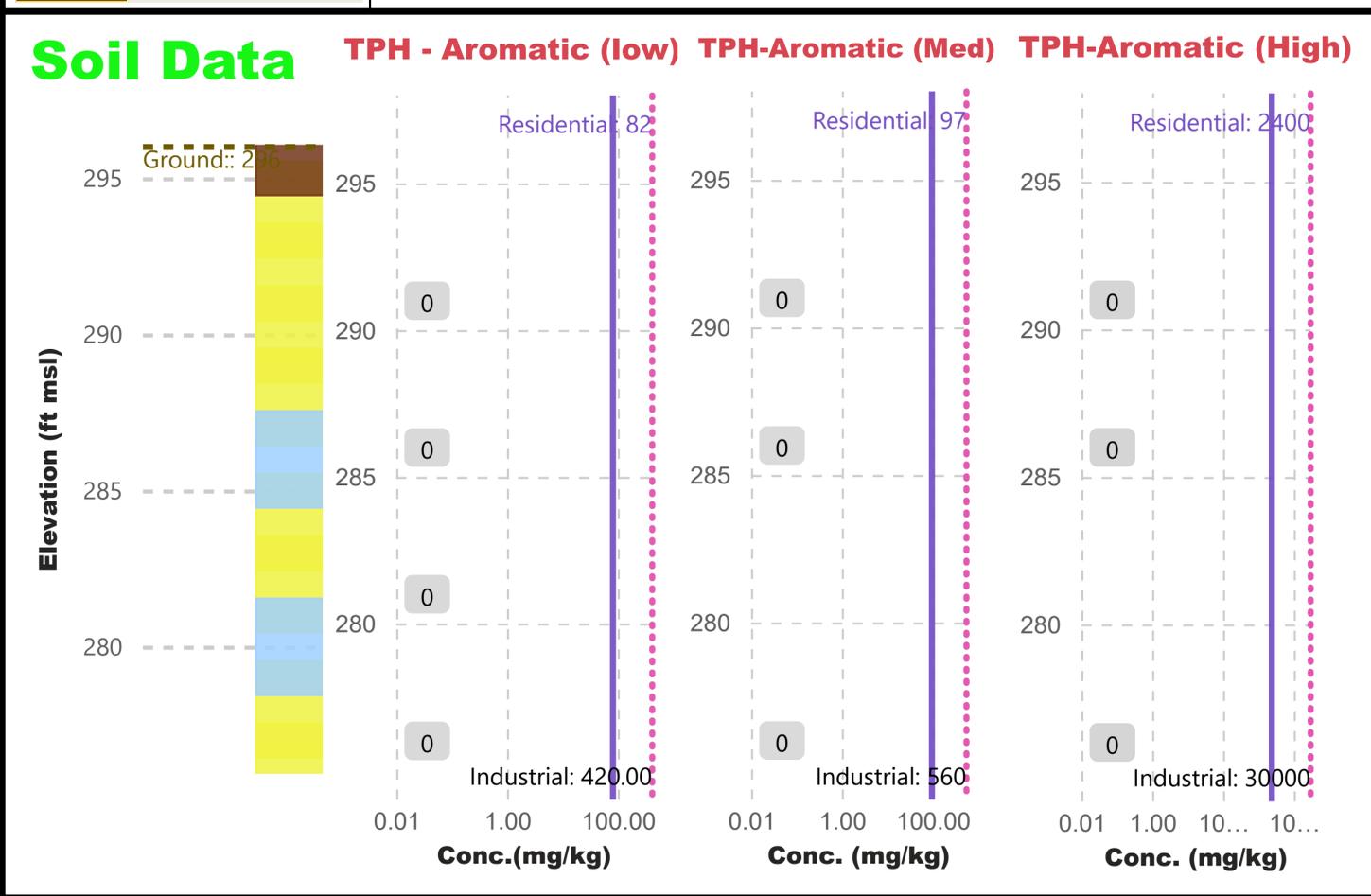
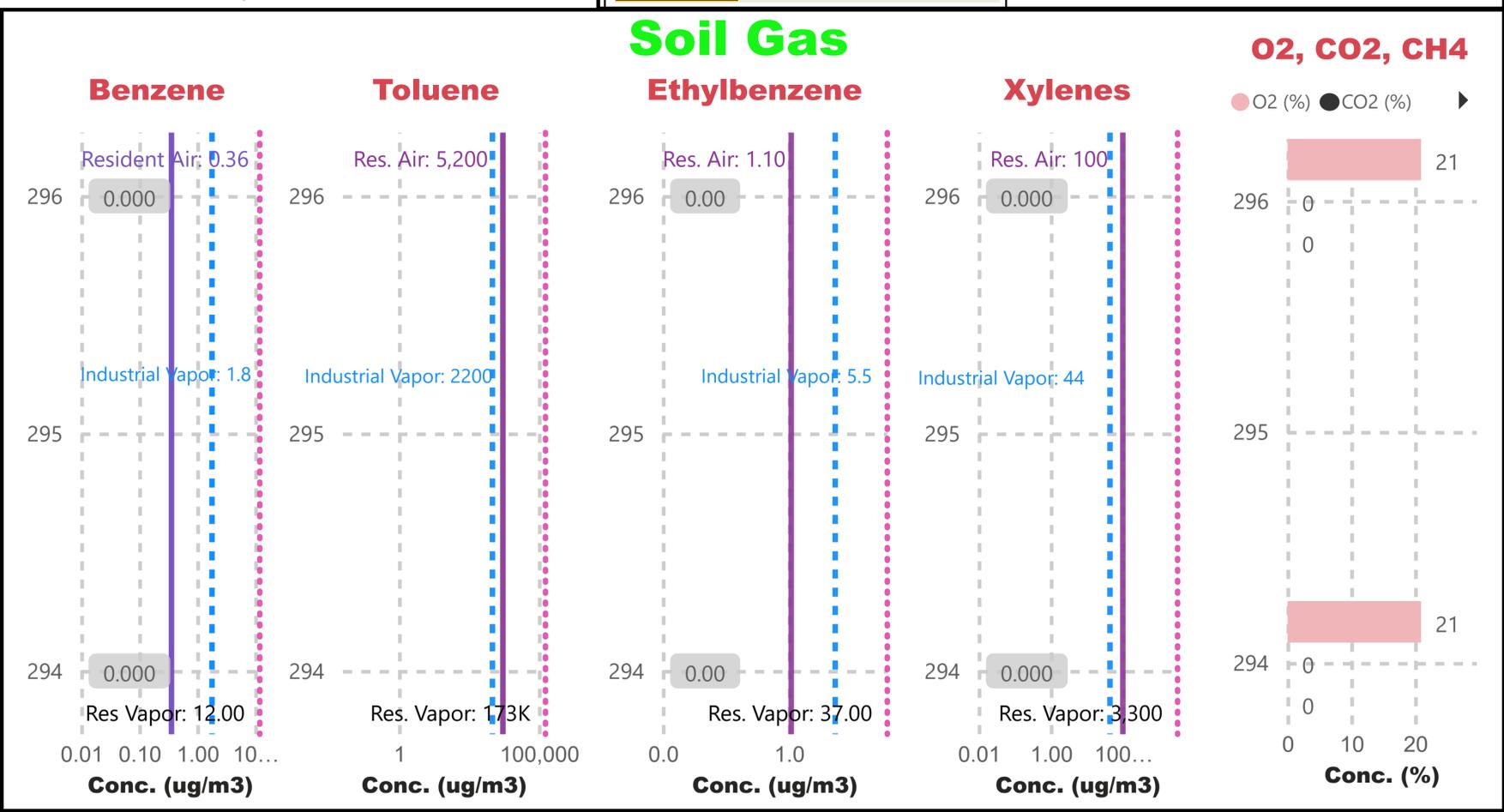
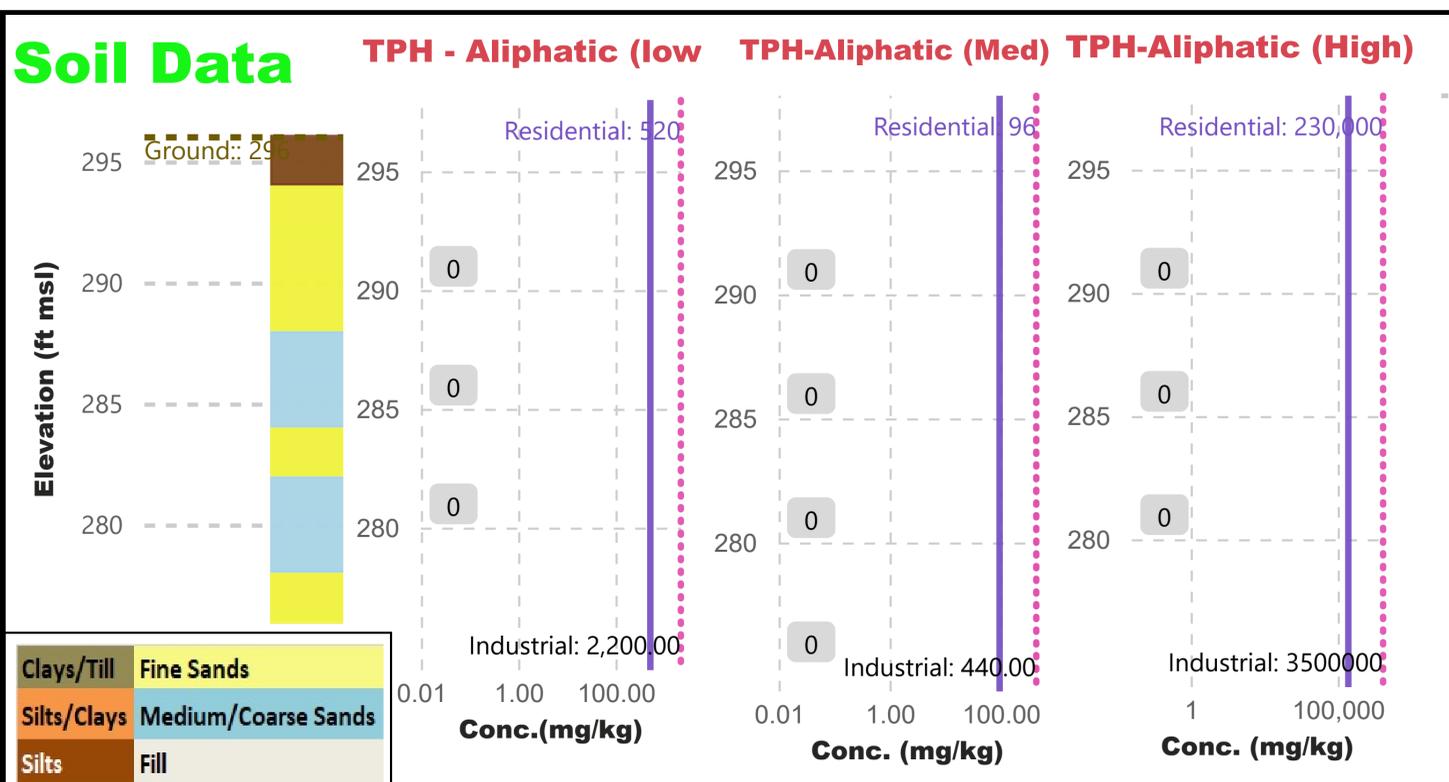
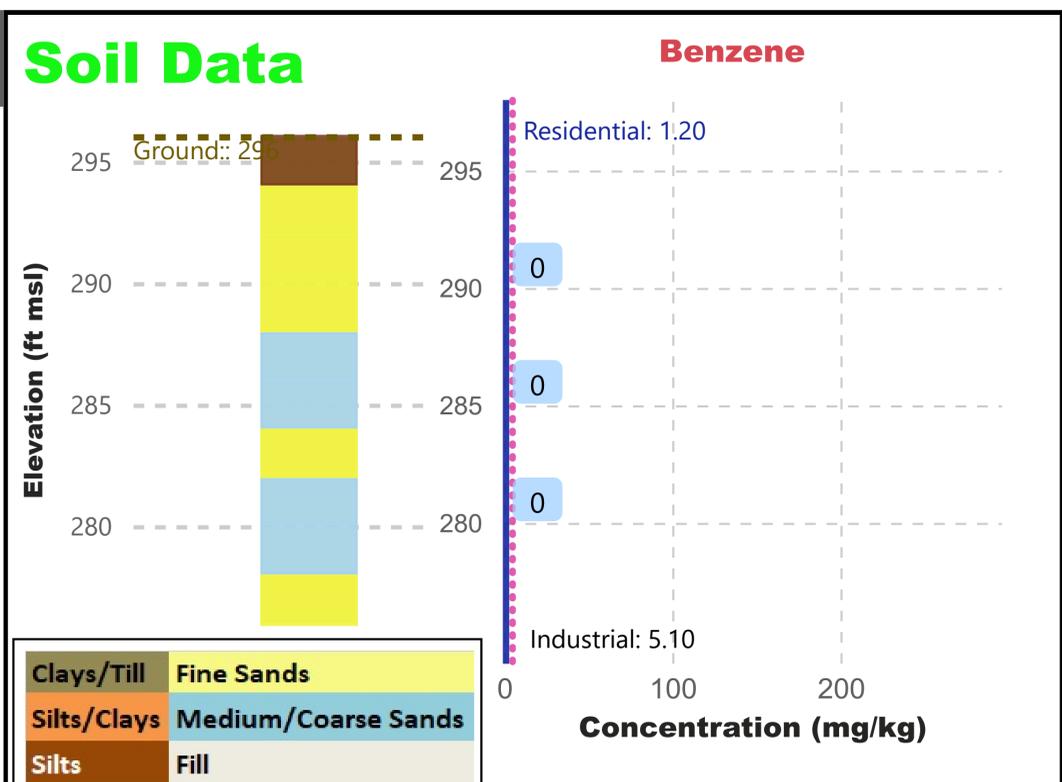
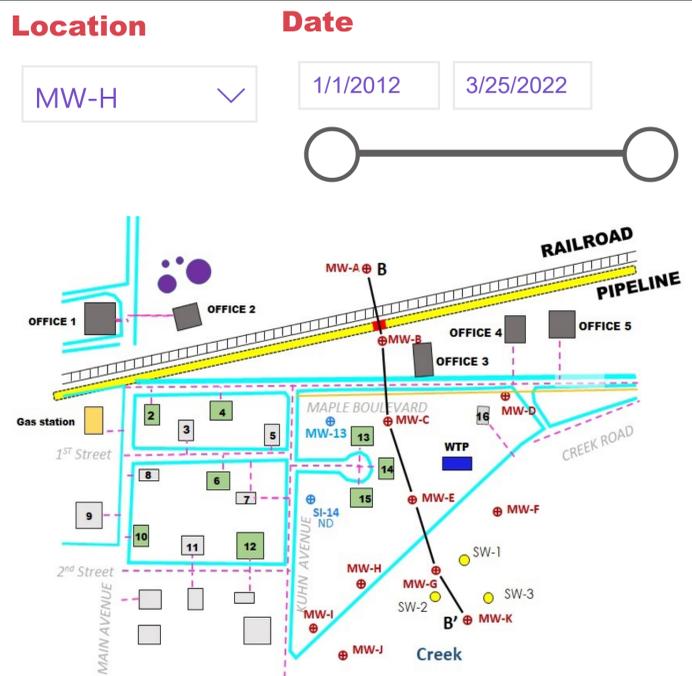
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Molecular Structure	Aliphatic	Aromatic	Working Group	13 Transport Fractions	EPA 6 Toxicity Fractions
EC5-6	Low	EC8-16	Medium	EC16-35	High
EC7	Low	EC9-22	Medium	EC22-35	High
EC8-10	Low	EC10-12	Medium	EC12-16	High
EC10-12	Low	EC12-16	Medium	EC16-21	High
EC12-16	Low	EC16-21	Medium	EC21-35	High
EC16-21	Low	EC21-35	Medium	EC21-35	High

Increasing Equivalent Carbon (EC) Number →

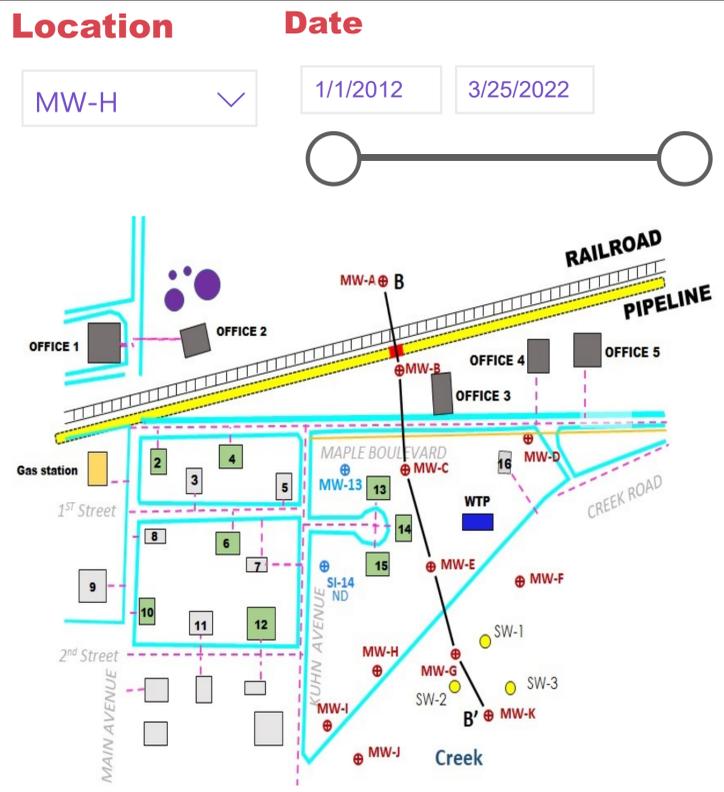
Clays/Till	Fine Sands	--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
Silts	Fill	● NAPL/Water Interface	NWI	

MW-G Hydrograph & Dissolved Summary

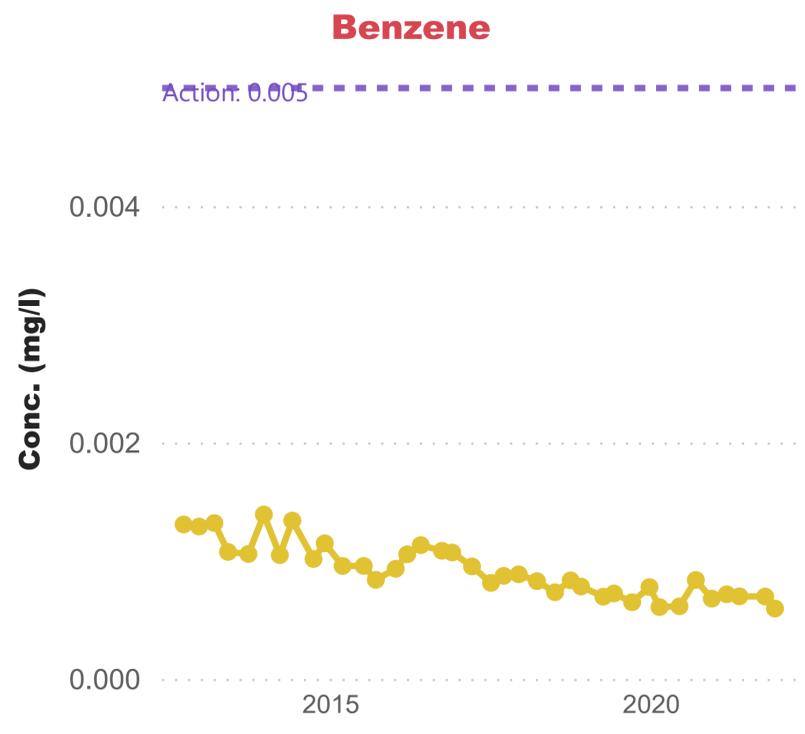


MW-H Soil and Soil Gas Summary

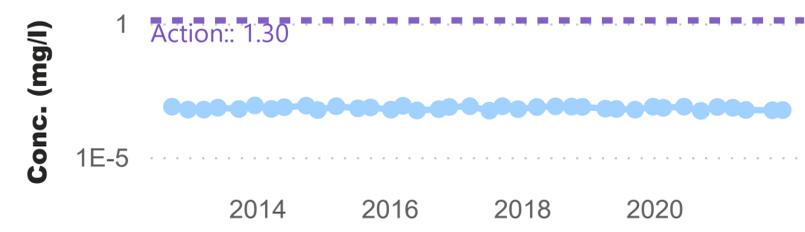
Clays/Till	Fine Sands	<table border="1"> <tr> <td>EC5-6</td> <td>EC8-16</td> <td>EC16-35</td> </tr> <tr> <td>Low</td> <td>Medium</td> <td>High</td> </tr> <tr> <td>EC6-9</td> <td>EC9-22</td> <td>EC22-35</td> </tr> <tr> <td>Low</td> <td>Medium</td> <td>High</td> </tr> </table>	EC5-6	EC8-16	EC16-35	Low	Medium	High	EC6-9	EC9-22	EC22-35	Low	Medium	High	EPA 6 Toxicity Fractions Increasing Equivalent Carbon (EC) Number →
EC5-6	EC8-16		EC16-35												
Low	Medium		High												
EC6-9	EC9-22	EC22-35													
Low	Medium	High													
Silts/Clays	Medium/Coarse Sands														
Silts	Fill														



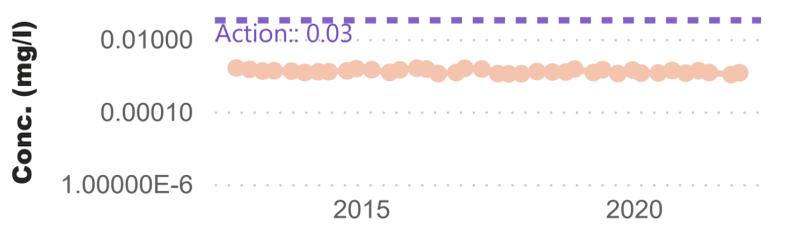
Dissolved Phase



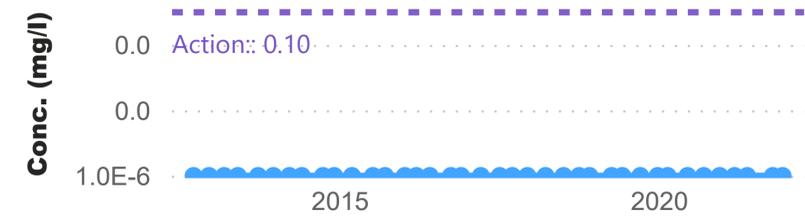
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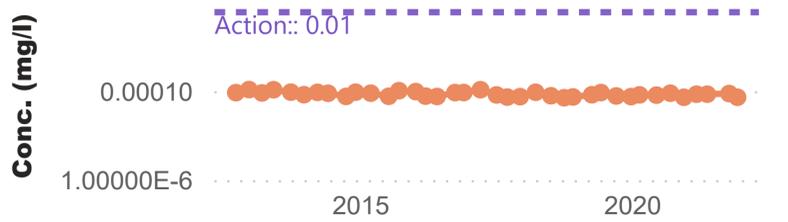
TPH-Aromatic (Low)



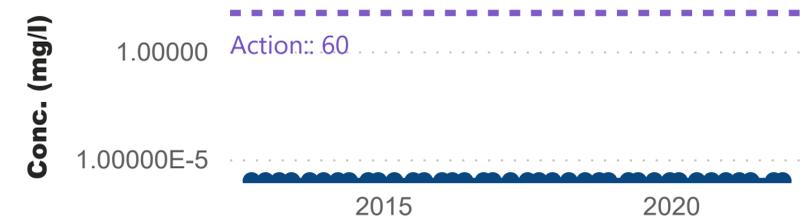
TPH-Aliphatic (Medium)



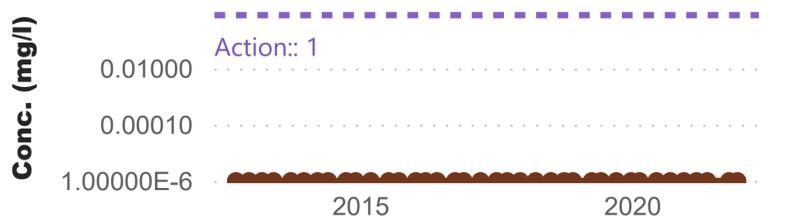
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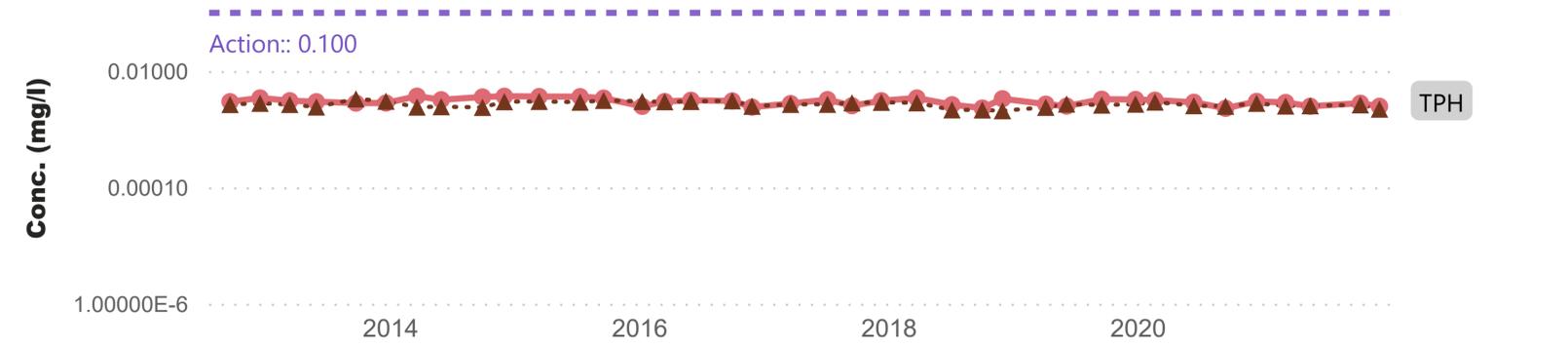
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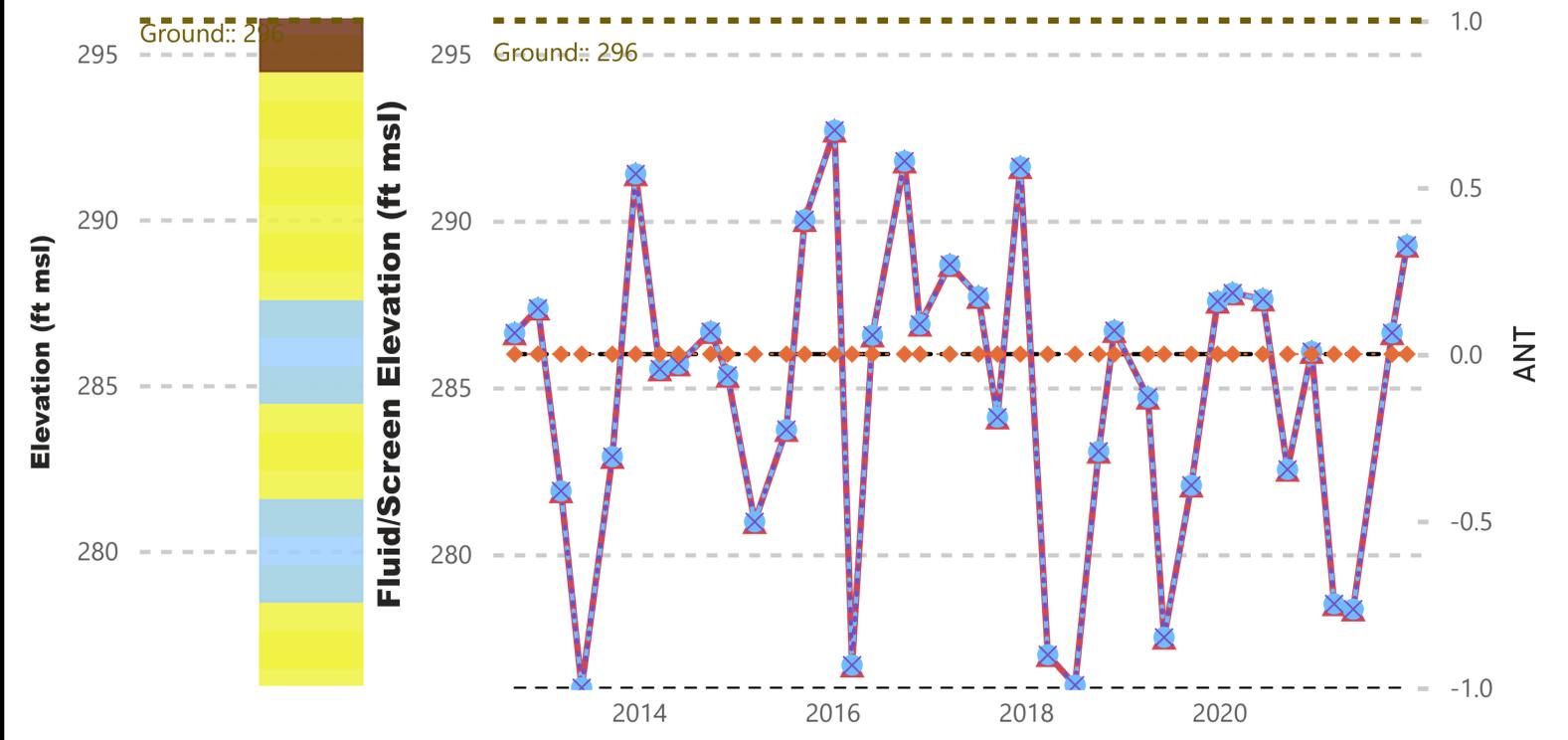
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



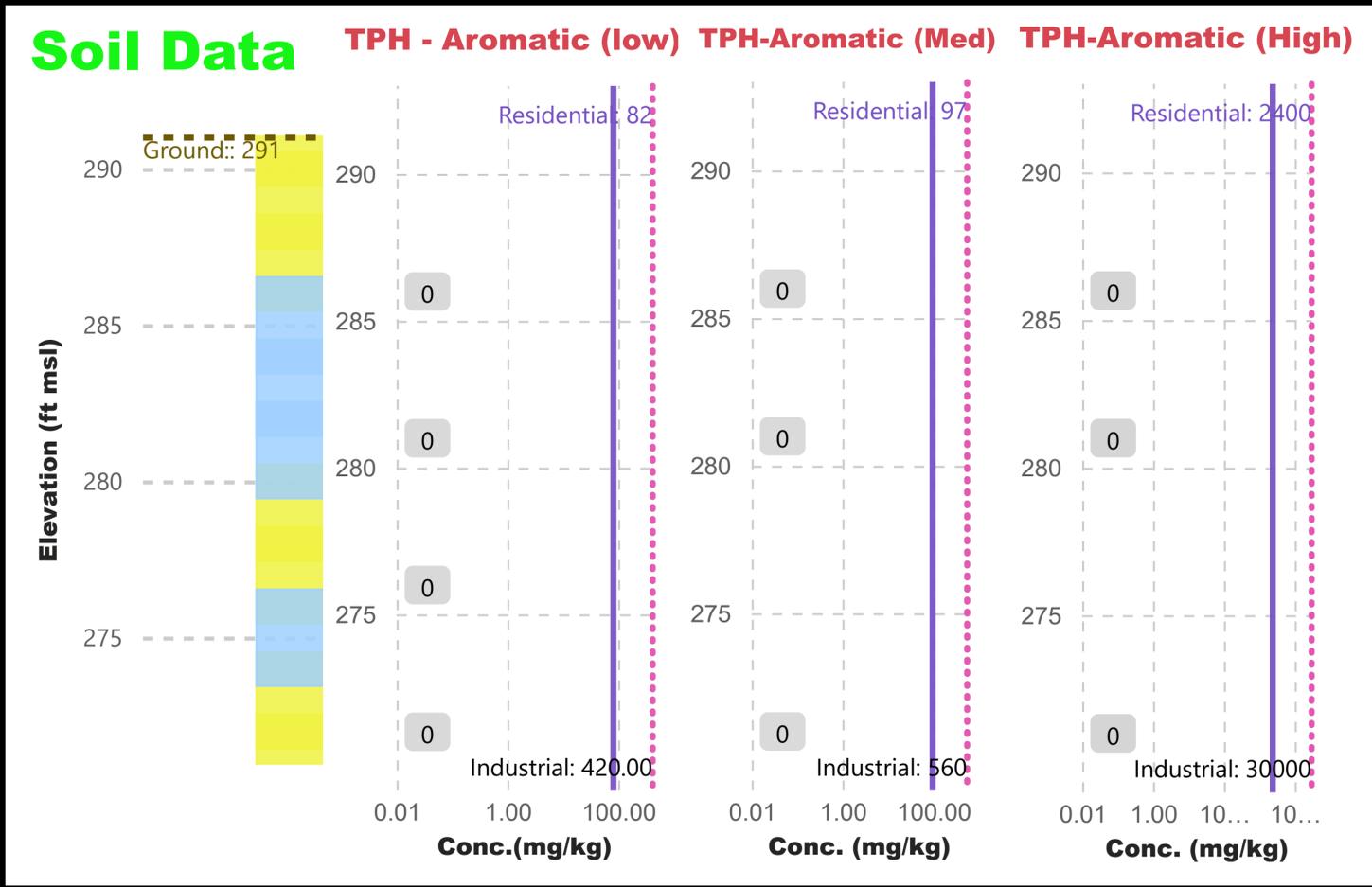
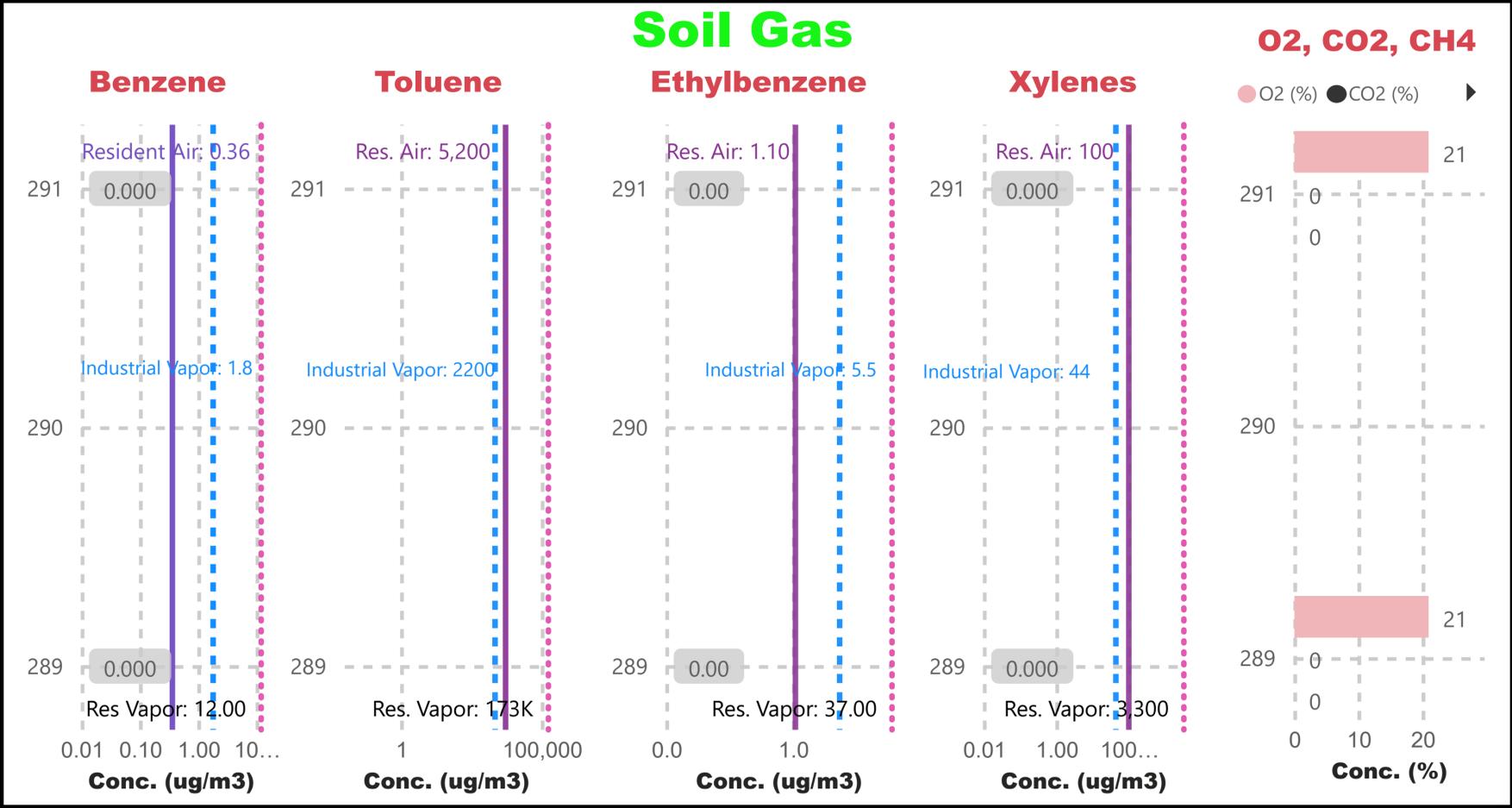
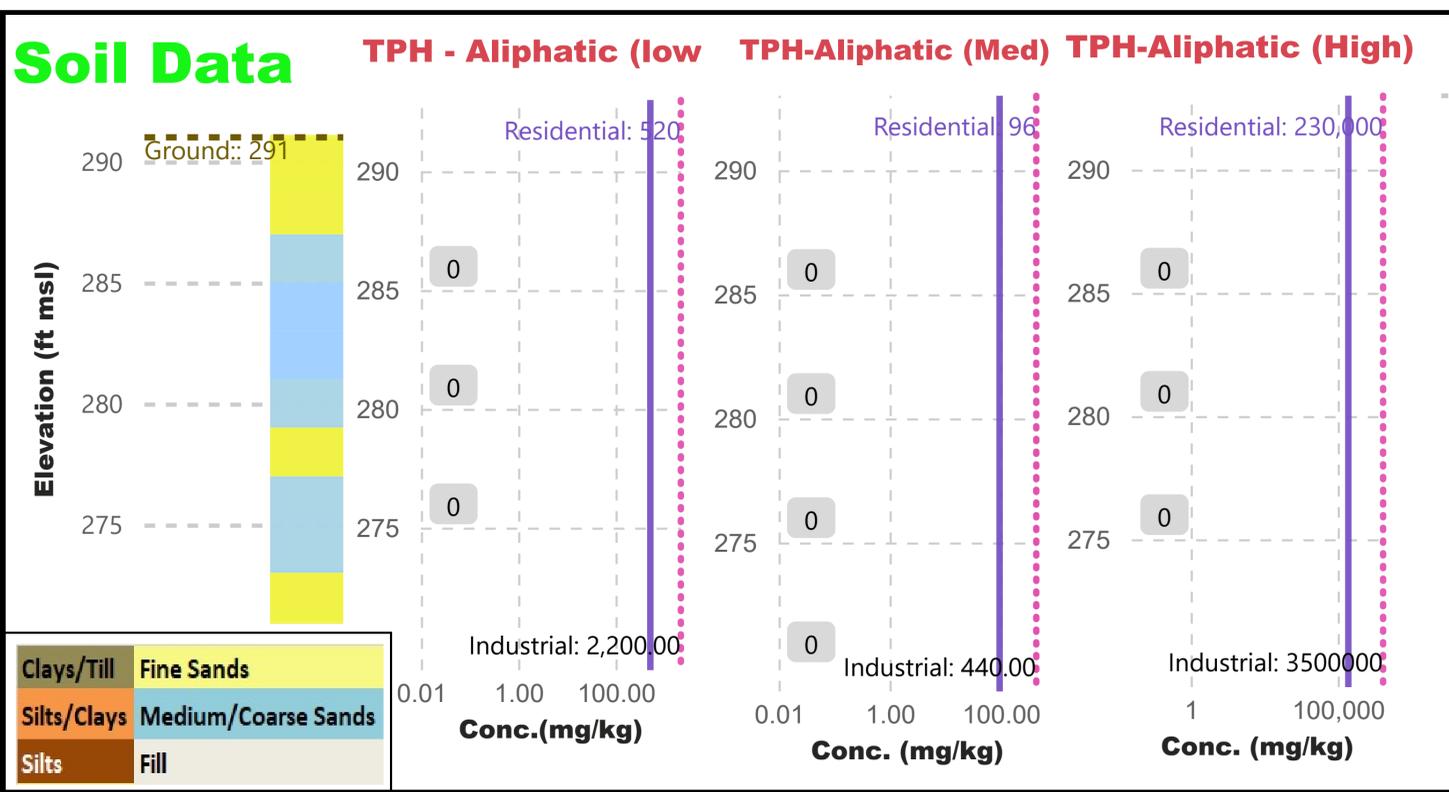
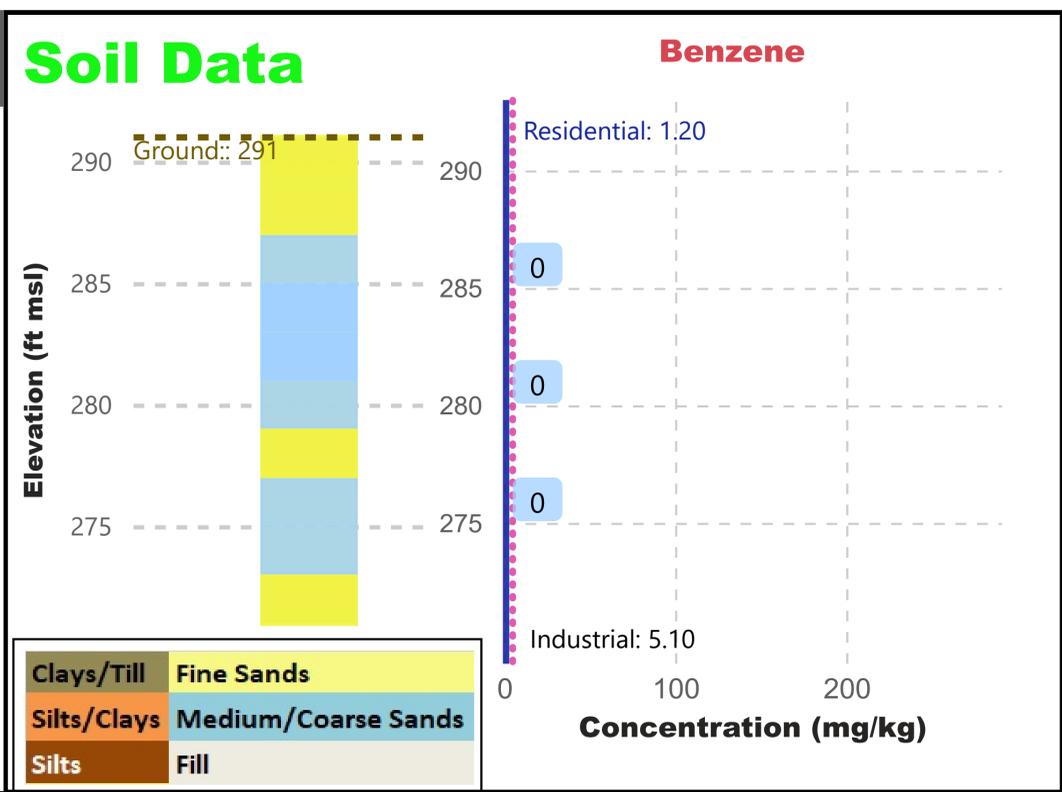
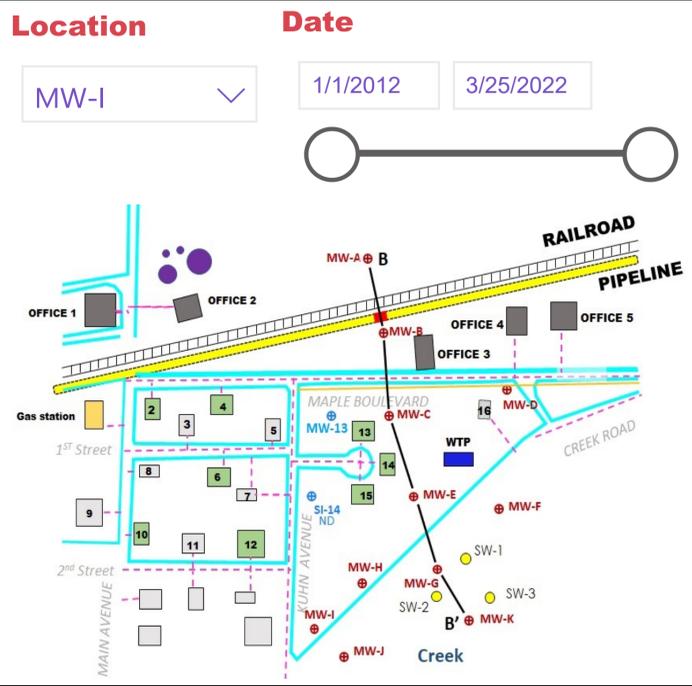
The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

Molecular Structure	EC	Working Group	EC	Working Group	EPA 6 Toxicity Fractions
Aliphatic	EC5-6	Low	EC8-16	Medium	EPA 6 Toxicity Fractions
	EC7	Low	EC9-22	Medium	
	EC8-10	Low	EC16-35	High	
Aromatic	EC10-12	Low	EC21-35	High	EPA 6 Toxicity Fractions
	EC12-16	Low	EC22-35	High	
	EC16-21	Low	EC21-35	High	

Increasing Equivalent Carbon (EC) Number →

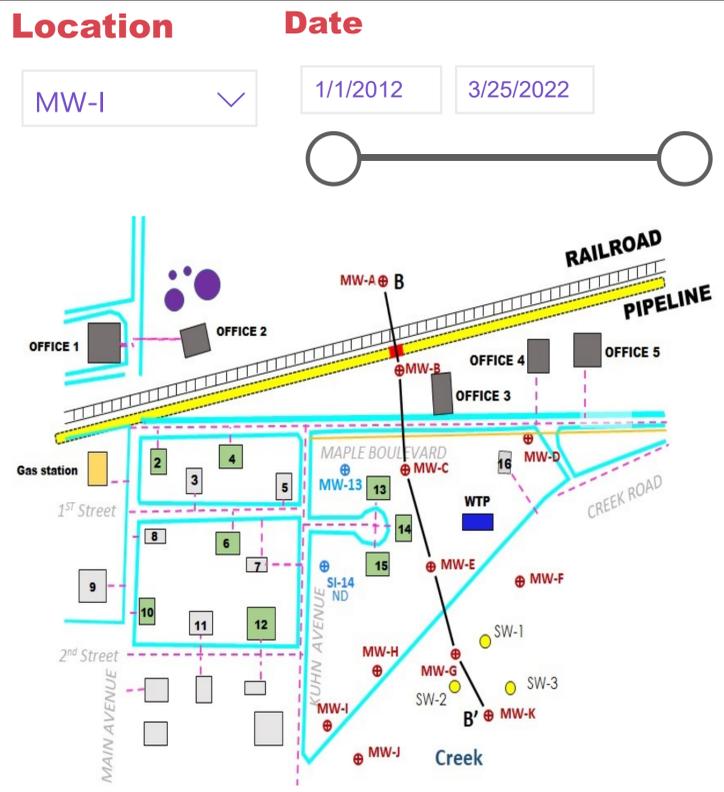
Clays/Till	Fine Sands	--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
Silts	Fill	● NAPL/Water Interface	NWI	

MW-H Hydrograph & Dissolved Summary

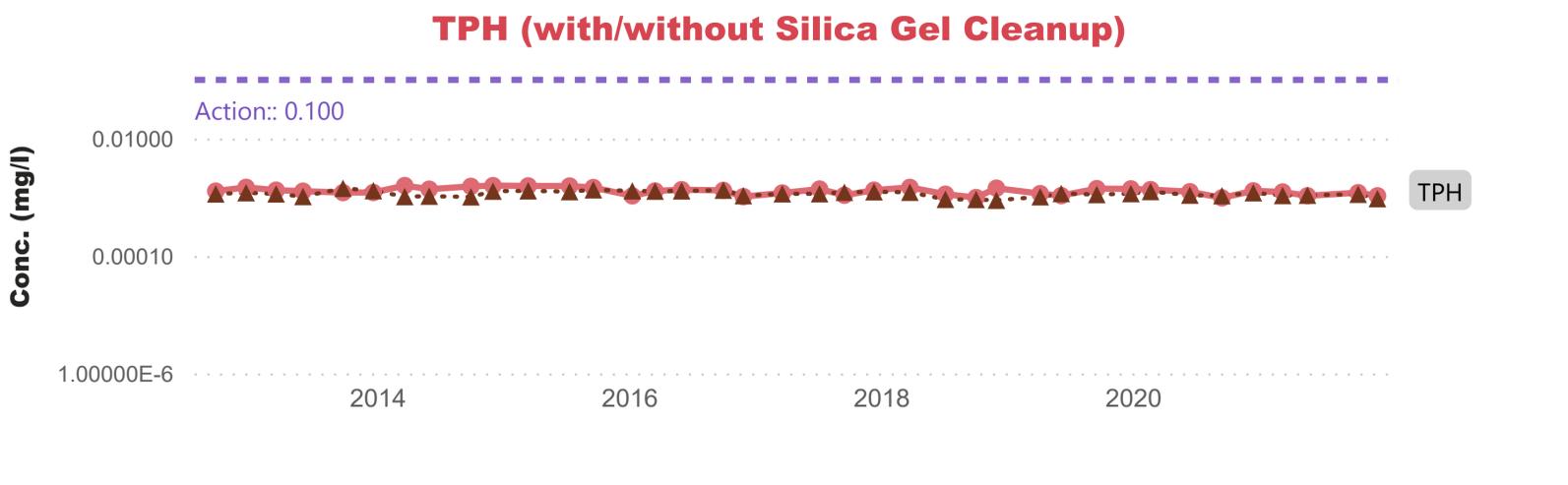
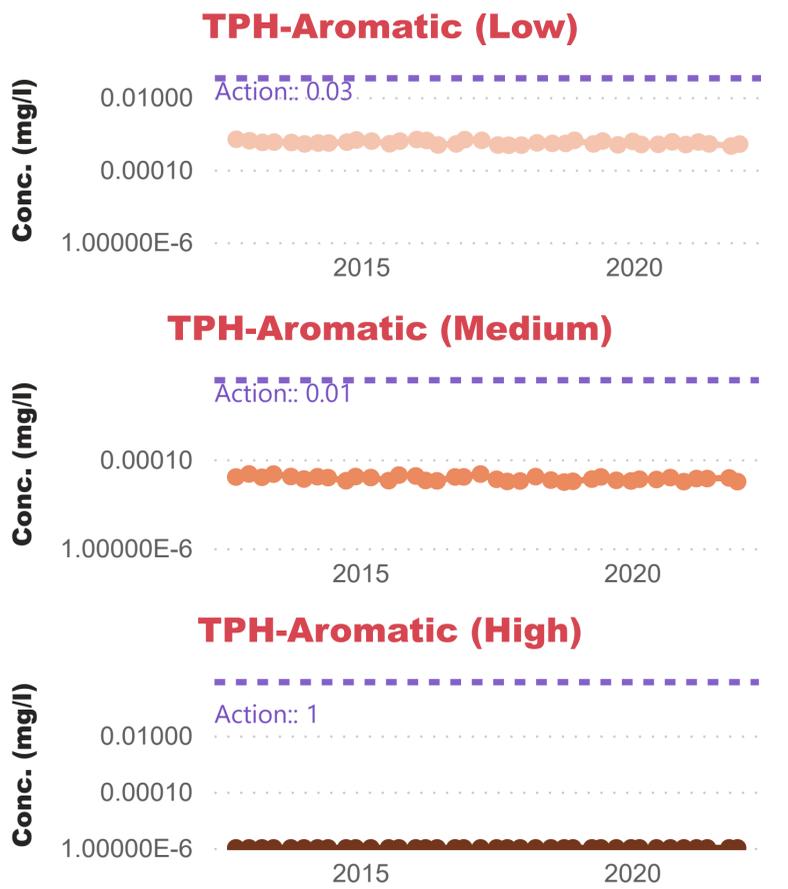
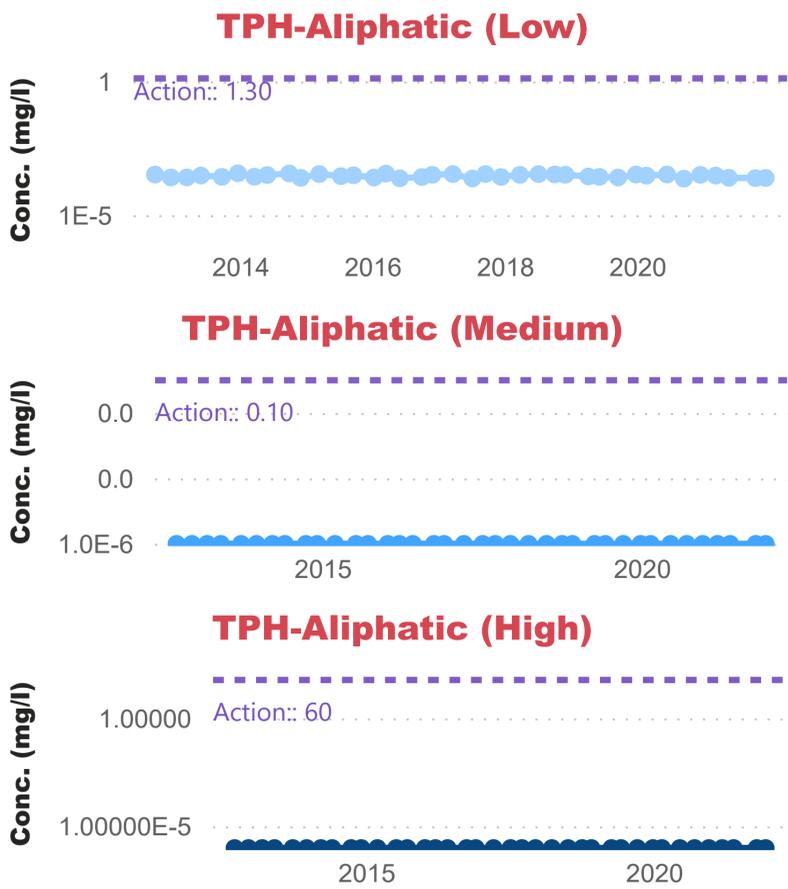
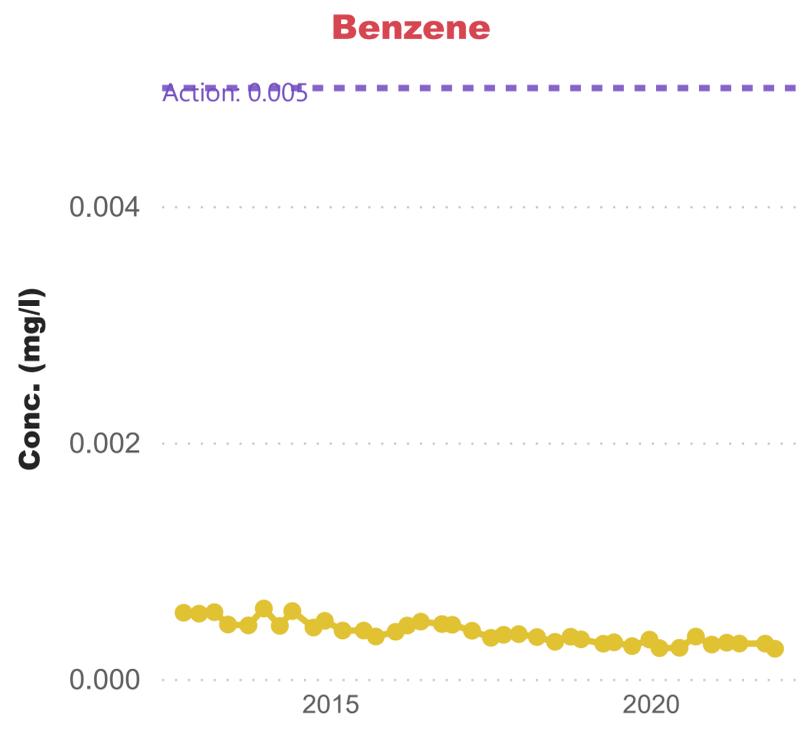


MW-I Soil and Soil Gas Summary

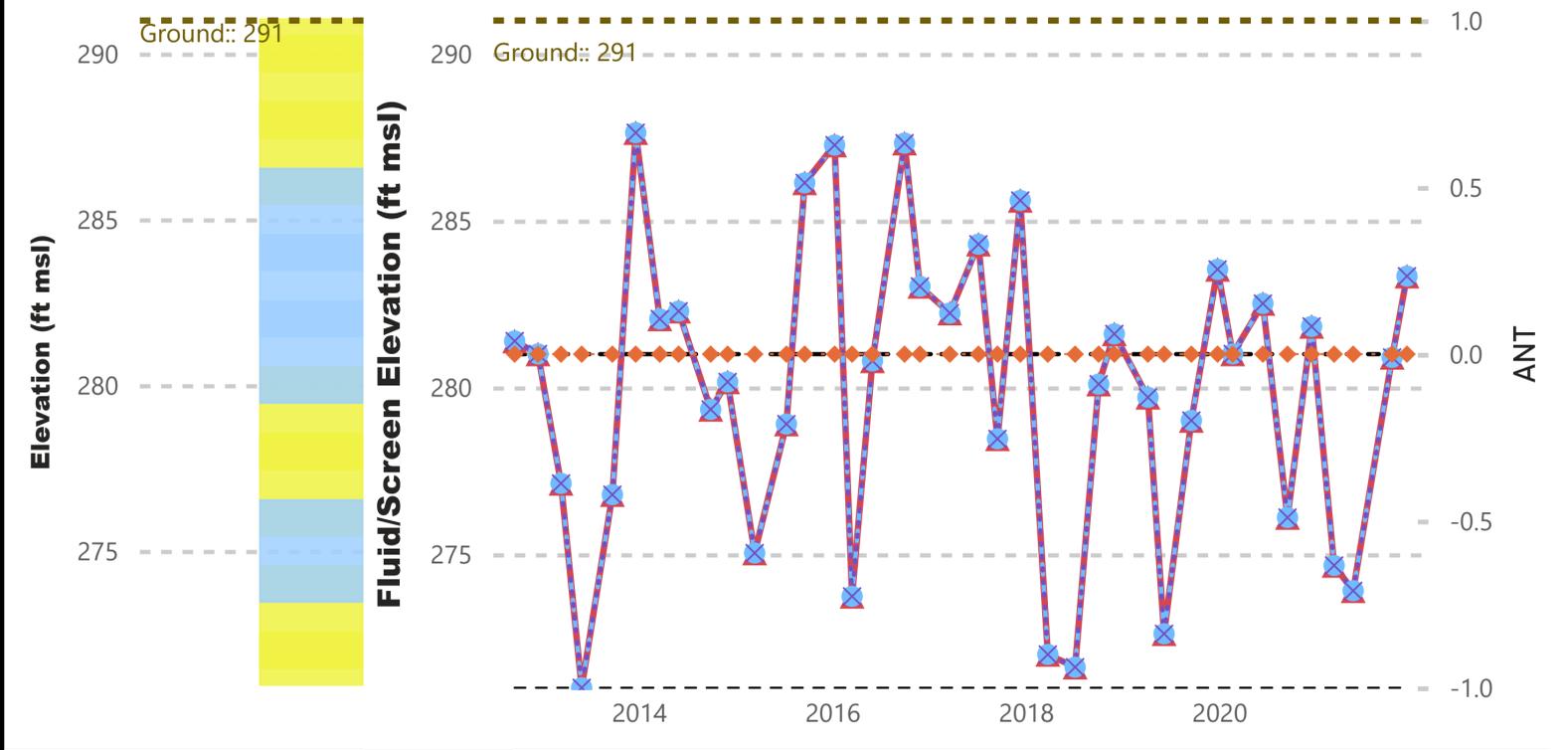
Clays/Till	Fine Sands	<table border="1"> <tr> <td>EC5-6</td> <td>EC8-16</td> <td>EC16-35</td> </tr> <tr> <td>Low</td> <td>Medium</td> <td>High</td> </tr> <tr> <td>EC9-11</td> <td>EC9-22</td> <td>EC22-35</td> </tr> <tr> <td>Low</td> <td>Medium</td> <td>High</td> </tr> </table>	EC5-6	EC8-16	EC16-35	Low	Medium	High	EC9-11	EC9-22	EC22-35	Low	Medium	High	EPA 6 Toxicity Fractions Increasing Equivalent Carbon (EC) Number →
EC5-6	EC8-16		EC16-35												
Low	Medium		High												
EC9-11	EC9-22	EC22-35													
Low	Medium	High													
Silts/Clays	Medium/Coarse Sands														
Silts	Fill														



Dissolved Phase



Hydrograph



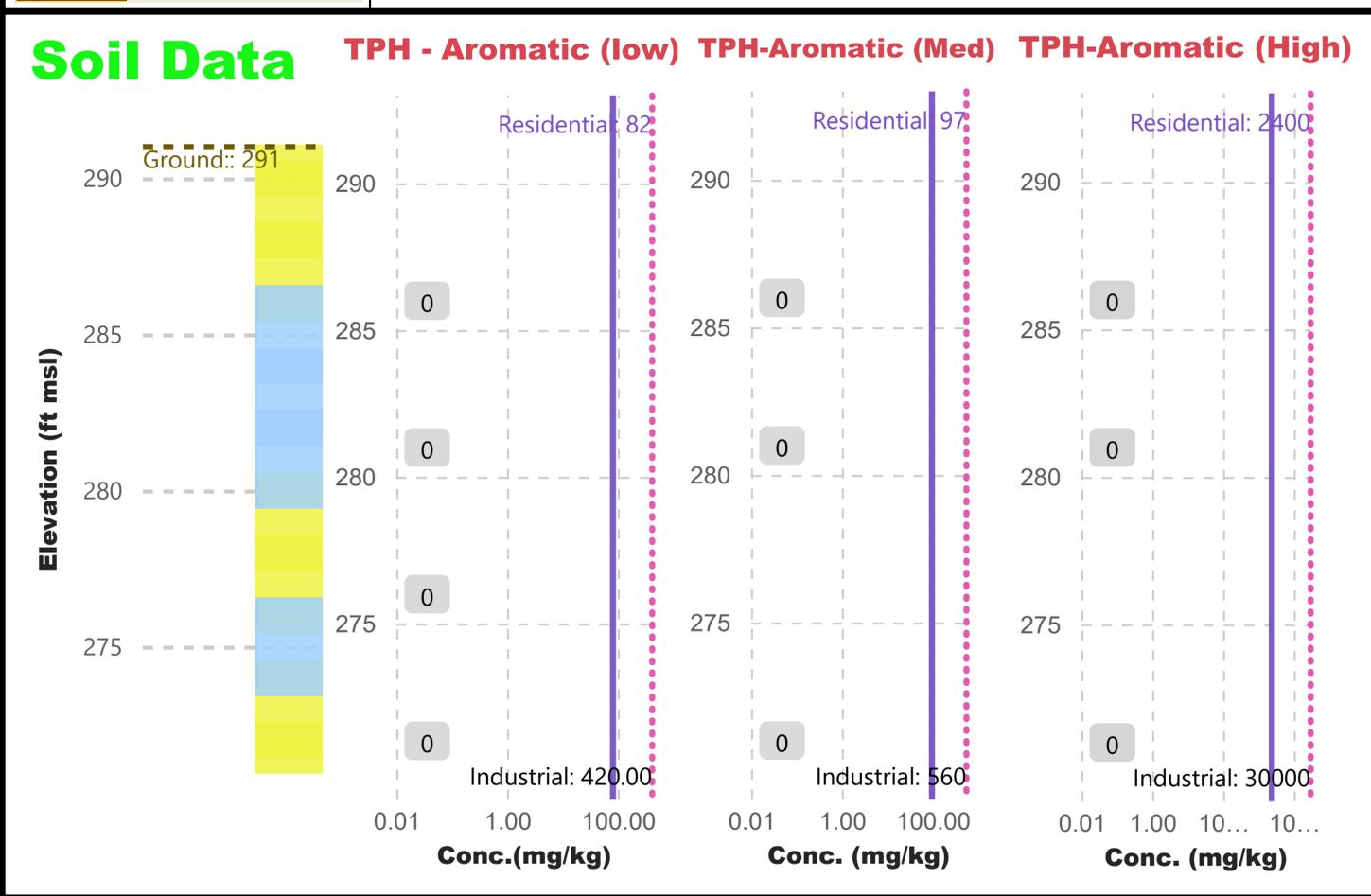
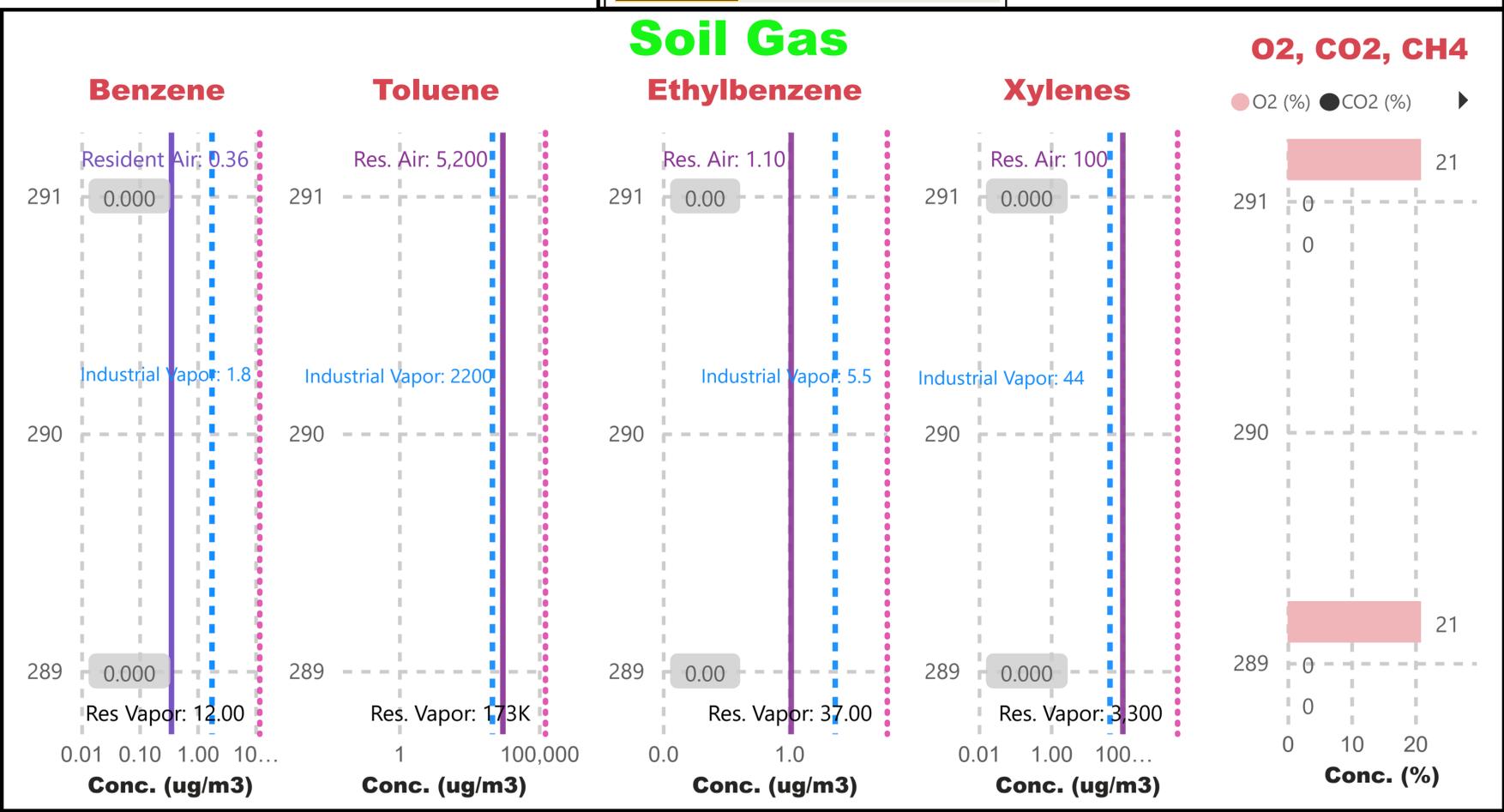
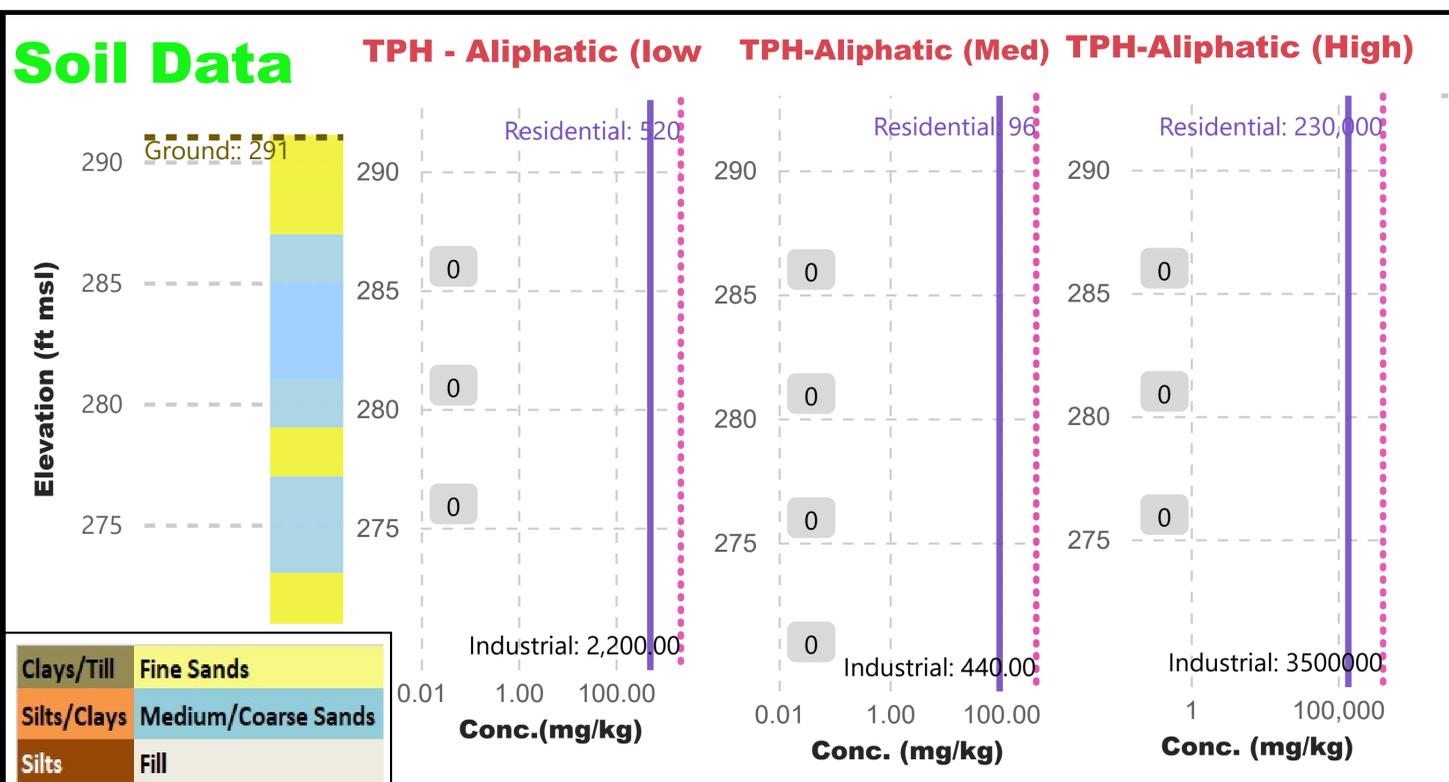
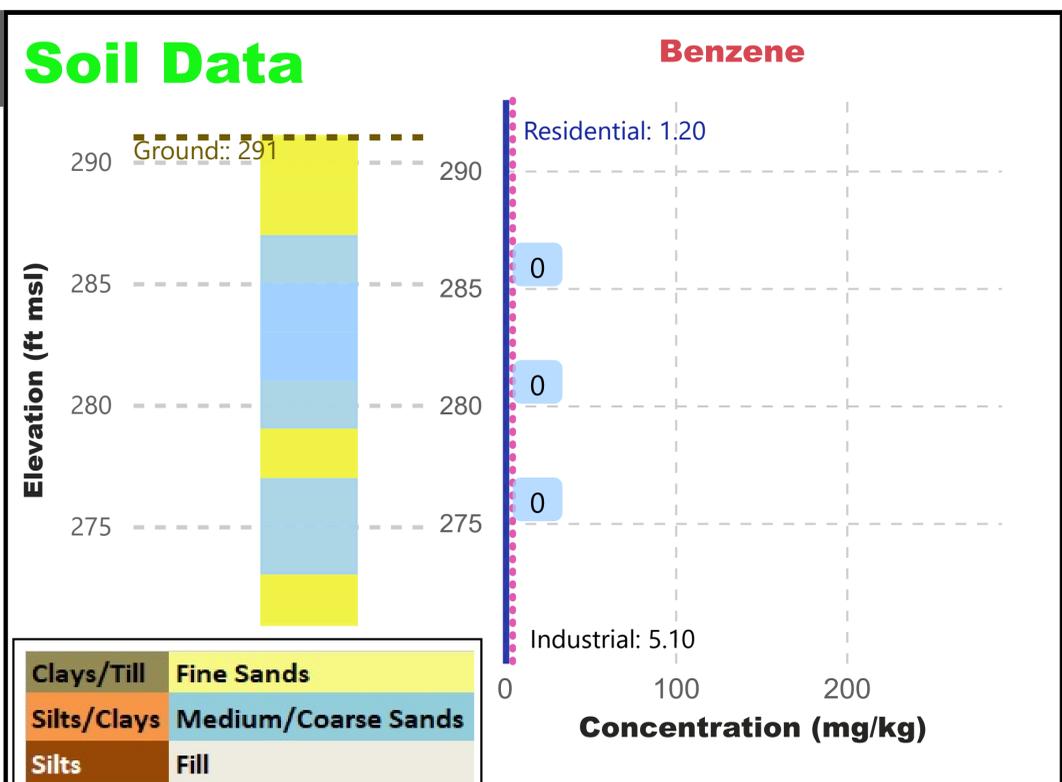
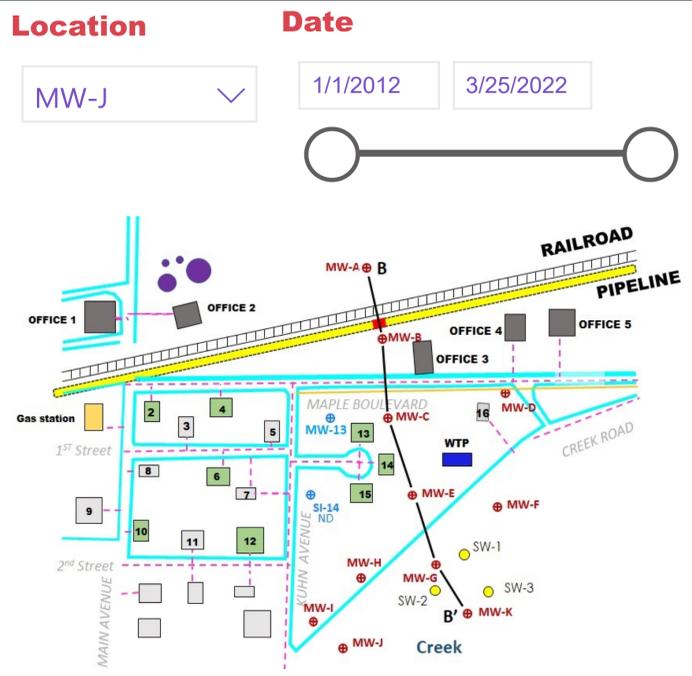
The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

Molecular Structure	Aliphatic	Aromatic	Working Group	13 Transport Fractions	EPA 6 Toxicity Fractions
EC5-7	Low	EC6-9	Low	EC21-35	High
EC8-10	Medium	EC11-12	Medium	EC21-35 (same properties as EC16-21) -- not considered a transport fraction--	High
EC12-16	High	EC13-15	High	EC16-21	High
EC17-20	High	EC21-35	High	EC22-35	High

Increasing Equivalent Carbon (EC) Number →

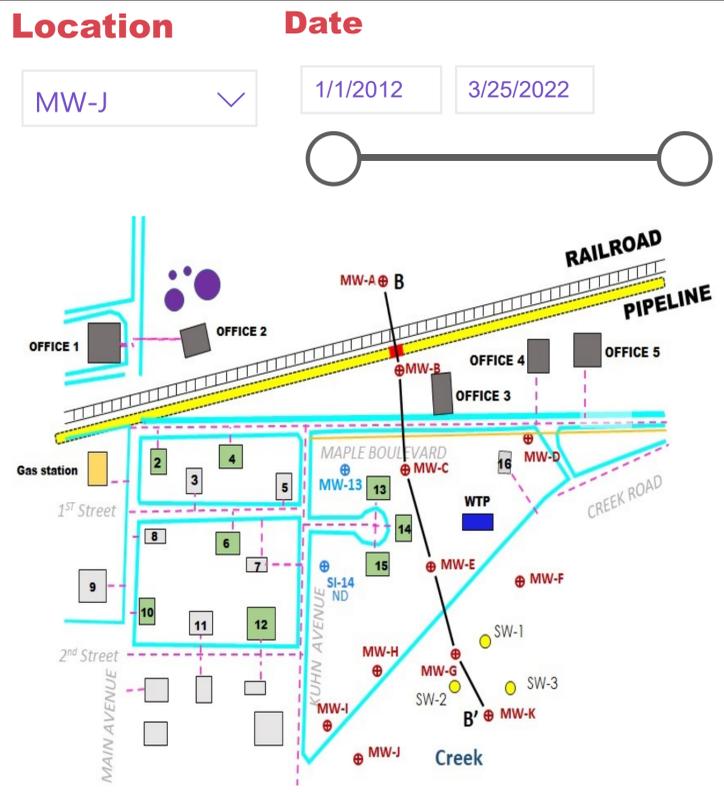
Clays/Till	Fine Sands	--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
Silts	Fill	● NAPL/Water Interface	NWI	

MW-I Hydrograph & Dissolved Summary

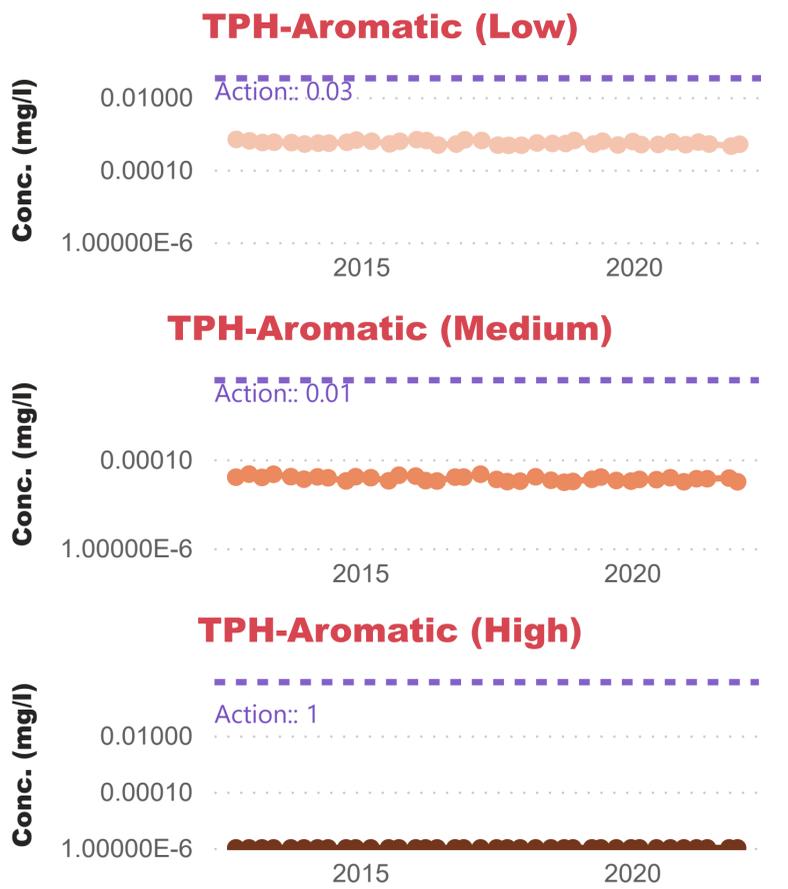
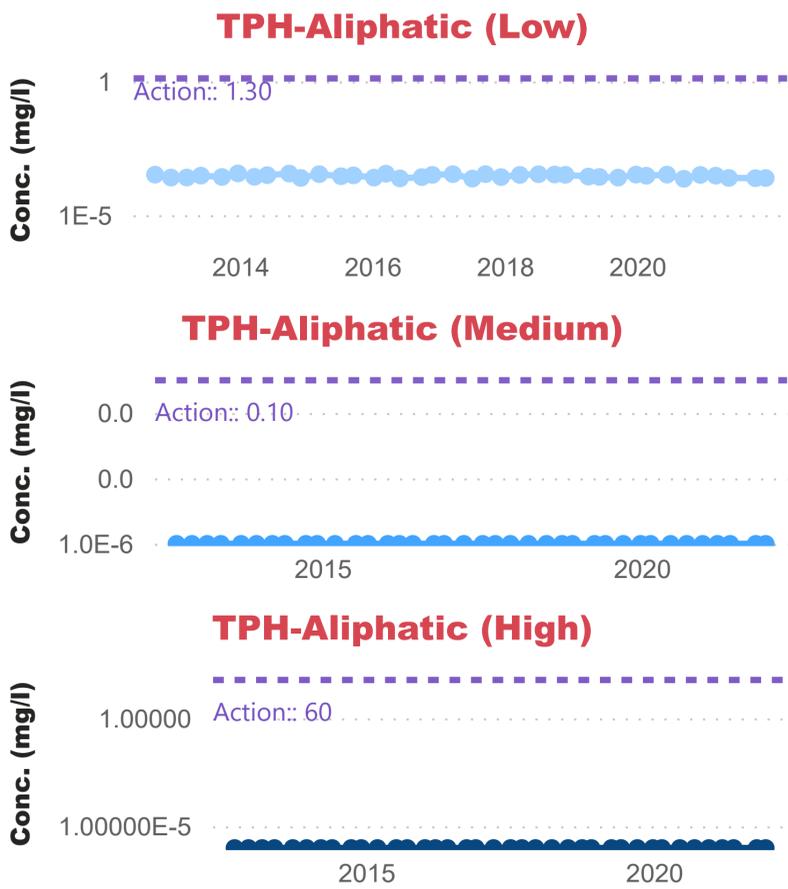
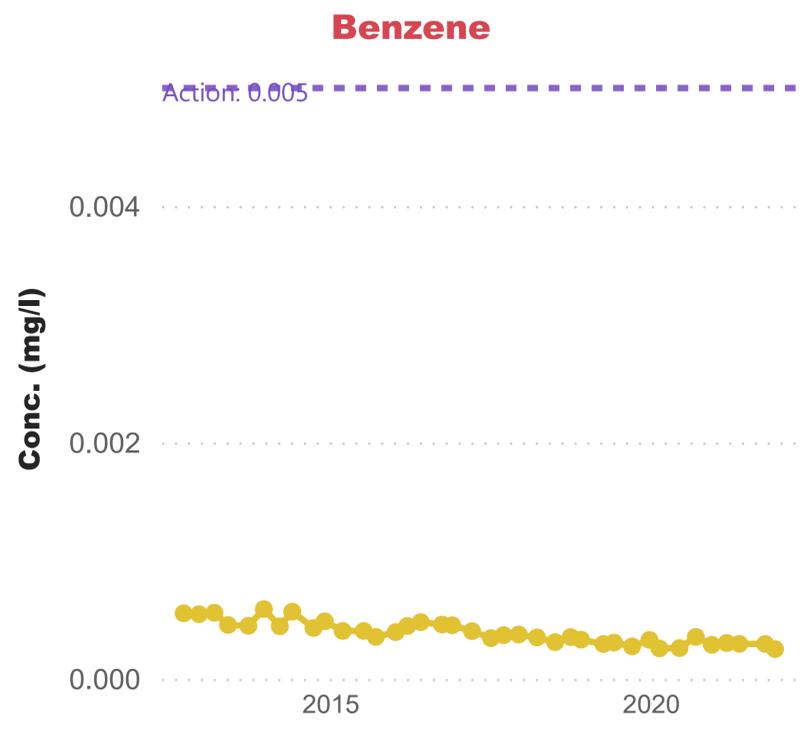


MW-J Soil and Soil Gas Summary

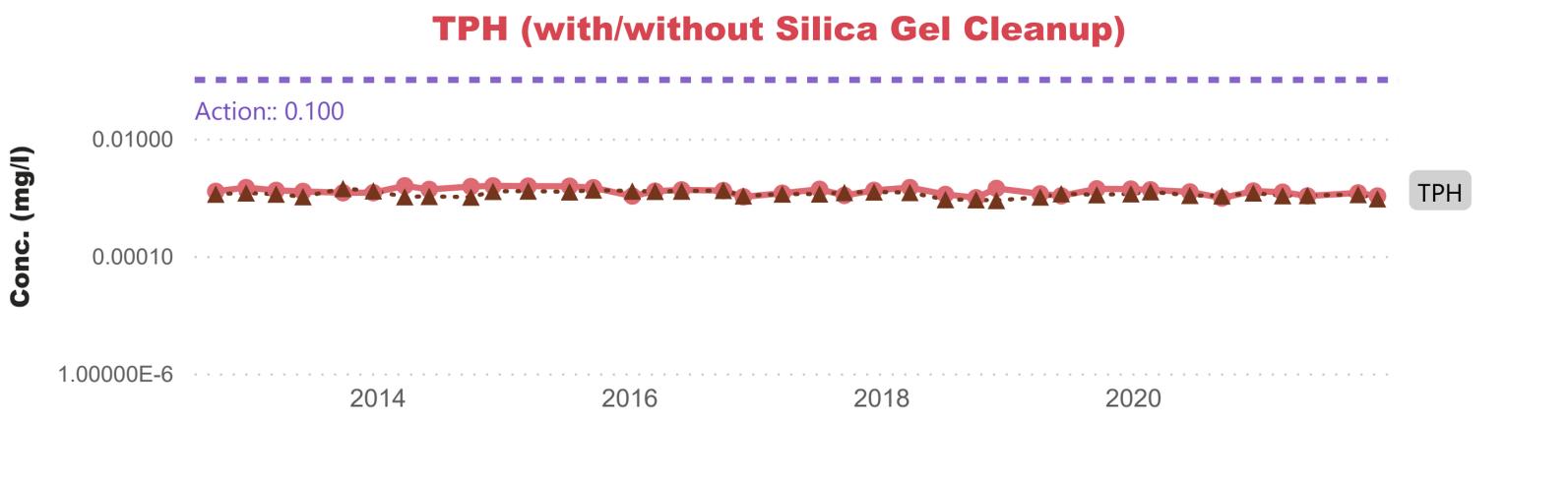
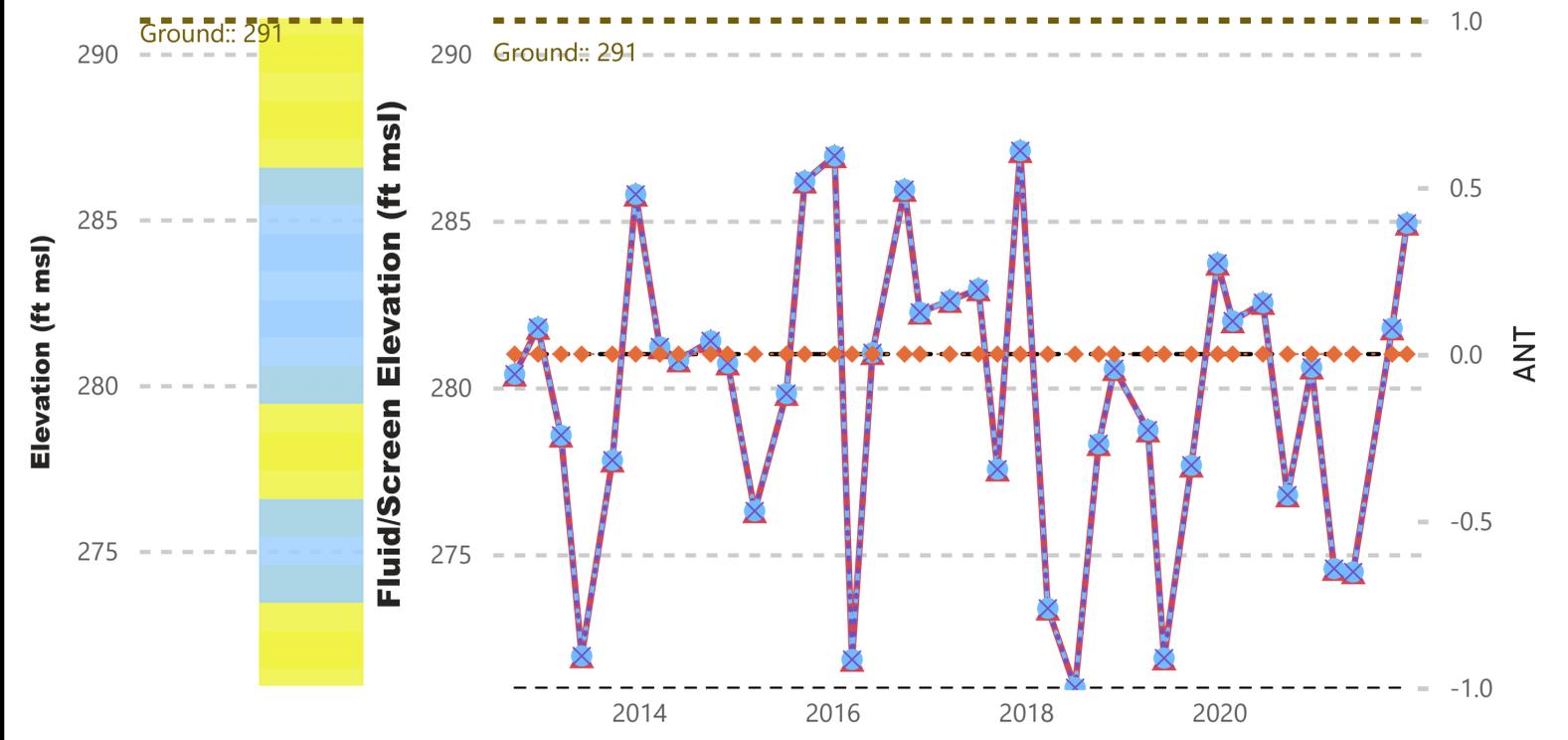
Clays/Till	Fine Sands	<table border="1"> <tr><td>EC5-6</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC7</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC8</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC10</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC11</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC12</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC13</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC14</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC15</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC16</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC17</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC18</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC19</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC20</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC21</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC22</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC23</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC24</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC25</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC26</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC27</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC28</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC29</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC30</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC31</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC32</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC33</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC34</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC35</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> </table>		EC5-6	EC12-16	EC16-21	EC21-35	EC7	EC12-16	EC16-21	EC21-35	EC8	EC12-16	EC16-21	EC21-35	EC9	EC12-16	EC16-21	EC21-35	EC10	EC12-16	EC16-21	EC21-35	EC11	EC12-16	EC16-21	EC21-35	EC12	EC12-16	EC16-21	EC21-35	EC13	EC12-16	EC16-21	EC21-35	EC14	EC12-16	EC16-21	EC21-35	EC15	EC12-16	EC16-21	EC21-35	EC16	EC12-16	EC16-21	EC21-35	EC17	EC12-16	EC16-21	EC21-35	EC18	EC12-16	EC16-21	EC21-35	EC19	EC12-16	EC16-21	EC21-35	EC20	EC12-16	EC16-21	EC21-35	EC21	EC12-16	EC16-21	EC21-35	EC22	EC12-16	EC16-21	EC21-35	EC23	EC12-16	EC16-21	EC21-35	EC24	EC12-16	EC16-21	EC21-35	EC25	EC12-16	EC16-21	EC21-35	EC26	EC12-16	EC16-21	EC21-35	EC27	EC12-16	EC16-21	EC21-35	EC28	EC12-16	EC16-21	EC21-35	EC29	EC12-16	EC16-21	EC21-35	EC30	EC12-16	EC16-21	EC21-35	EC31	EC12-16	EC16-21	EC21-35	EC32	EC12-16	EC16-21	EC21-35	EC33	EC12-16	EC16-21	EC21-35	EC34	EC12-16	EC16-21	EC21-35	EC35	EC12-16	EC16-21	EC21-35	<p>TPH Criteria Working Group 13 Transport Fractions</p> <table border="1"> <tr><td>EC5-8</td><td>EC8-16</td><td>EC16-35</td></tr> <tr><td>Low</td><td>Medium</td><td>High</td></tr> <tr><td>EC9</td><td>EC9-22</td><td>EC22-35</td></tr> <tr><td>Low</td><td>Medium</td><td>High</td></tr> </table> <p>EPA 6 Toxicity Fractions</p>	EC5-8	EC8-16	EC16-35	Low	Medium	High	EC9	EC9-22	EC22-35	Low	Medium	High
EC5-6	EC12-16	EC16-21	EC21-35																																																																																																																																					
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EC5-8	EC8-16	EC16-35																																																																																																																																						
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Dissolved Phase



Hydrograph



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Molecular Structure	Aliphatic	Aromatic	TPH Criteria Working Group	13 Transport Fractions	EPA 6 Toxicity Fractions
EC5-7	EC5-6	EC8-16	Low	Low	Low
EC8-10	EC8-10	EC8-16	Medium	Medium	Medium
EC10-12	EC10-12	EC16-21	High	High	High
EC12-16	EC12-16	EC16-21	High	High	High
EC16-21	EC16-21	EC21-35	High	High	High
EC21-35	EC21-35	EC21-35	High	High	High

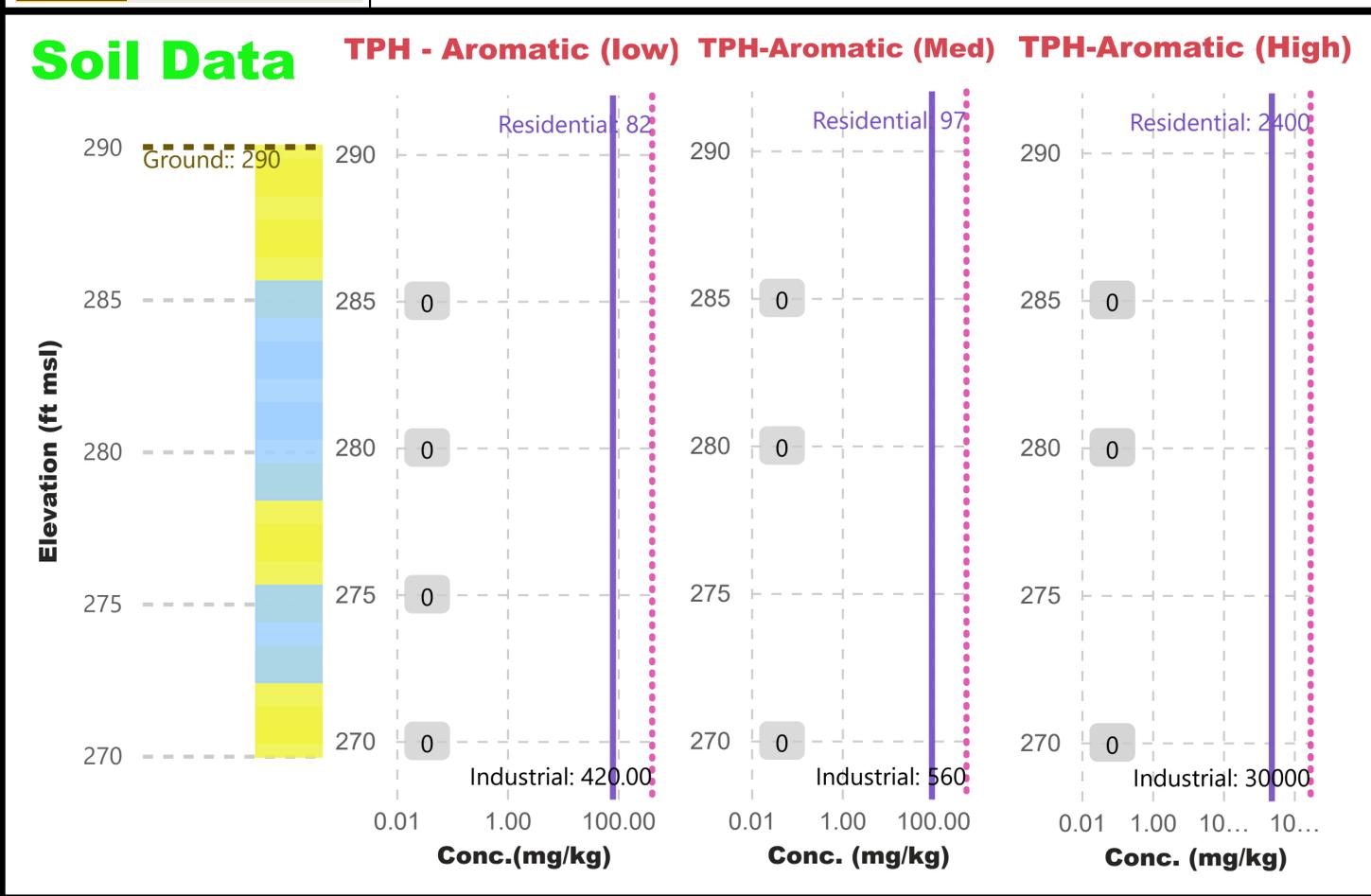
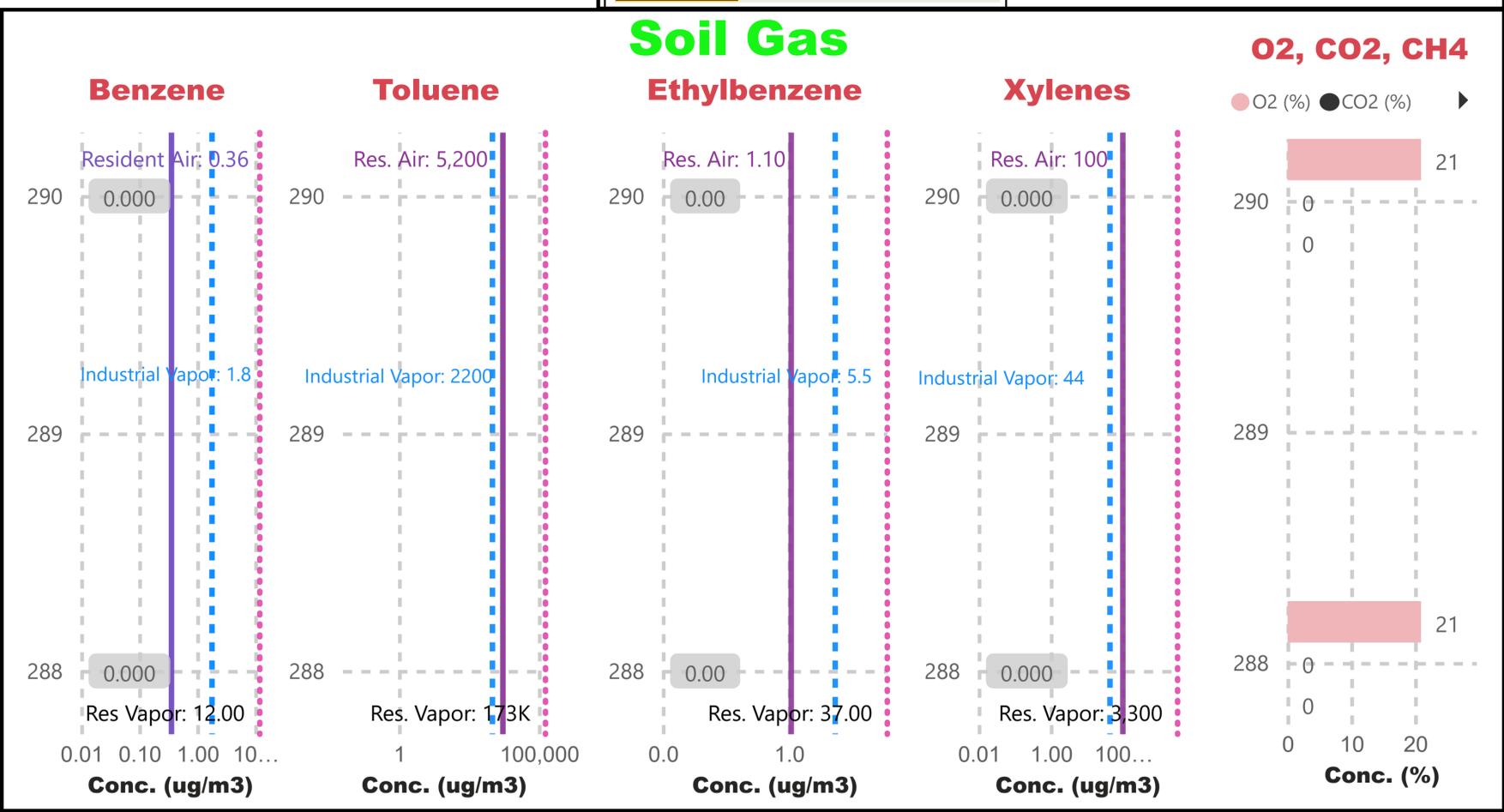
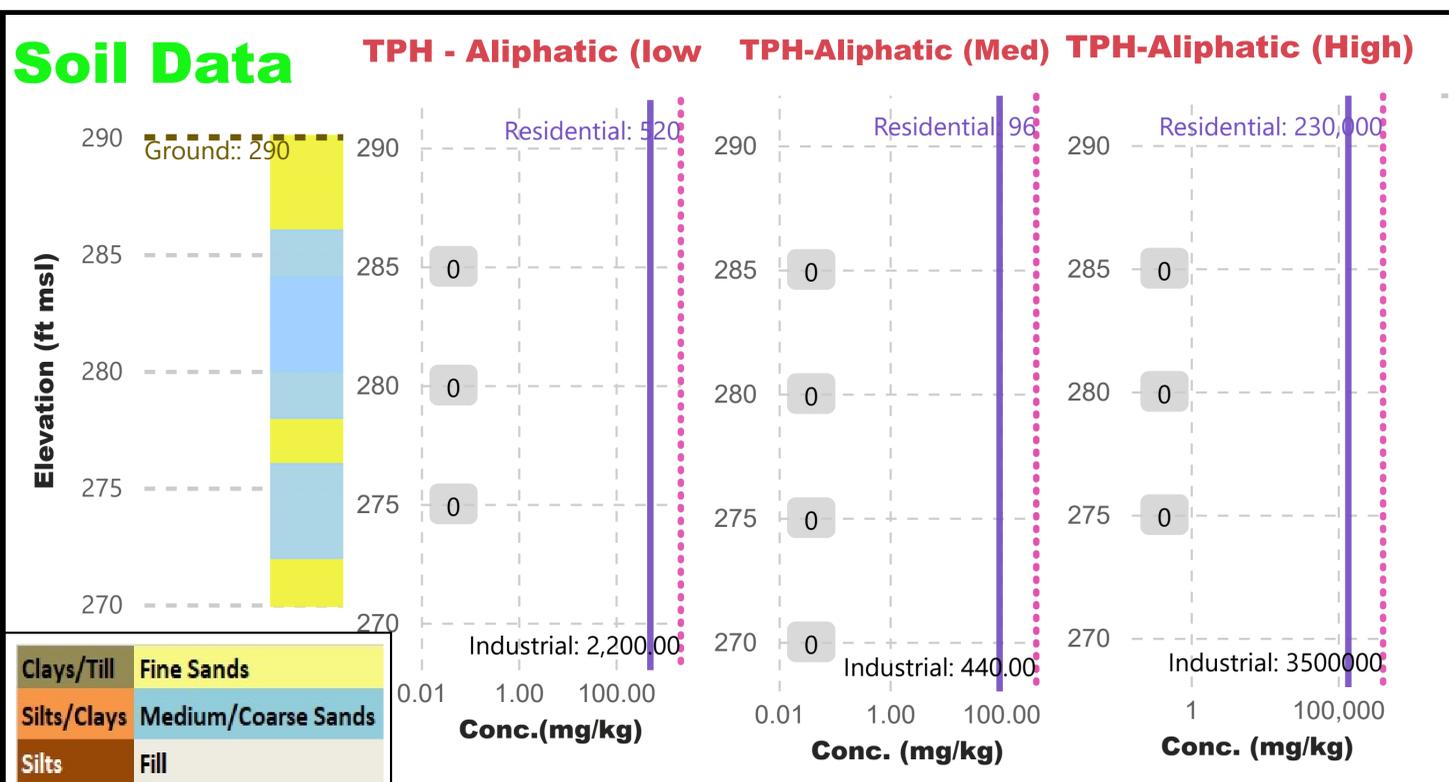
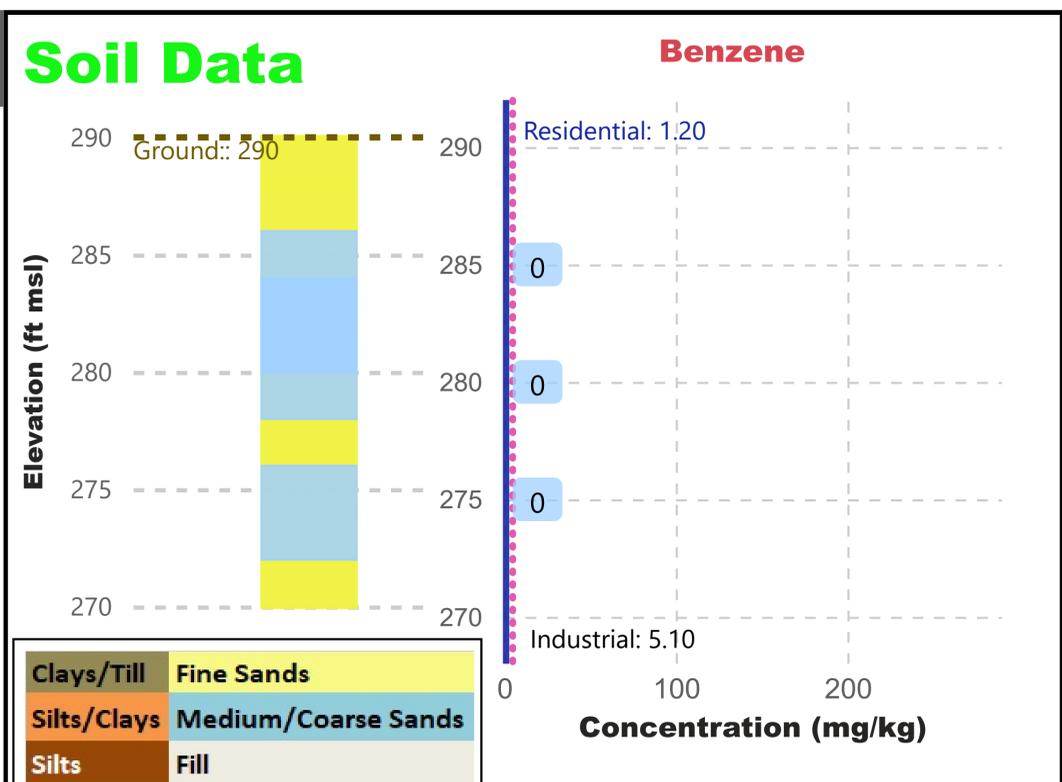
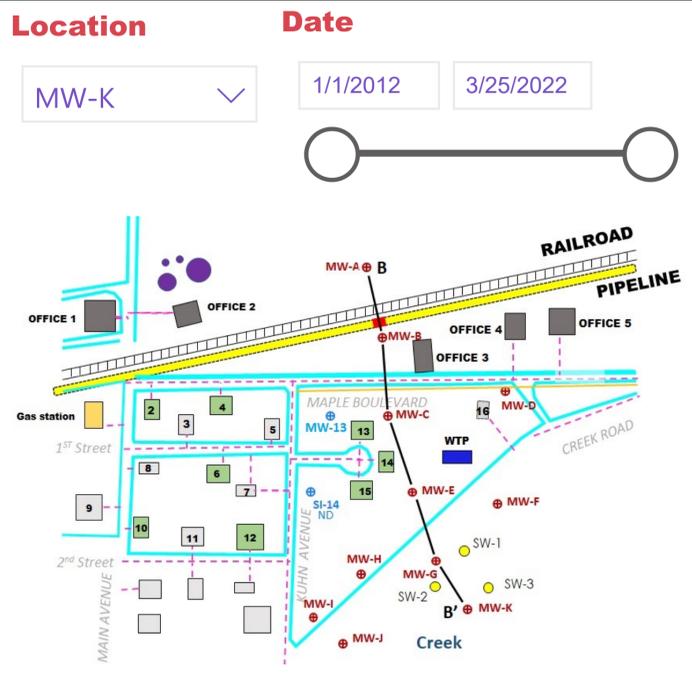
Increasing Equivalent Carbon (EC) Number →

Clays/Till	Fine Sands
Silts/Clays	Medium/Coarse Sands
Silts	Fill

--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
● NAPL/Water Interface NWI		

MW-J

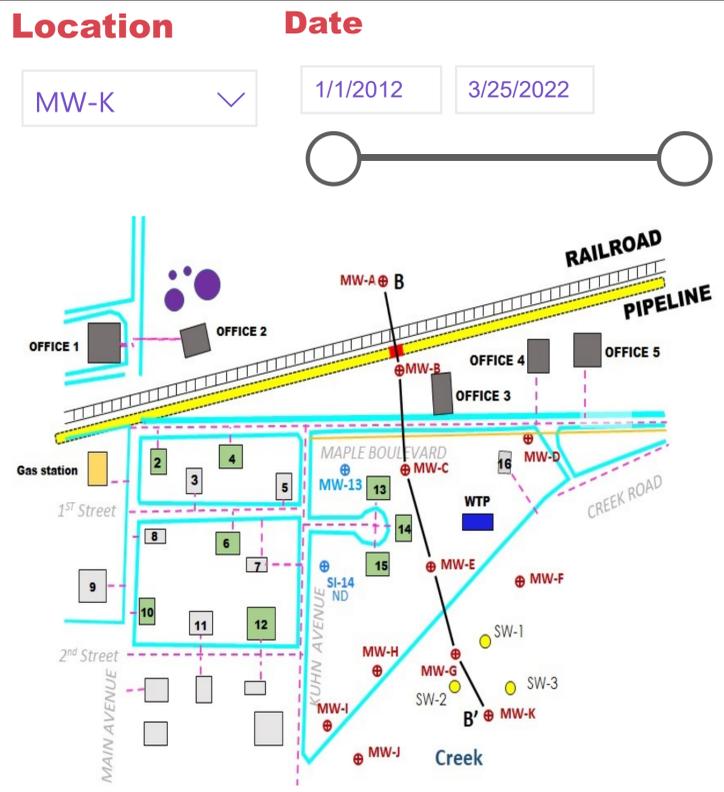
Hydrograph & Dissolved Summary



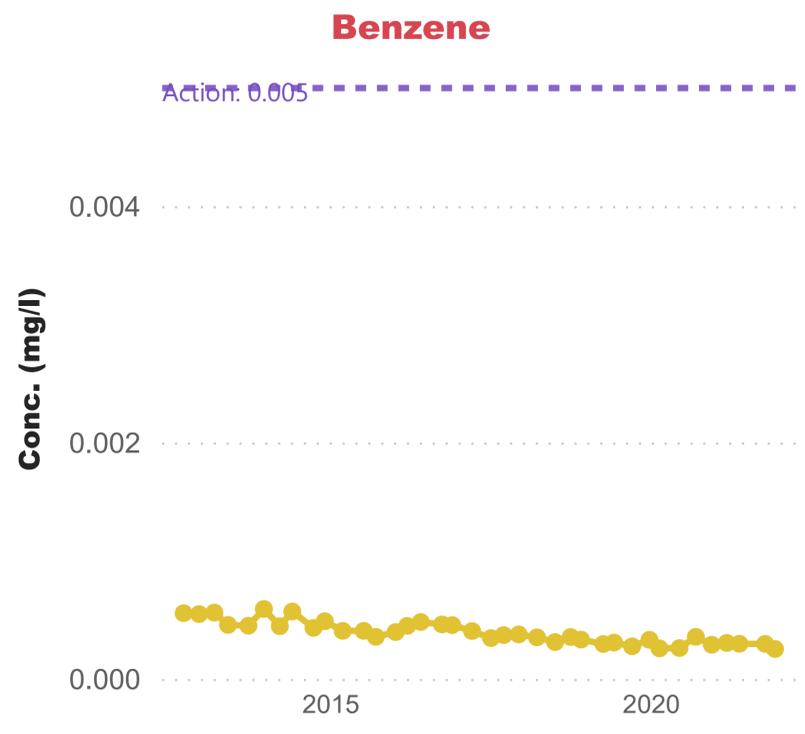
MW-K Soil and Soil Gas Summary

Clays/Till	Fine Sands	<p>EC21-35 (same properties as EC16-21) -- not considered a transport fraction--</p> <p>EC21-35</p> <p>TPH Criteria Working Group 13 Transport Fractions</p>	EC5-8 Low	EC8-16 Medium	EC16-35 High	<p>EPA 6 Toxicity Fractions</p>
Silts/Clays	Medium/Coarse Sands		EC6-9 Low	EC9-22 Medium	EC22-35 High	
Silts	Fill					

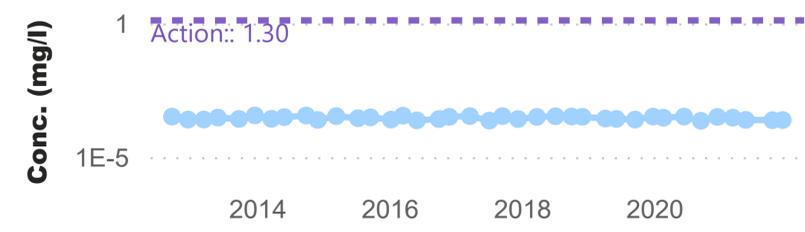
Increasing Equivalent Carbon (EC) Number →



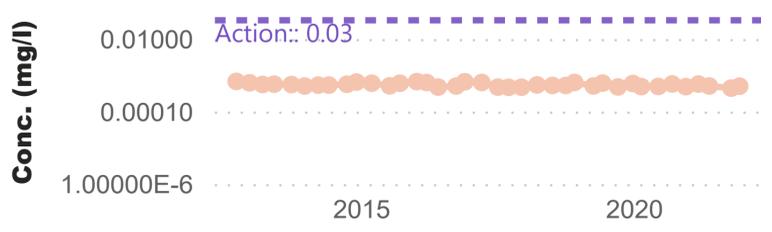
Dissolved Phase



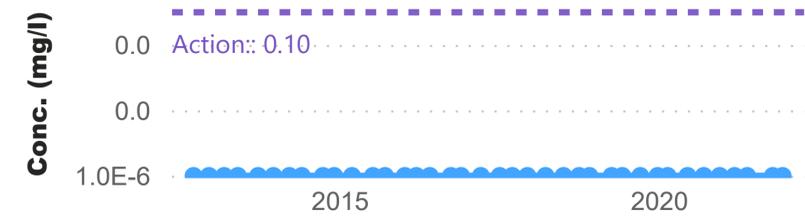
TPH-Aliphatic (Low)



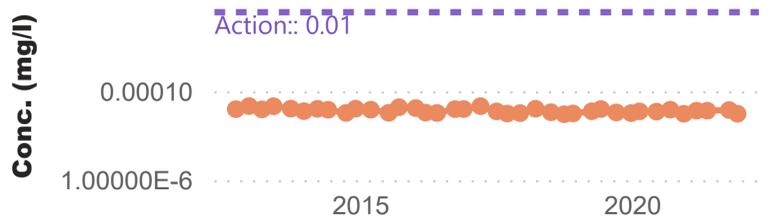
TPH-Aromatic (Low)



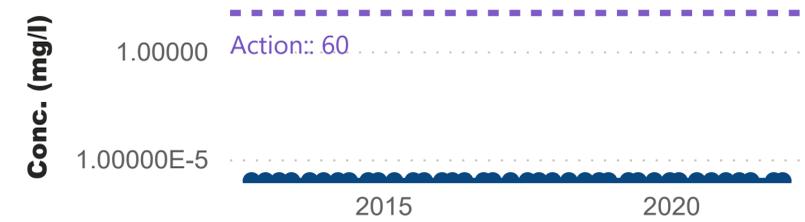
TPH-Aliphatic (Medium)



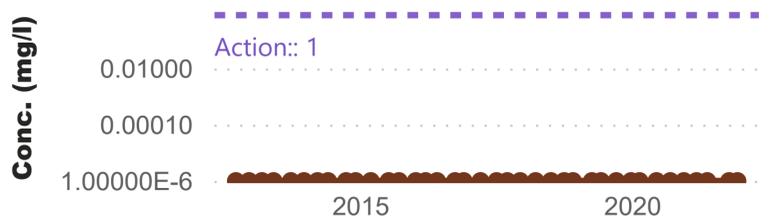
TPH-Aromatic (Medium)



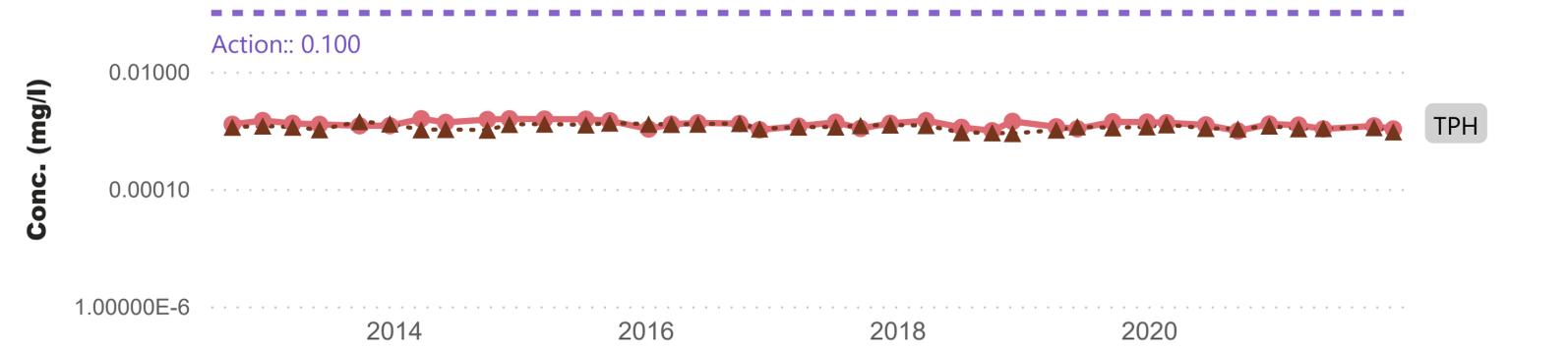
TPH-Aliphatic (High)



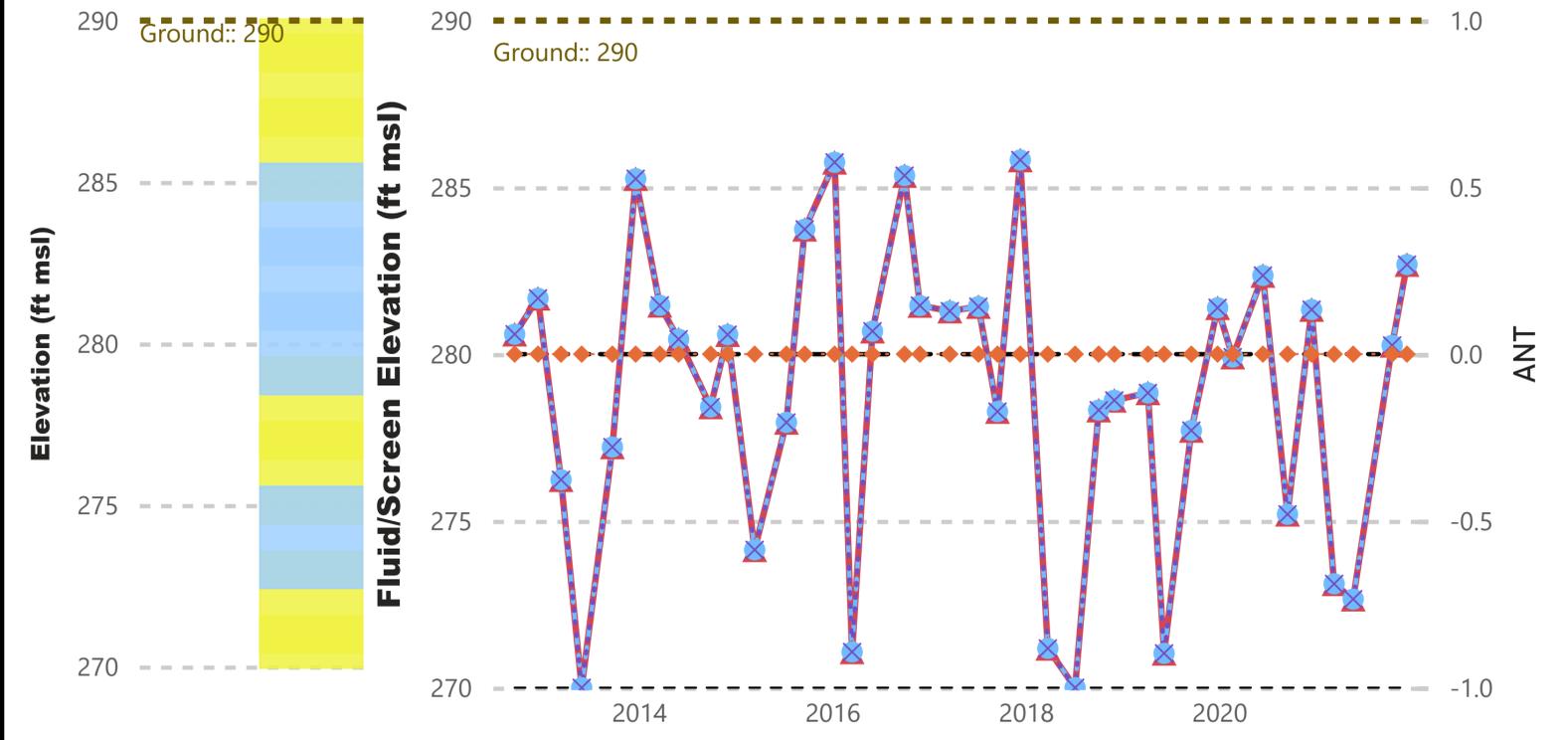
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



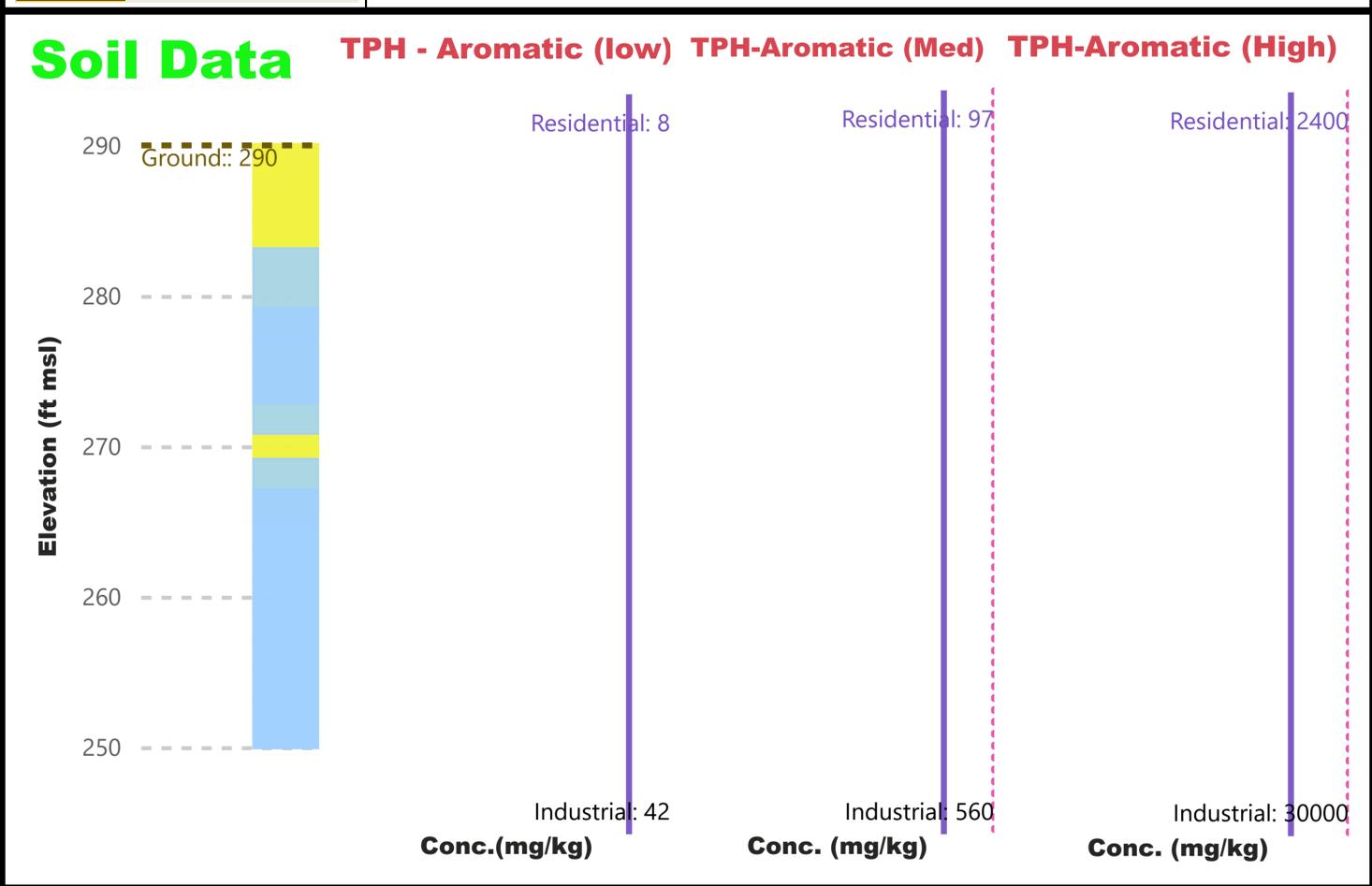
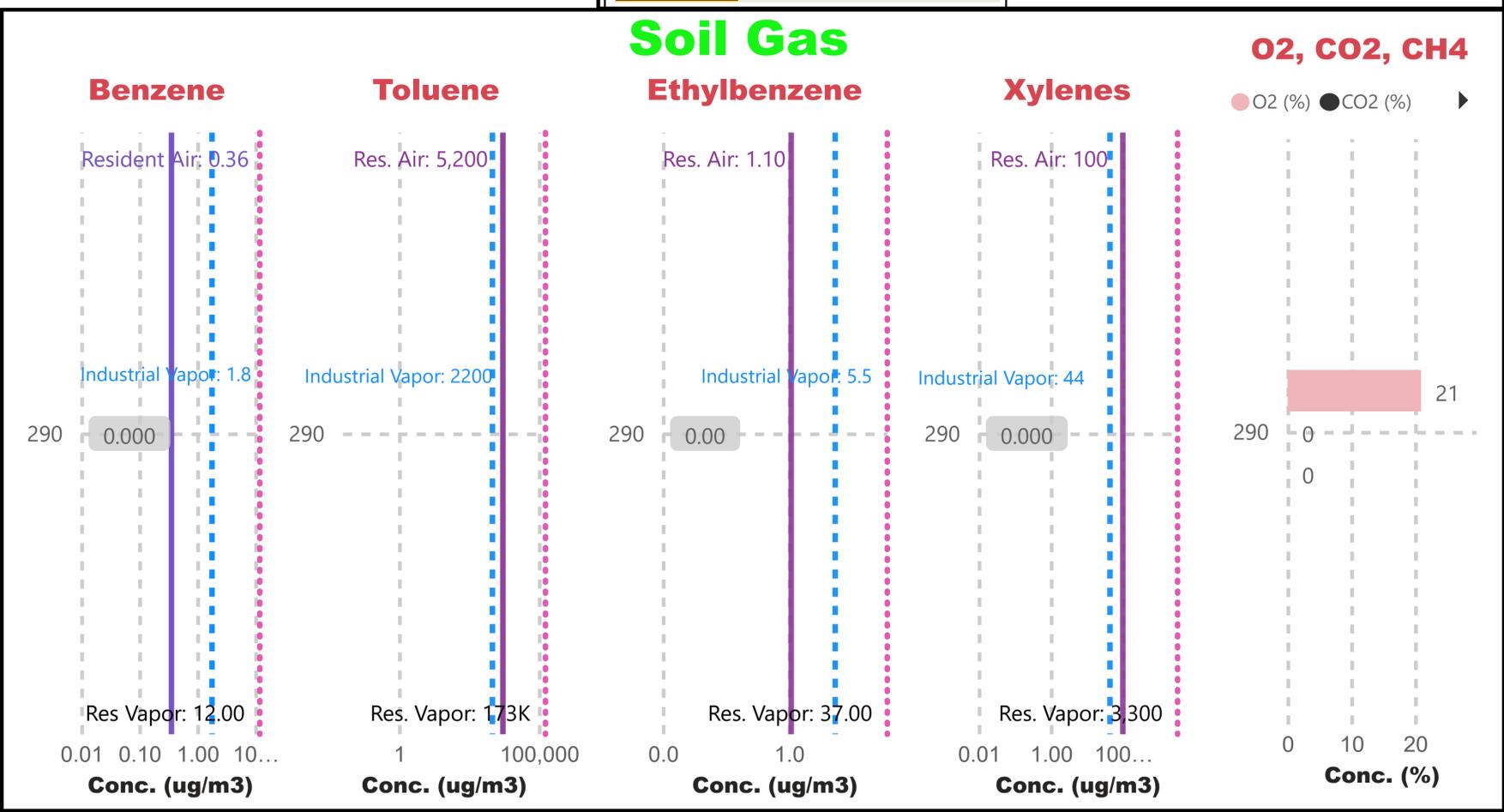
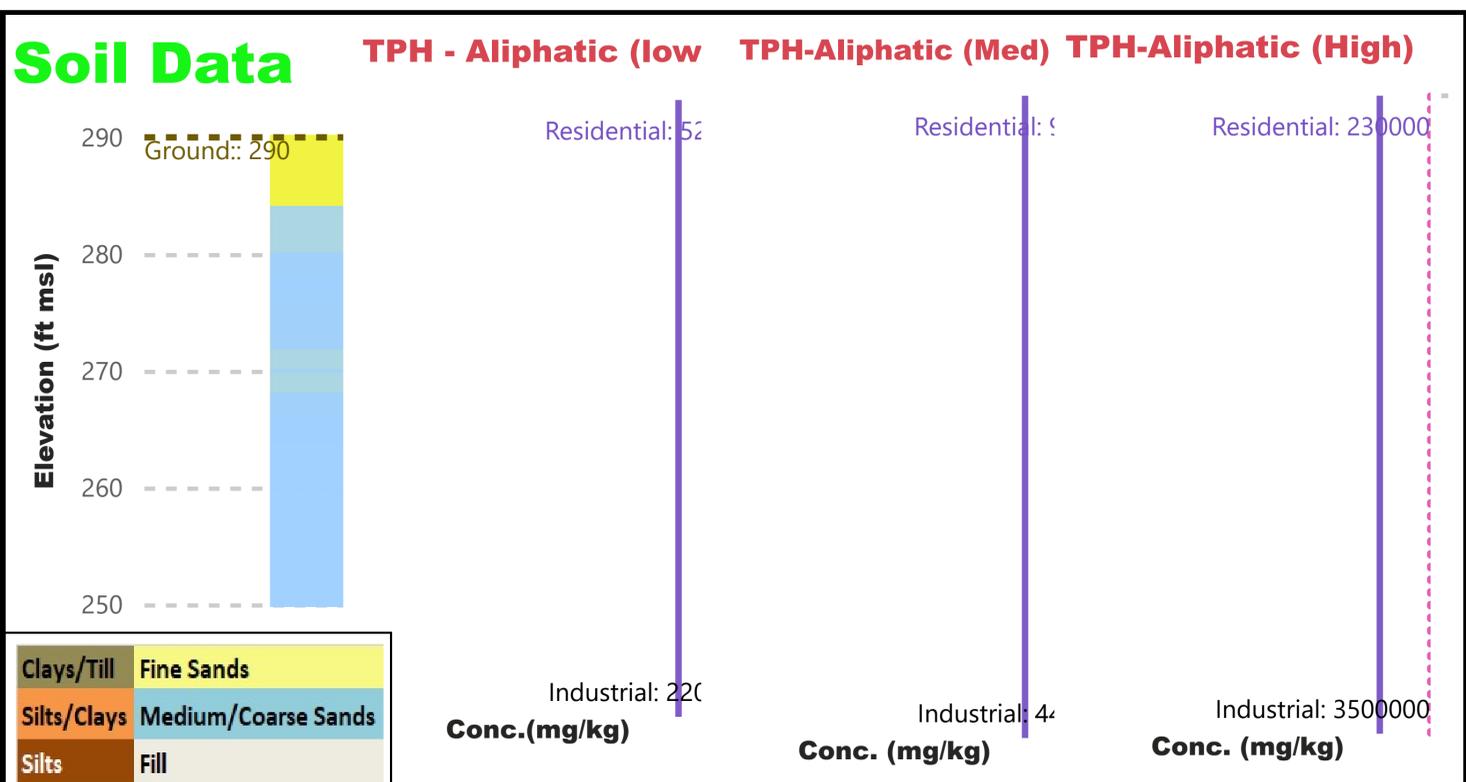
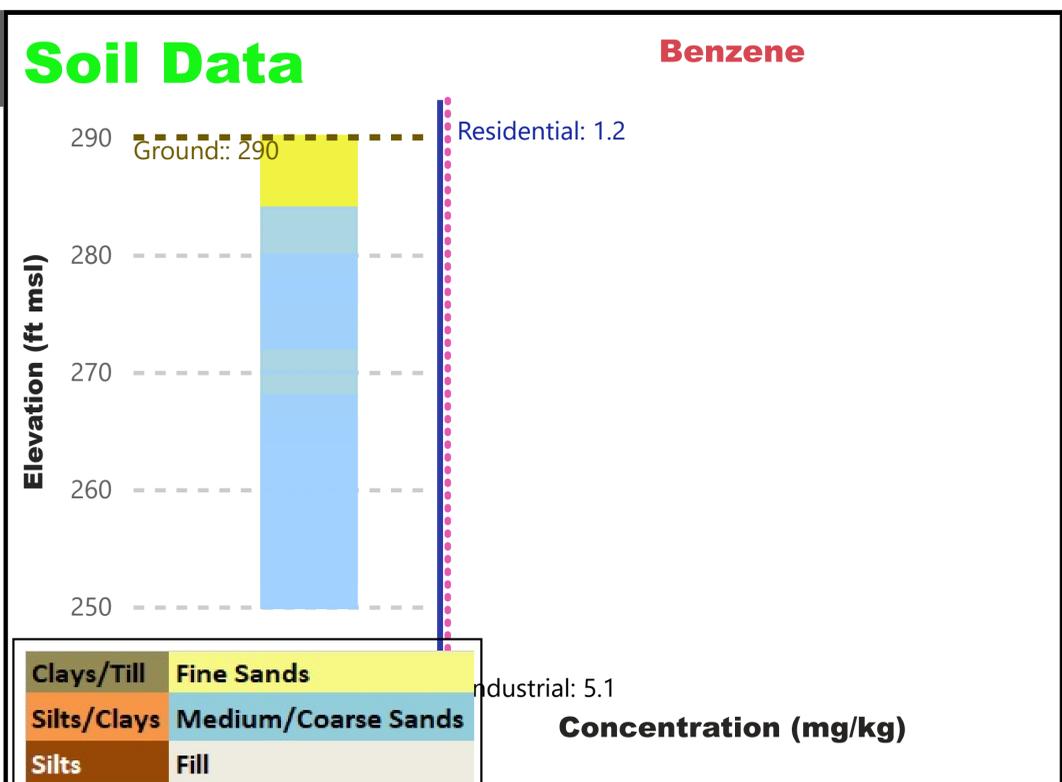
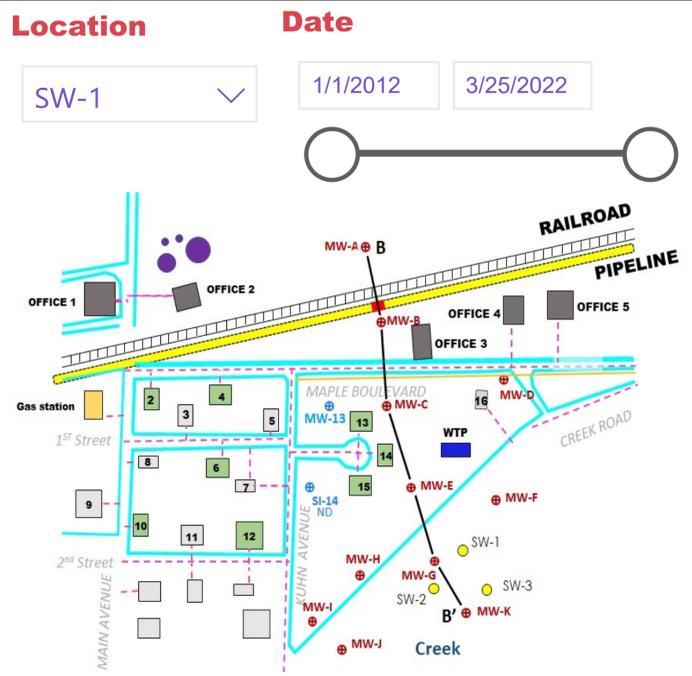
The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

Molecular Structure	Aliphatic	Aromatic	Working Group	13 Transport Fractions	EPA 6 Toxicity Fractions
EC5-7	EC5-6	EC8-16	Low	EC6-9	Low
EC8-10	EC8-10	EC9-22	Medium	EC9-22	Medium
EC10-12	EC10-12	EC16-35	High	EC16-35	High
EC12-16	EC12-16	EC21-35	(same properties as EC16-21) -- not considered a transport fraction--	EC21-35	High
EC16-21	EC16-21				

Increasing Equivalent Carbon (EC) Number →

Clays/Till	Fine Sands	--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
Silts	Fill	● NAPL/Water Interface	NWI	

MW-K Hydrograph & Dissolved Summary

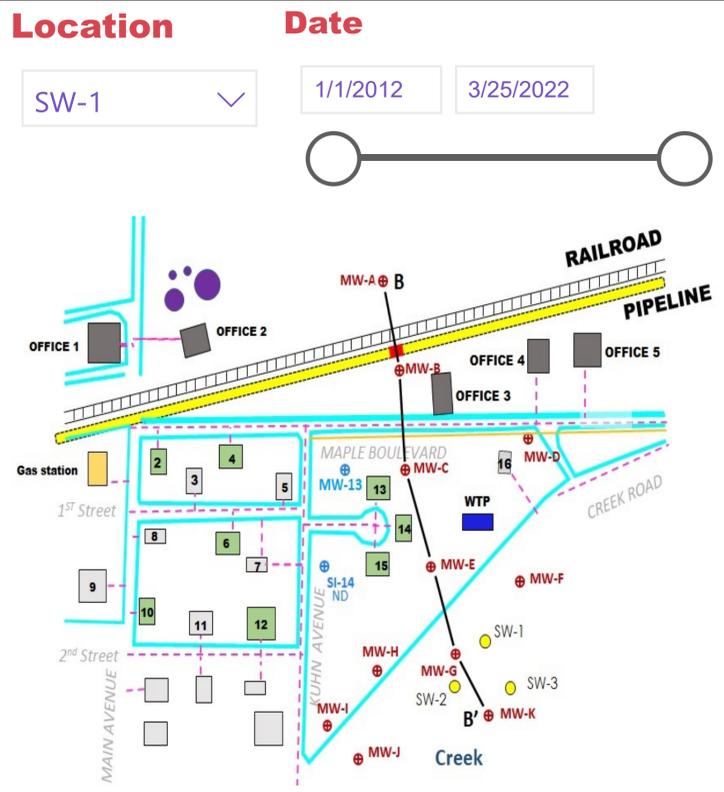


SW-1 Soil and Soil Gas Summary

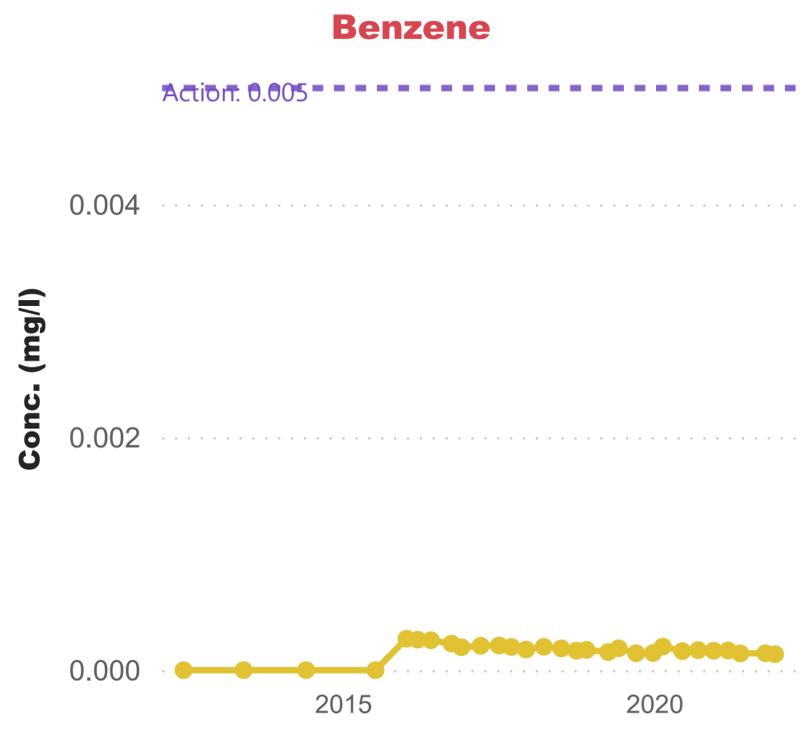
Clays/Till	Fine Sands
Silts/Clays	Medium/Coarse Sands
Silts	Fill

Molecular Structure	Aliphatic	EC5-6	EC6-8	EC9-12	EC12-16	EC16-21	EC21-35 (same properties as EC16-21) -- not considered a transport fraction--	TPH Criteria Working Group	Aliphatic	EC5-8 Low	EC8-16 Medium	EC16-35 High	EPA 6 Toxicity Fractions
Molecular Structure	Aromatic	EC3-7	EC8-10	EC10-12	EC12-16	EC16-21	EC21-35	13 Transport Fractions	Aromatic	EC6-9 Low	EC9-22 Medium	EC22-35 High	

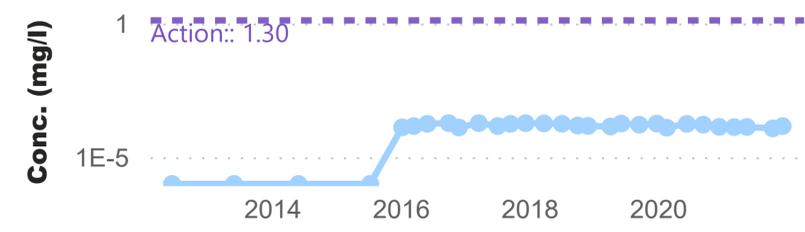
Increasing Equivalent Carbon (EC) Number →



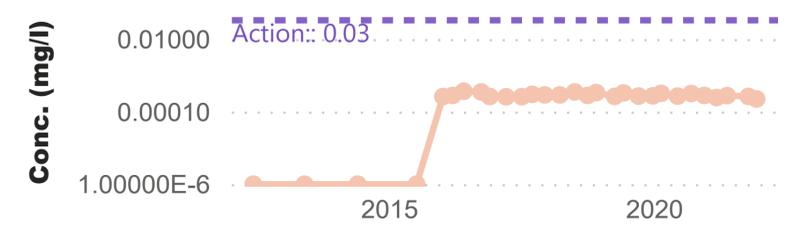
Dissolved Phase



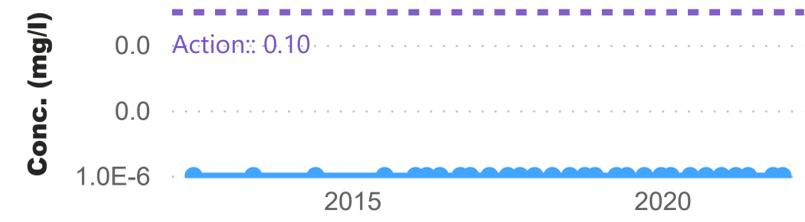
TPH-Aliphatic (Low)



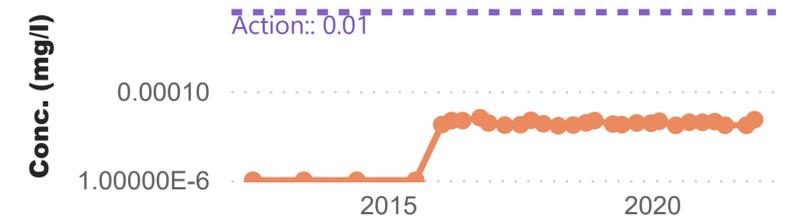
TPH-Aromatic (Low)



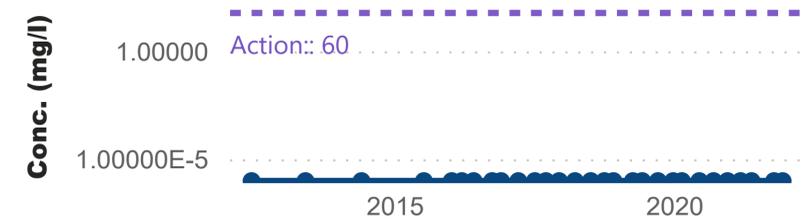
TPH-Aliphatic (Medium)



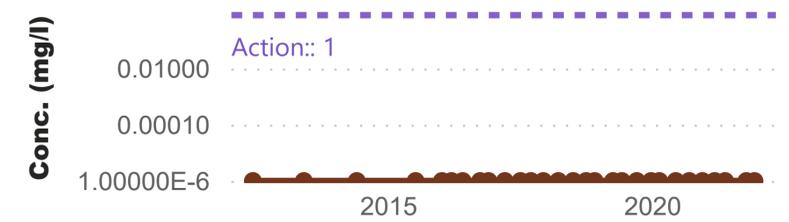
TPH-Aromatic (Medium)



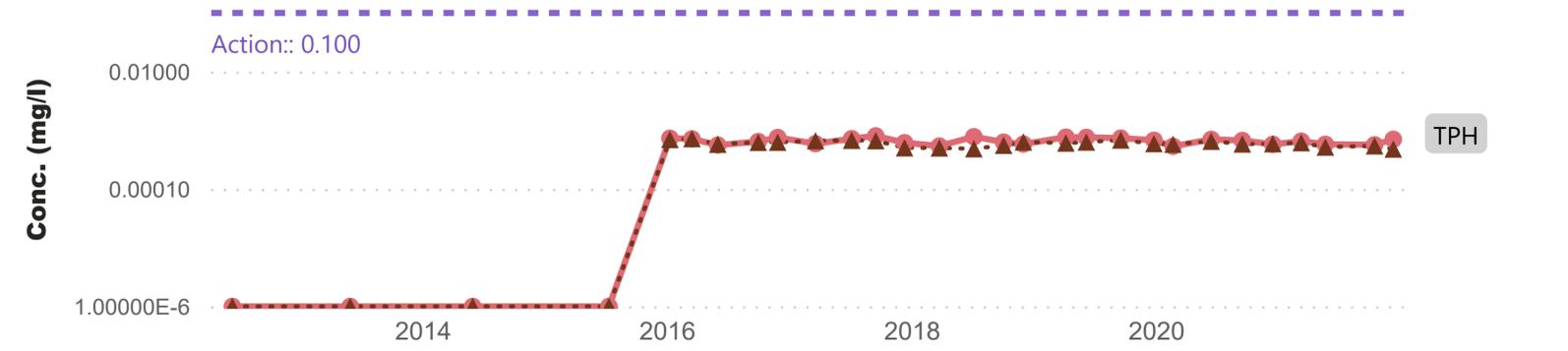
TPH-Aliphatic (High)



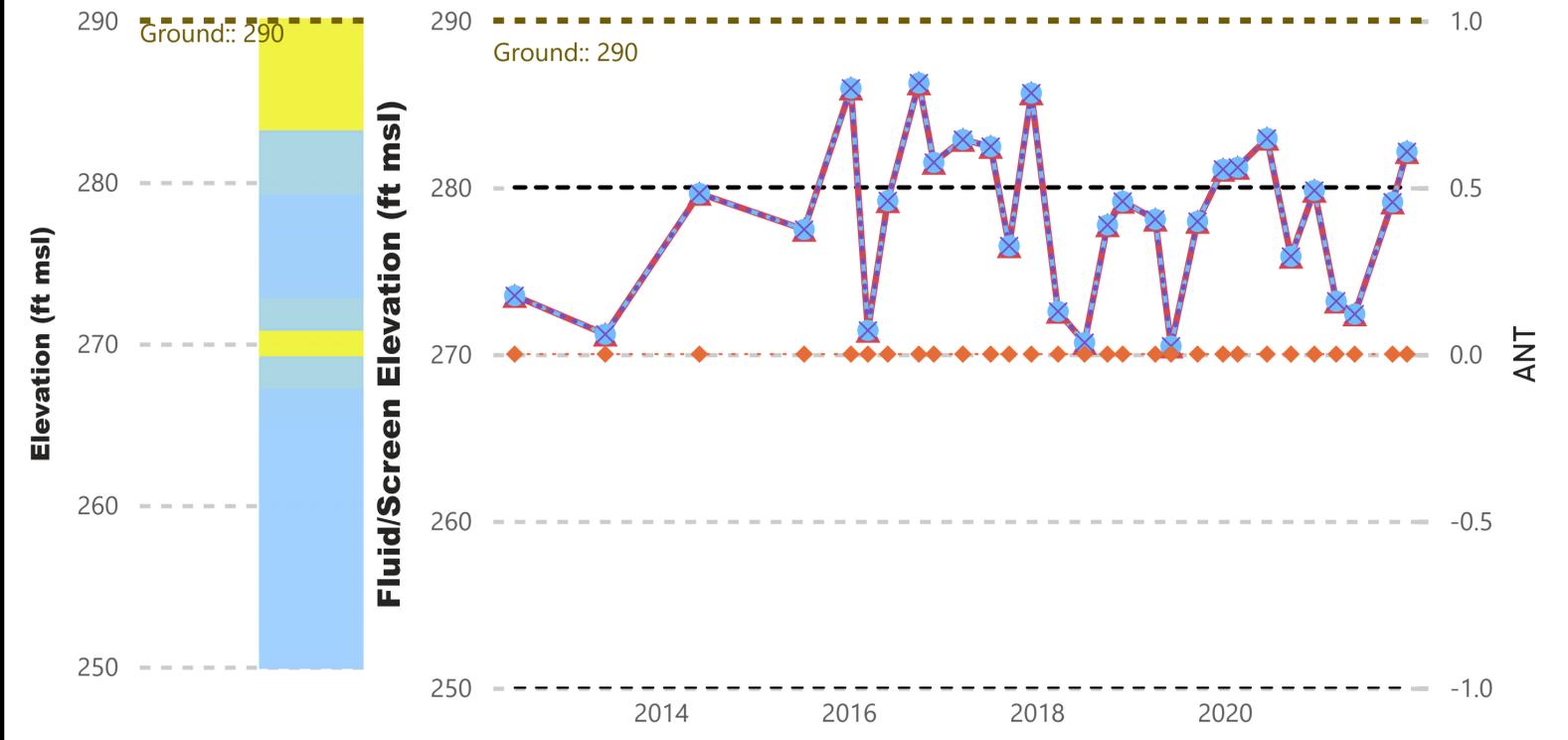
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

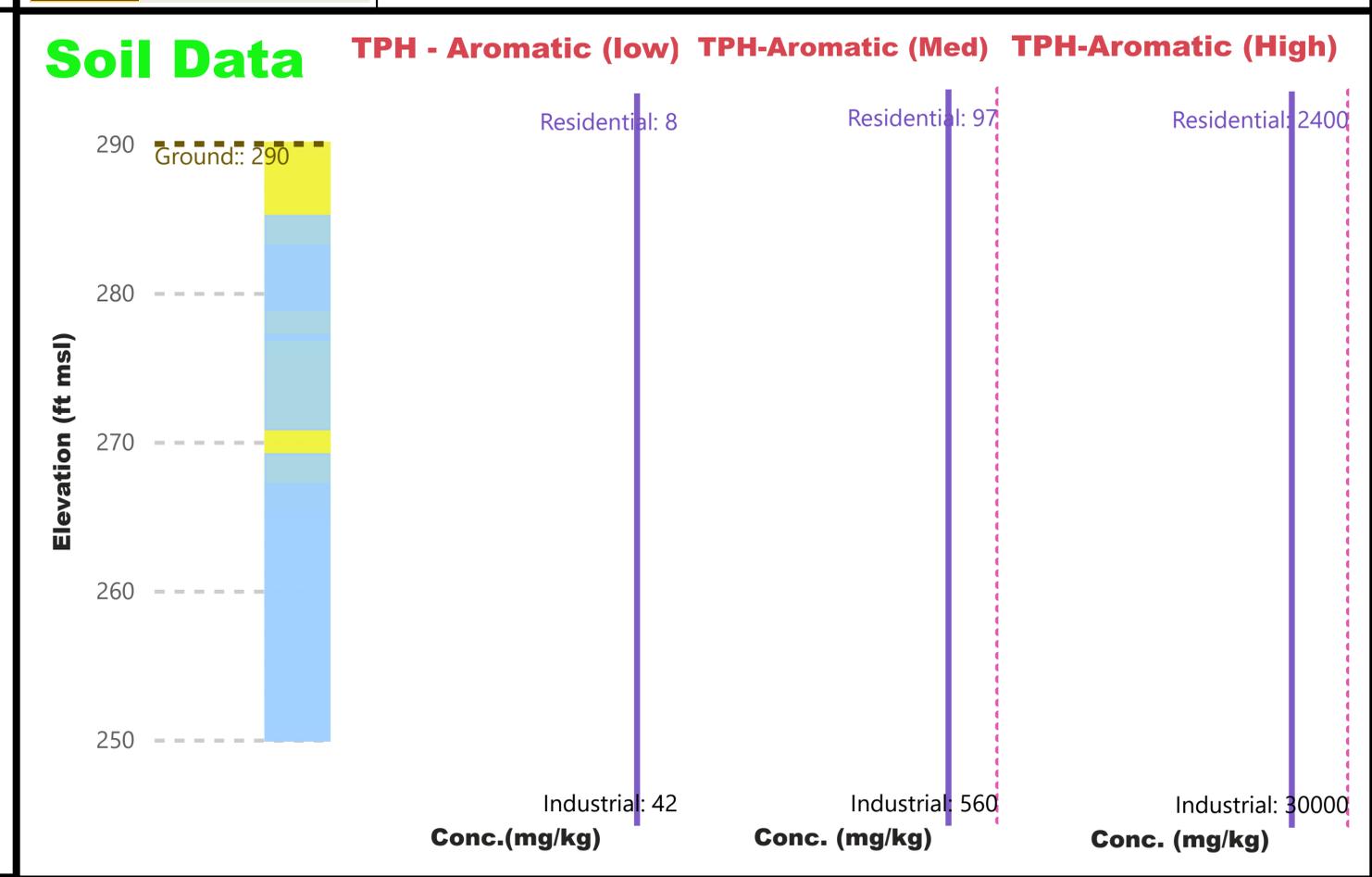
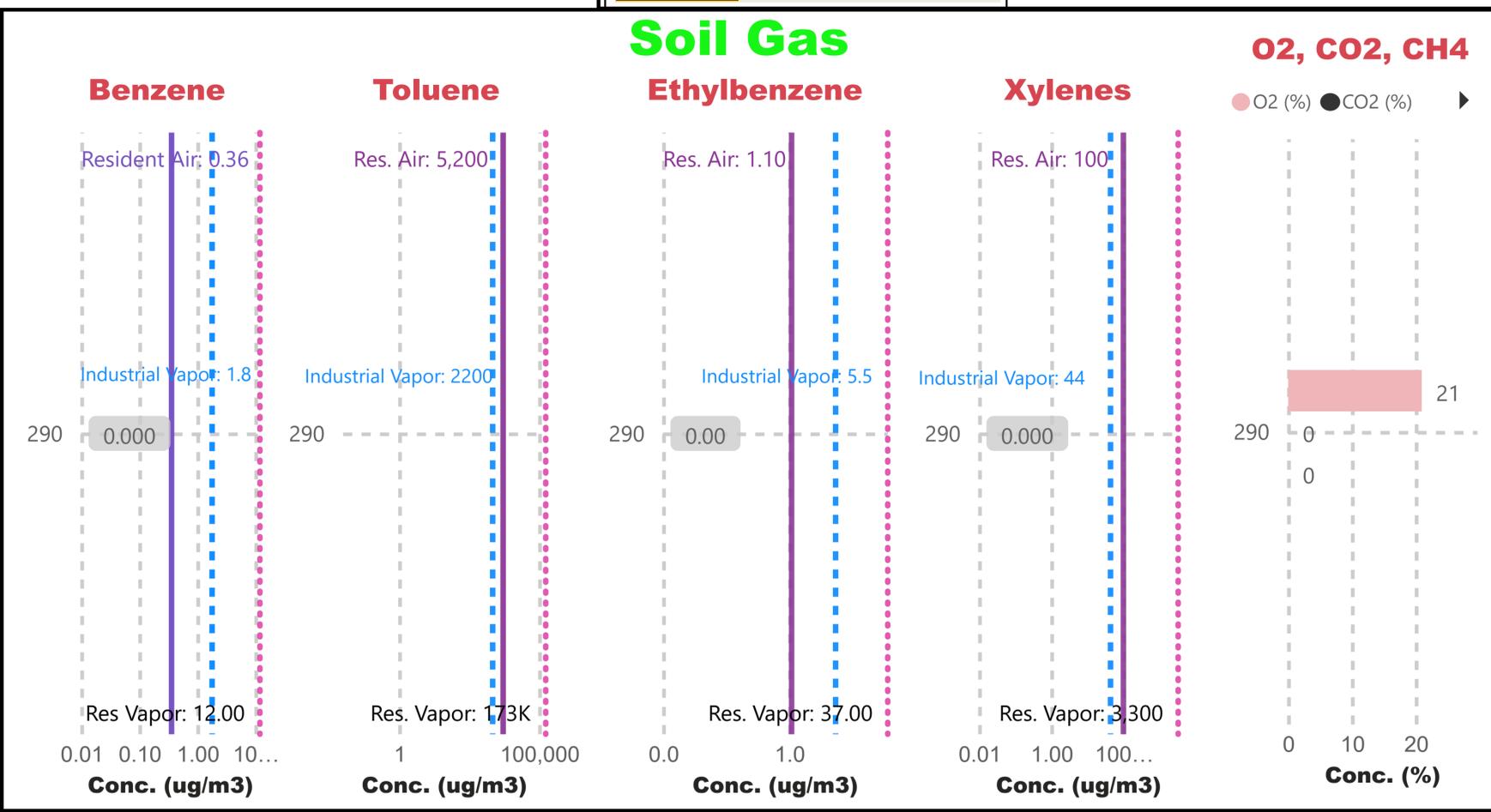
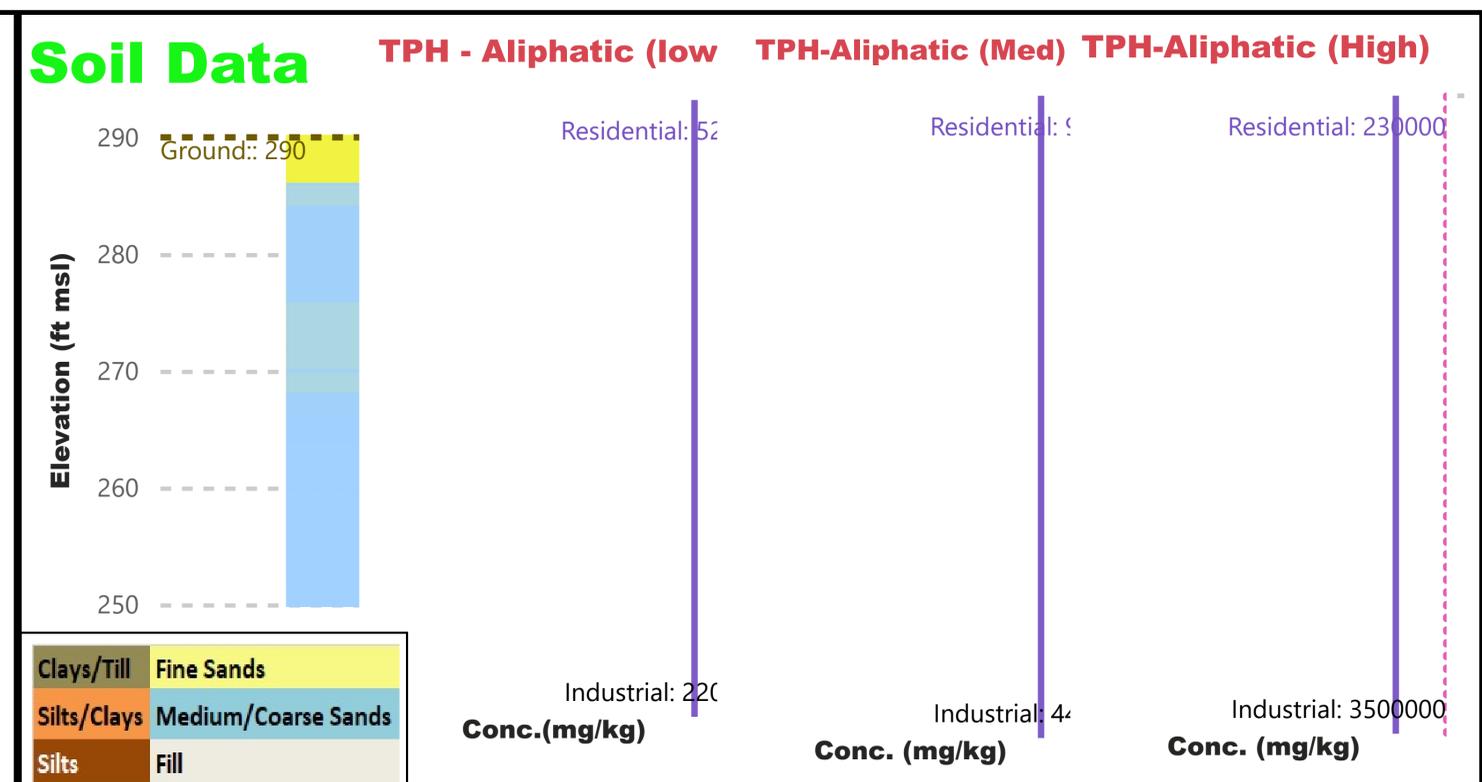
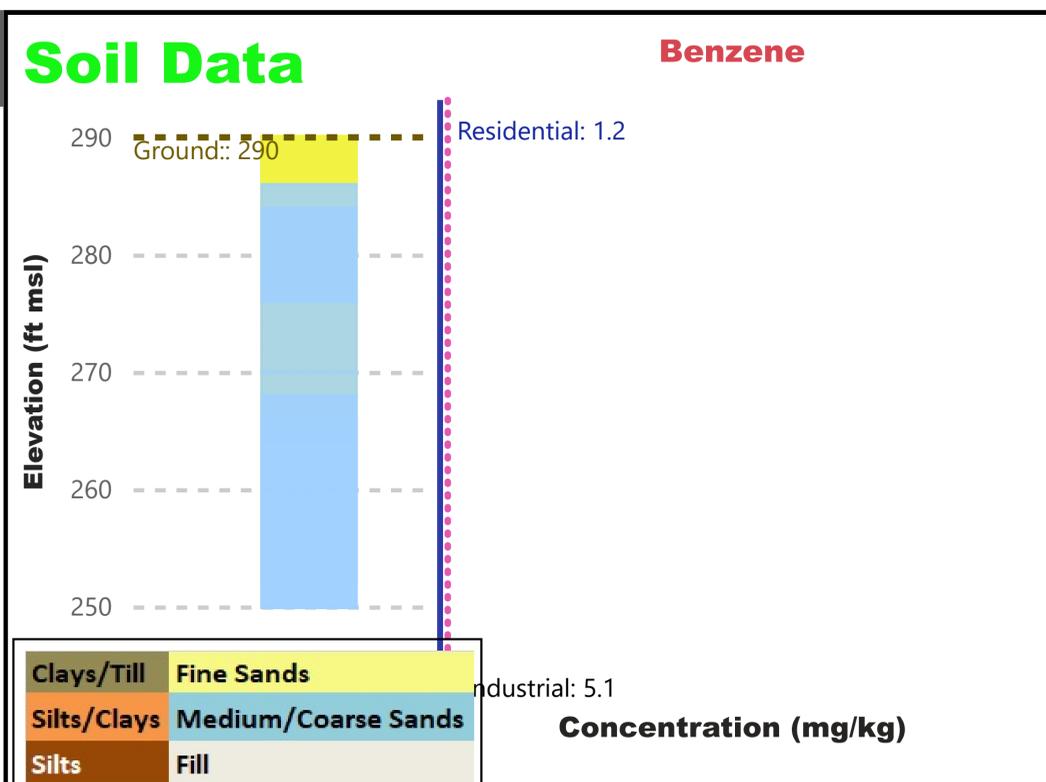
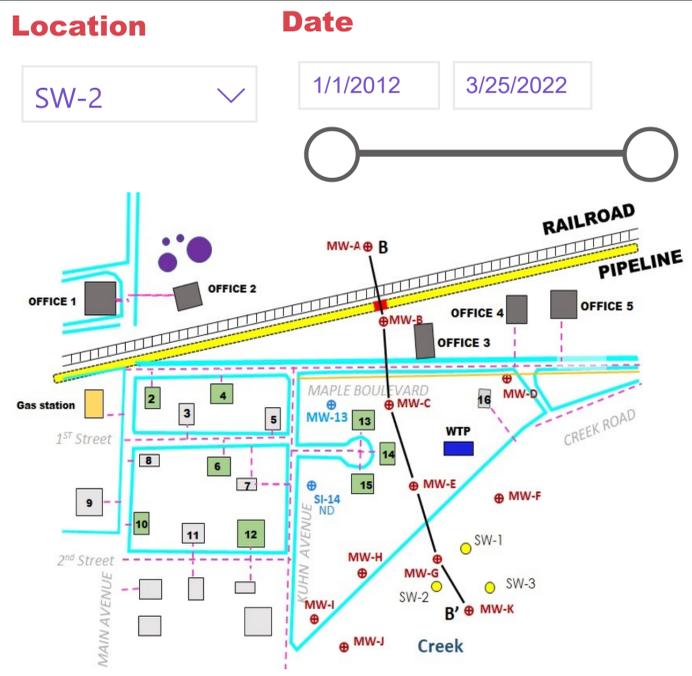
Molecular Structure	Aliphatic	Aromatic	TPH Criteria Working Group 13 Transport Fractions	EPA 6 Toxicity Fractions
Aliphatic	ECS-6	EC8-16	EC16-35	Low
Aromatic	ECS-7	EC9-22	EC21-35	Low
	ECS-8	EC8-16	EC16-35	Medium
	EC9-22	EC9-22	EC21-35	Medium
	EC10-12	EC12-16	EC16-35	High
	EC12-16	EC12-16	EC16-35	High
	EC16-21	EC16-21	EC21-35	High

Clays/Till	Fine Sands
Silts/Clays	Medium/Coarse Sands
Silts	Fill

--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
● NAPL/Water Interface NWI		

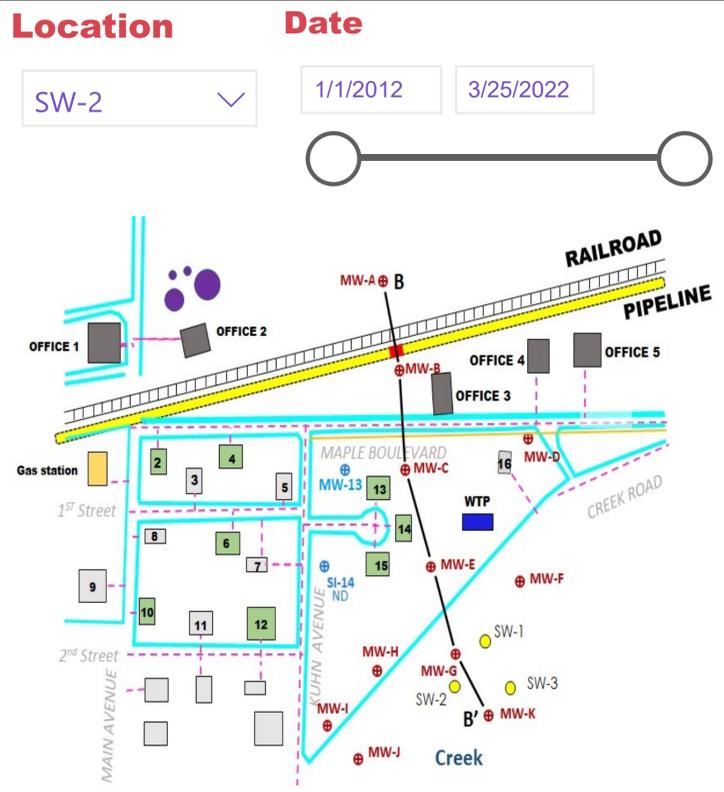
SW-1

Hydrograph & Dissolved Summary

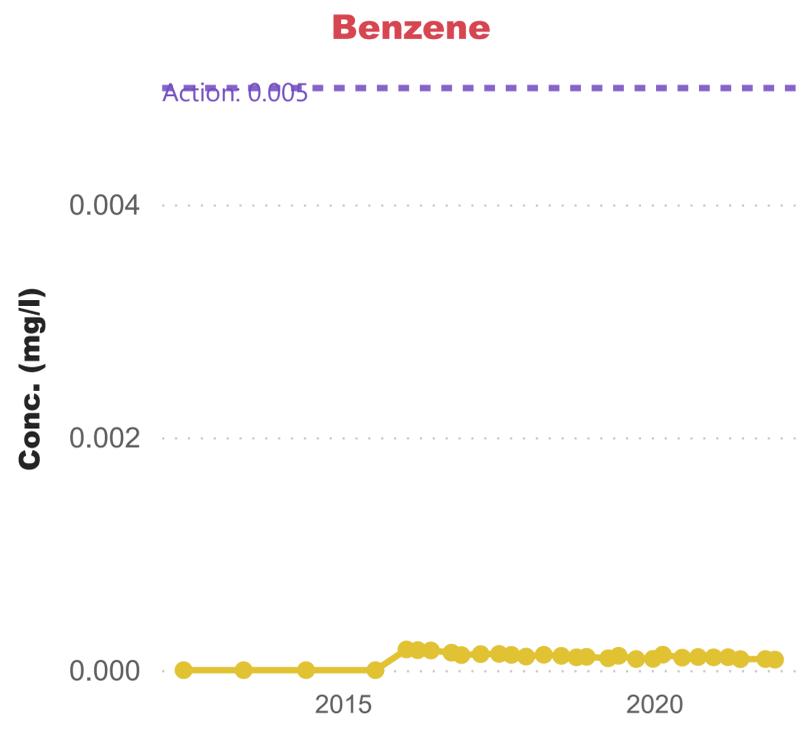


SW-2 Soil and Soil Gas Summary

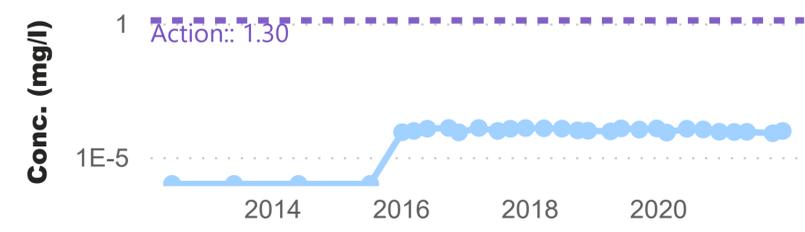
Clays/Till	Fine Sands	<table border="1"> <tr><td>EC5-6</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC7-8</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-11</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC12-14</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC15-17</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC18-19</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC20-21</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC22-23</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC24-25</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC26-27</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC28-29</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC30-31</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC32-33</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC34-35</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> </table>	EC5-6	EC12-16	EC16-21	EC21-35	EC7-8	EC12-16	EC16-21	EC21-35	EC9-11	EC12-16	EC16-21	EC21-35	EC12-14	EC12-16	EC16-21	EC21-35	EC15-17	EC12-16	EC16-21	EC21-35	EC18-19	EC12-16	EC16-21	EC21-35	EC20-21	EC12-16	EC16-21	EC21-35	EC22-23	EC12-16	EC16-21	EC21-35	EC24-25	EC12-16	EC16-21	EC21-35	EC26-27	EC12-16	EC16-21	EC21-35	EC28-29	EC12-16	EC16-21	EC21-35	EC30-31	EC12-16	EC16-21	EC21-35	EC32-33	EC12-16	EC16-21	EC21-35	EC34-35	EC12-16	EC16-21	EC21-35	<table border="1"> <tr><td>EC5-8</td><td>EC8-16</td><td>EC16-35</td></tr> <tr><td>EC9-11</td><td>EC9-22</td><td>EC22-35</td></tr> </table>	EC5-8	EC8-16	EC16-35	EC9-11	EC9-22	EC22-35	EPA 6 Toxicity Fractions
EC5-6	EC12-16		EC16-21	EC21-35																																																														
EC7-8	EC12-16		EC16-21	EC21-35																																																														
EC9-11	EC12-16	EC16-21	EC21-35																																																															
EC12-14	EC12-16	EC16-21	EC21-35																																																															
EC15-17	EC12-16	EC16-21	EC21-35																																																															
EC18-19	EC12-16	EC16-21	EC21-35																																																															
EC20-21	EC12-16	EC16-21	EC21-35																																																															
EC22-23	EC12-16	EC16-21	EC21-35																																																															
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EC34-35	EC12-16	EC16-21	EC21-35																																																															
EC5-8	EC8-16	EC16-35																																																																
EC9-11	EC9-22	EC22-35																																																																
Silts/Clays	Medium/Coarse Sands	Molecular Structure: Aromatic EC5-8: Low EC9-11: Low	Molecular Structure: Aliphatic EC8-16: Medium EC9-22: Medium EC16-35: High EC22-35: High																																																															
Silts	Fill	Molecular Structure: Aromatic EC12-16: Low EC16-21: Low	Molecular Structure: Aliphatic EC12-16: Low EC16-21: Low																																																															



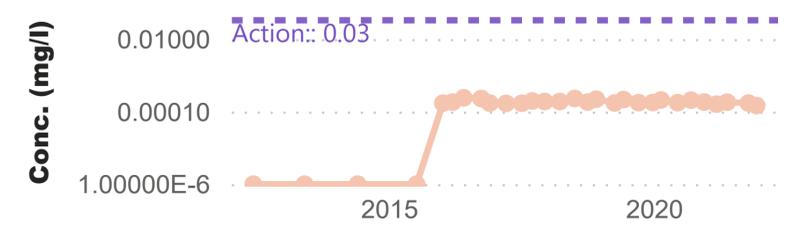
Dissolved Phase



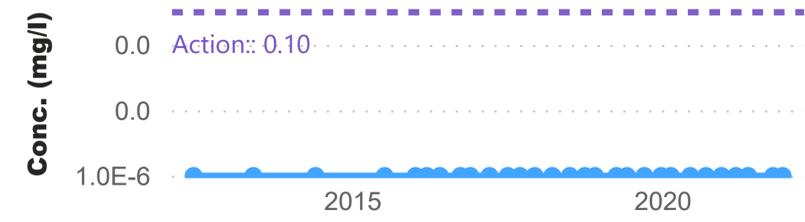
TPH-Aliphatic (Low)



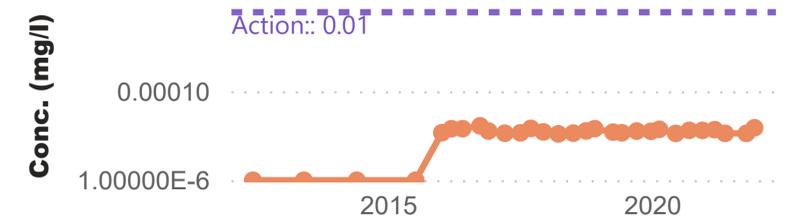
TPH-Aromatic (Low)



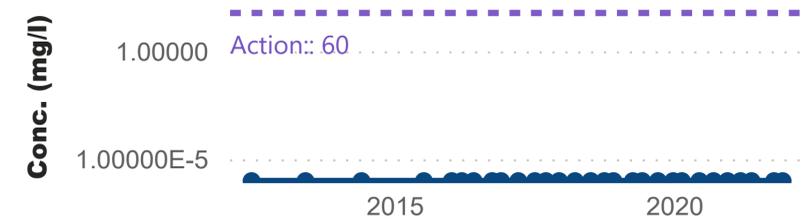
TPH-Aliphatic (Medium)



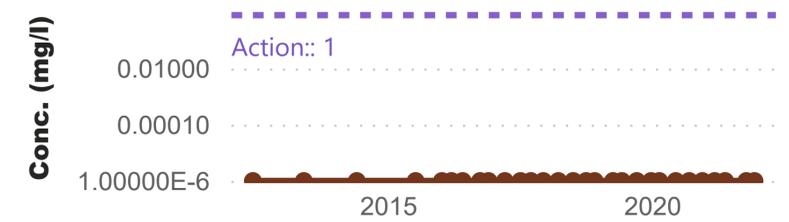
TPH-Aromatic (Medium)



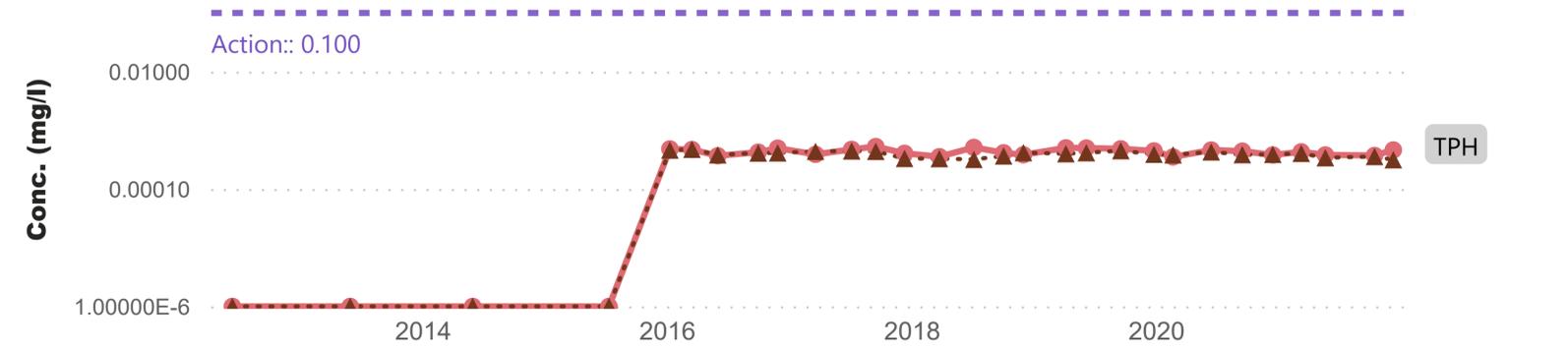
TPH-Aliphatic (High)



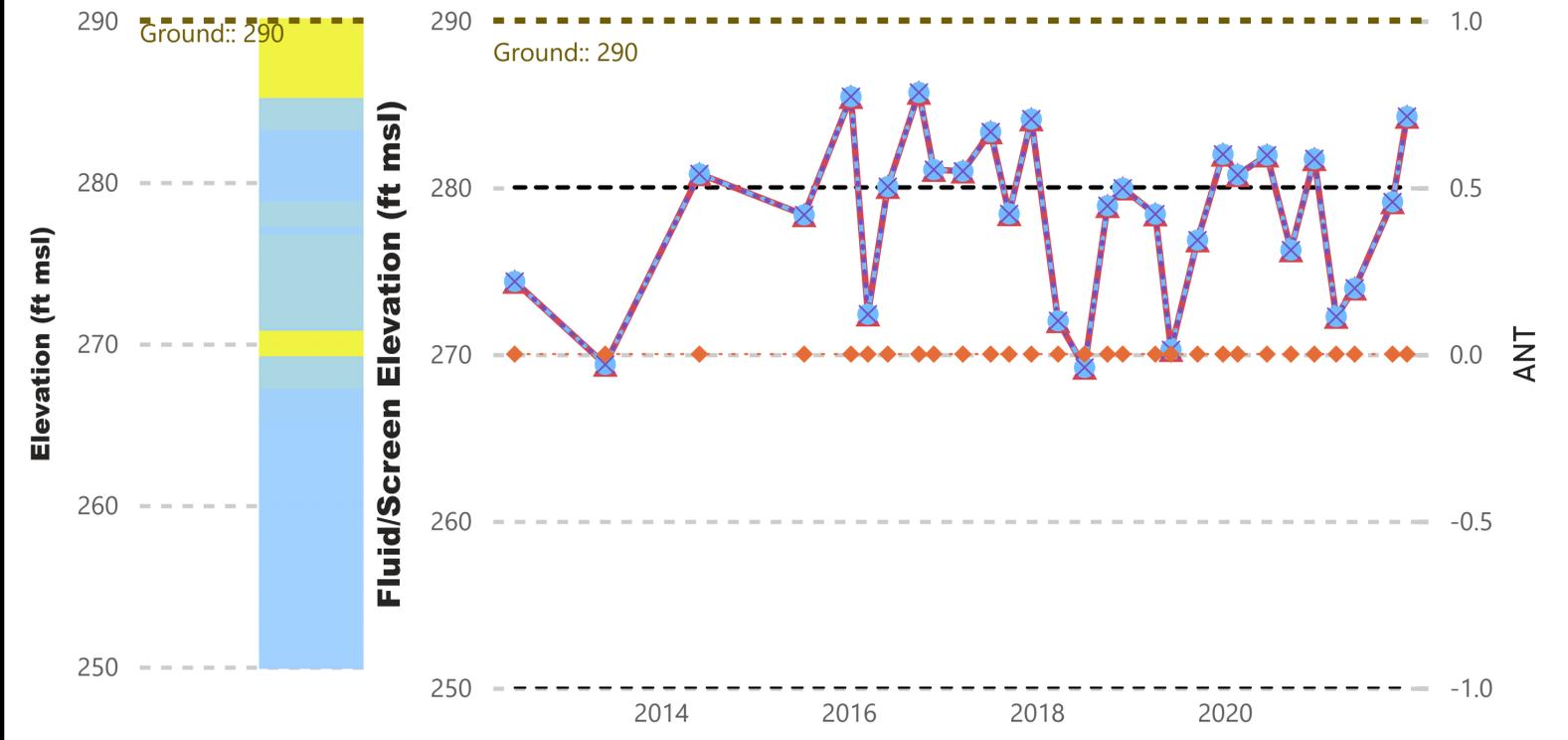
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

Molecular Structure	Aliphatic	Aromatic	TPH Criteria Working Group 13 Transport Fractions	EPA 6 Toxicity Fractions
Aliphatic	EC5-6	EC12-16	EC16-21	EC16-35 (High)
Aromatic	EC7-8	EC9-10	EC9-22 (Medium)	EC22-35 (High)
<p>EC21-35 (same properties as EC16-21) -- not considered a transport fraction--</p>				

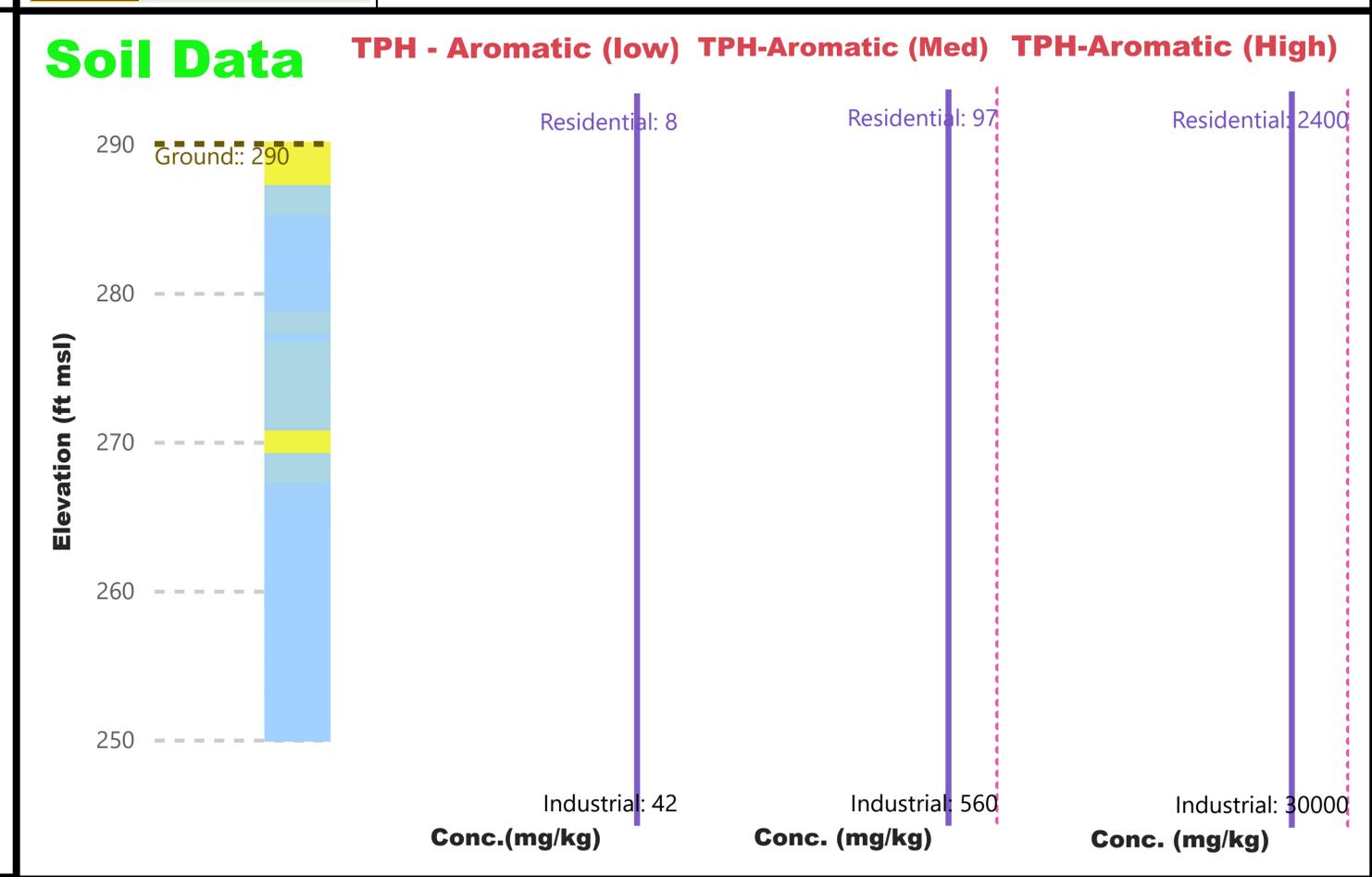
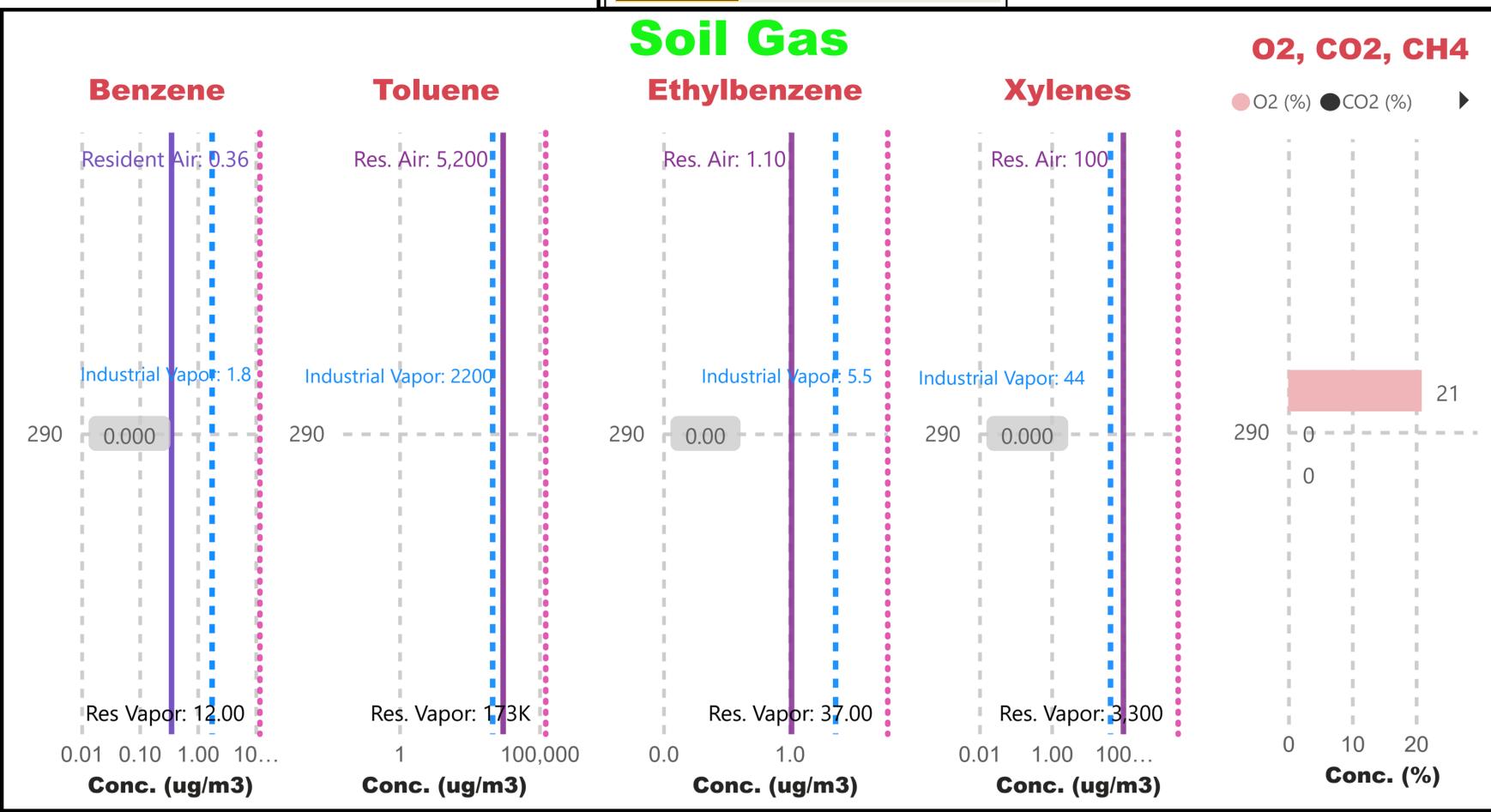
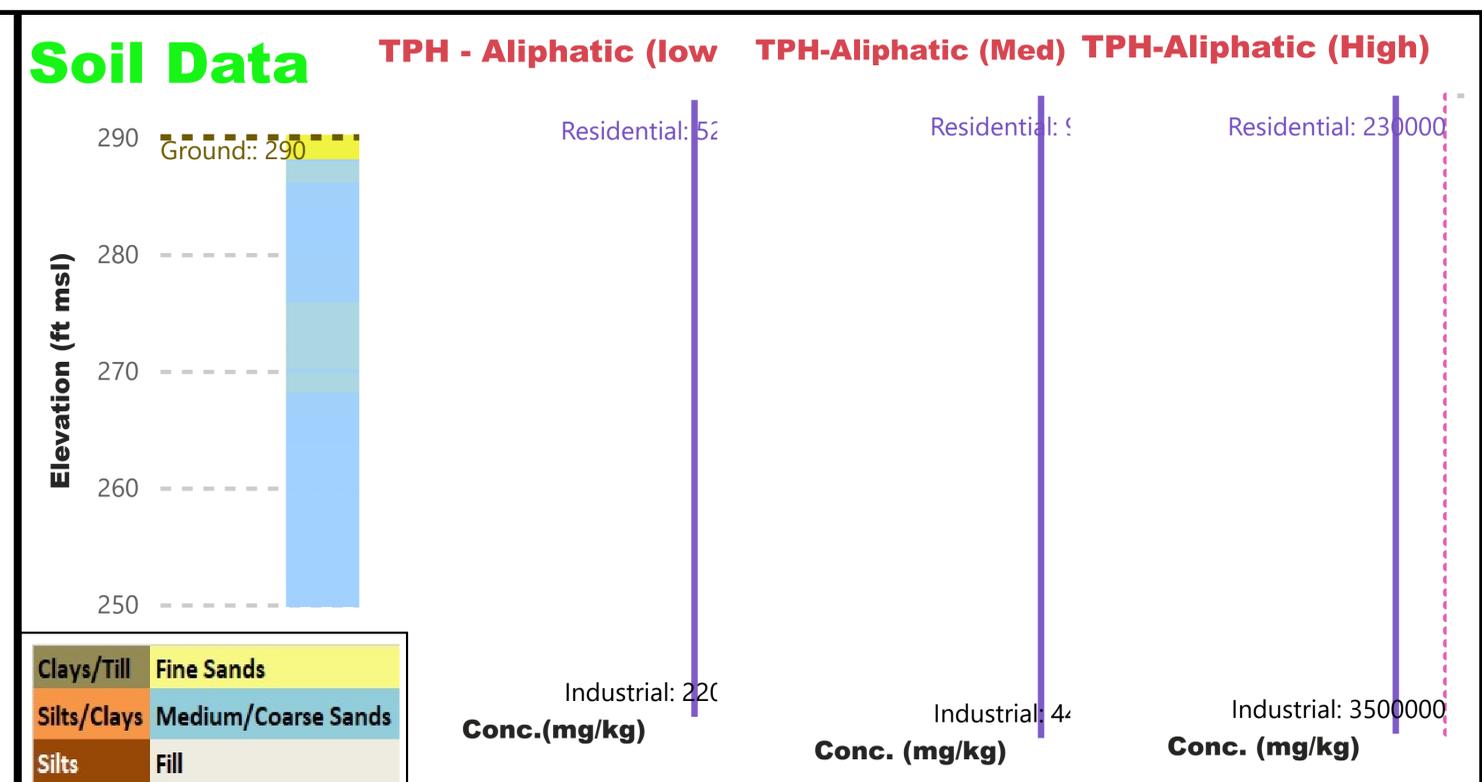
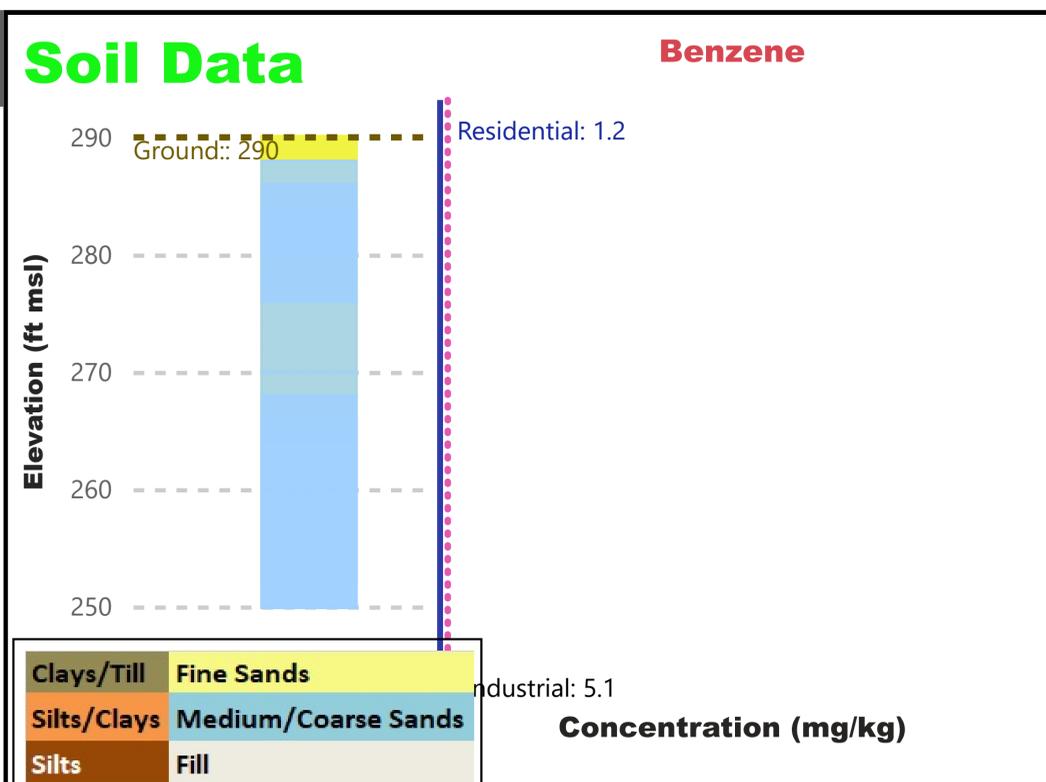
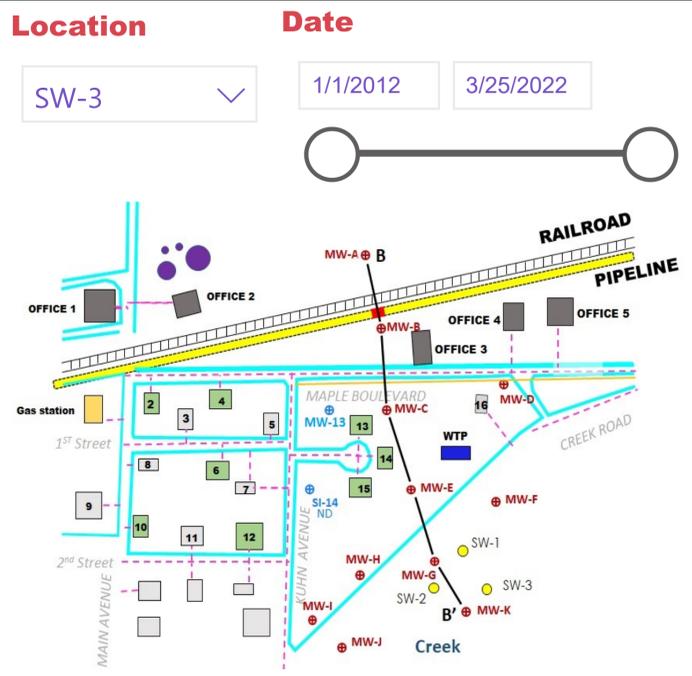
Increasing Equivalent Carbon (EC) Number →

Clays/Till	Fine Sands
Silts/Clays	Medium/Coarse Sands
Silts	Fill

--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
● NAPL/Water Interface NWI		

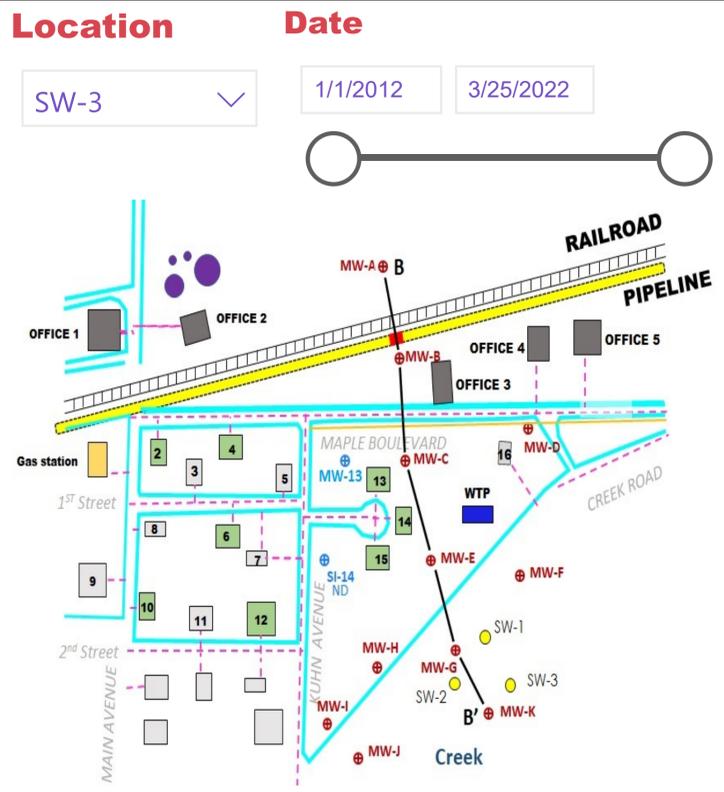
SW-2

Hydrograph & Dissolved Summary



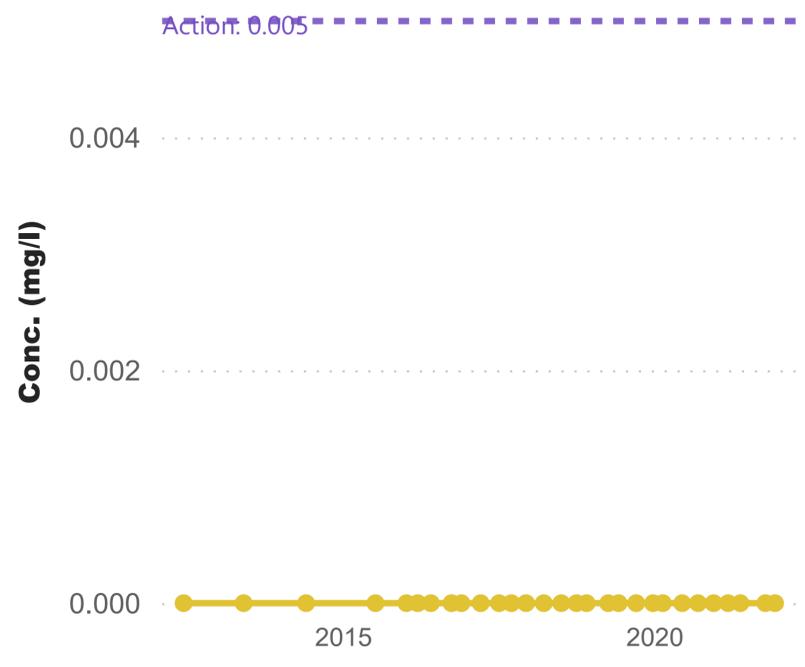
SW-3 Soil and Soil Gas Summary

Clays/Till	Fine Sands	<table border="1"> <tr> <th>Molecular Structure</th> <th>Aliphatic</th> <th>Aromatic</th> </tr> <tr> <td>EC5-6</td> <td>EC5-6</td> <td>EC5-8</td> </tr> <tr> <td>EC7-7</td> <td>EC8-8</td> <td>EC8-16</td> </tr> <tr> <td>EC9-9</td> <td>EC9-10</td> <td>EC9-22</td> </tr> <tr> <td>EC10-10</td> <td>EC10-12</td> <td>EC16-16</td> </tr> <tr> <td>EC11-11</td> <td>EC11-12</td> <td>EC16-21</td> </tr> <tr> <td>EC12-12</td> <td>EC12-16</td> <td>EC21-35</td> </tr> <tr> <td>EC13-13</td> <td>EC13-16</td> <td>EC21-35</td> </tr> <tr> <td>EC14-14</td> <td>EC14-16</td> <td>EC21-35</td> </tr> <tr> <td>EC15-15</td> <td>EC15-16</td> <td>EC21-35</td> </tr> <tr> <td>EC16-16</td> <td>EC16-21</td> <td>EC21-35</td> </tr> <tr> <td>EC17-17</td> <td>EC17-21</td> <td>EC21-35</td> </tr> <tr> <td>EC18-18</td> <td>EC18-21</td> <td>EC21-35</td> </tr> <tr> <td>EC19-19</td> <td>EC19-21</td> <td>EC21-35</td> </tr> <tr> <td>EC20-20</td> <td>EC20-21</td> <td>EC21-35</td> </tr> <tr> <td>EC21-21</td> <td>EC21-21</td> <td>EC21-35</td> </tr> <tr> <td>EC22-22</td> <td>EC22-21</td> <td>EC21-35</td> </tr> <tr> <td>EC23-23</td> <td>EC23-21</td> <td>EC21-35</td> </tr> <tr> <td>EC24-24</td> <td>EC24-21</td> <td>EC21-35</td> </tr> <tr> <td>EC25-25</td> <td>EC25-21</td> <td>EC21-35</td> </tr> <tr> <td>EC26-26</td> <td>EC26-21</td> <td>EC21-35</td> </tr> <tr> <td>EC27-27</td> <td>EC27-21</td> <td>EC21-35</td> </tr> <tr> <td>EC28-28</td> <td>EC28-21</td> <td>EC21-35</td> </tr> <tr> <td>EC29-29</td> <td>EC29-21</td> <td>EC21-35</td> </tr> <tr> <td>EC30-30</td> <td>EC30-21</td> <td>EC21-35</td> </tr> <tr> <td>EC31-31</td> <td>EC31-21</td> <td>EC21-35</td> </tr> <tr> <td>EC32-32</td> <td>EC32-21</td> <td>EC21-35</td> </tr> <tr> <td>EC33-33</td> <td>EC33-21</td> <td>EC21-35</td> </tr> <tr> <td>EC34-34</td> <td>EC34-21</td> <td>EC21-35</td> </tr> <tr> <td>EC35-35</td> <td>EC35-21</td> <td>EC21-35</td> </tr> </table>	Molecular Structure	Aliphatic	Aromatic	EC5-6	EC5-6	EC5-8	EC7-7	EC8-8	EC8-16	EC9-9	EC9-10	EC9-22	EC10-10	EC10-12	EC16-16	EC11-11	EC11-12	EC16-21	EC12-12	EC12-16	EC21-35	EC13-13	EC13-16	EC21-35	EC14-14	EC14-16	EC21-35	EC15-15	EC15-16	EC21-35	EC16-16	EC16-21	EC21-35	EC17-17	EC17-21	EC21-35	EC18-18	EC18-21	EC21-35	EC19-19	EC19-21	EC21-35	EC20-20	EC20-21	EC21-35	EC21-21	EC21-21	EC21-35	EC22-22	EC22-21	EC21-35	EC23-23	EC23-21	EC21-35	EC24-24	EC24-21	EC21-35	EC25-25	EC25-21	EC21-35	EC26-26	EC26-21	EC21-35	EC27-27	EC27-21	EC21-35	EC28-28	EC28-21	EC21-35	EC29-29	EC29-21	EC21-35	EC30-30	EC30-21	EC21-35	EC31-31	EC31-21	EC21-35	EC32-32	EC32-21	EC21-35	EC33-33	EC33-21	EC21-35	EC34-34	EC34-21	EC21-35	EC35-35	EC35-21	EC21-35	<p>TPH Criteria Working Group 13 Transport Fractions</p> <p>EC5-8 Low EC8-16 Medium EC16-35 High EC9-22 Medium EC22-35 High</p> <p>EPA 6 Toxicity Fractions</p>
Molecular Structure	Aliphatic		Aromatic																																																																																										
EC5-6	EC5-6		EC5-8																																																																																										
EC7-7	EC8-8	EC8-16																																																																																											
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EC16-16	EC16-21	EC21-35																																																																																											
EC17-17	EC17-21	EC21-35																																																																																											
EC18-18	EC18-21	EC21-35																																																																																											
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EC35-35	EC35-21	EC21-35																																																																																											
Silts/Clays	Medium/Coarse Sands	Increasing Equivalent Carbon (EC) Number →																																																																																											
Silts	Fill	Increasing Equivalent Carbon (EC) Number →																																																																																											

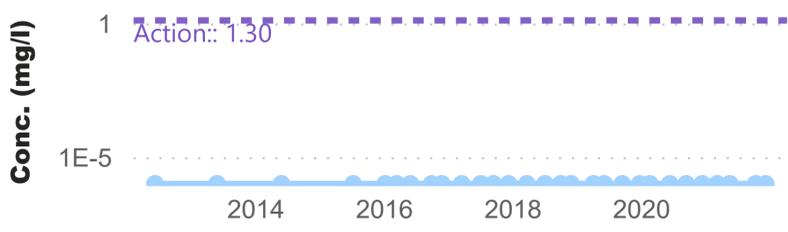


Dissolved Phase

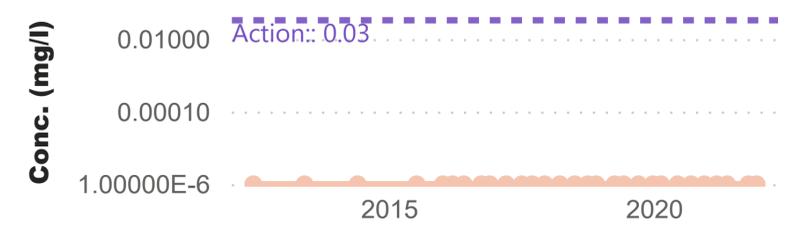
Benzene



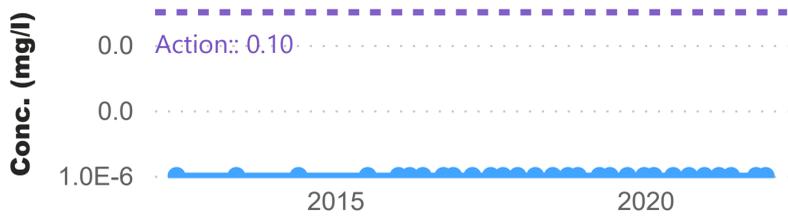
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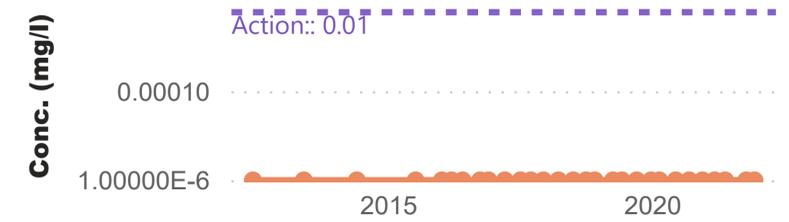
TPH-Aromatic (Low)



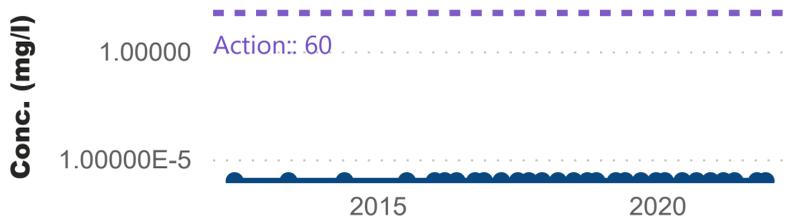
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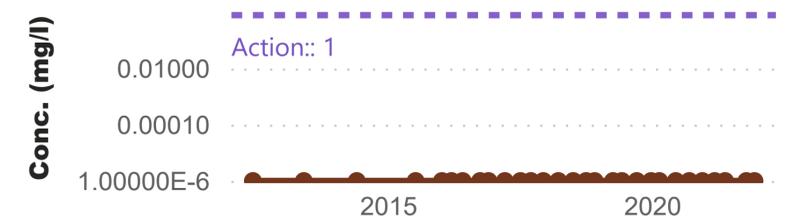
TPH-Aromatic (Medium)



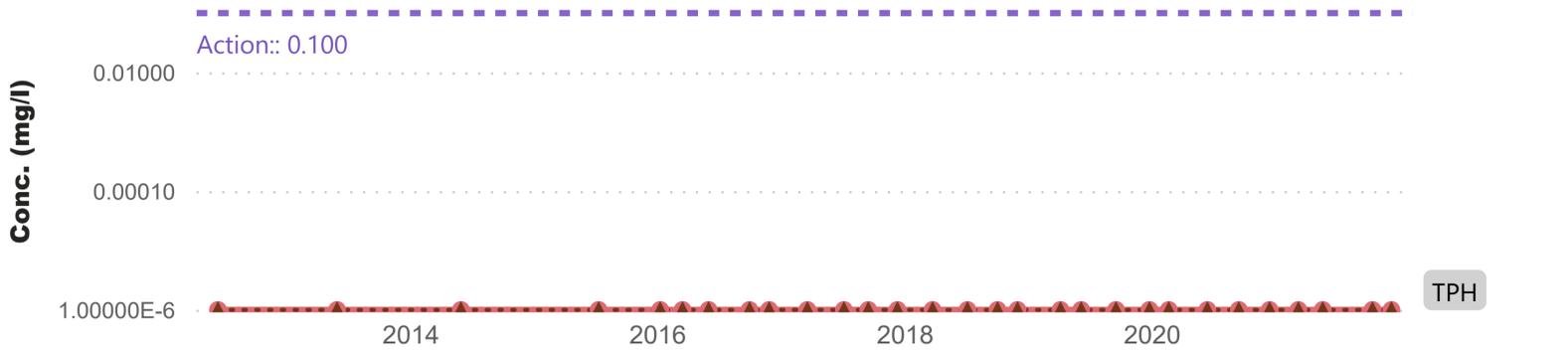
TPH-Aliphatic (High)



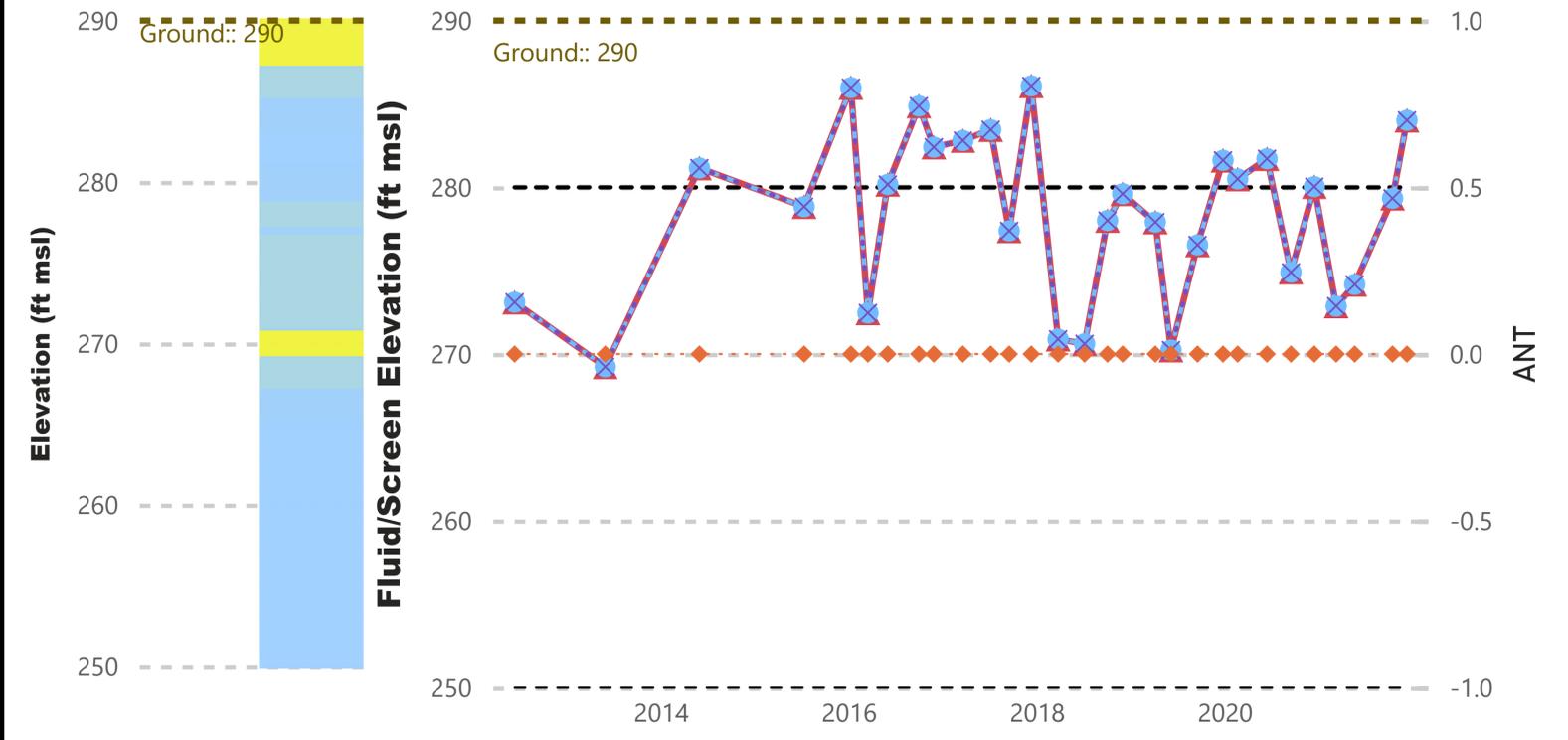
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

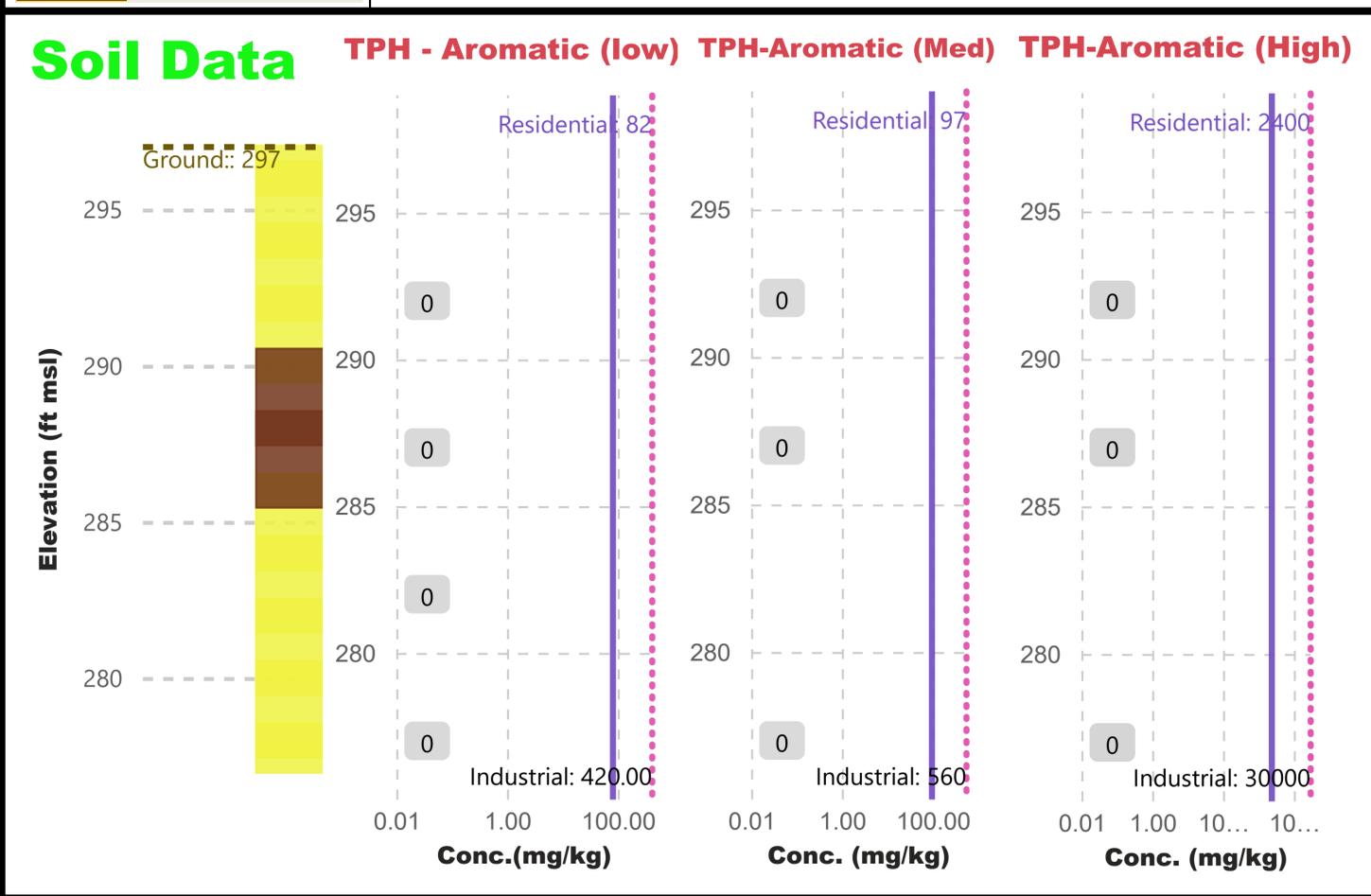
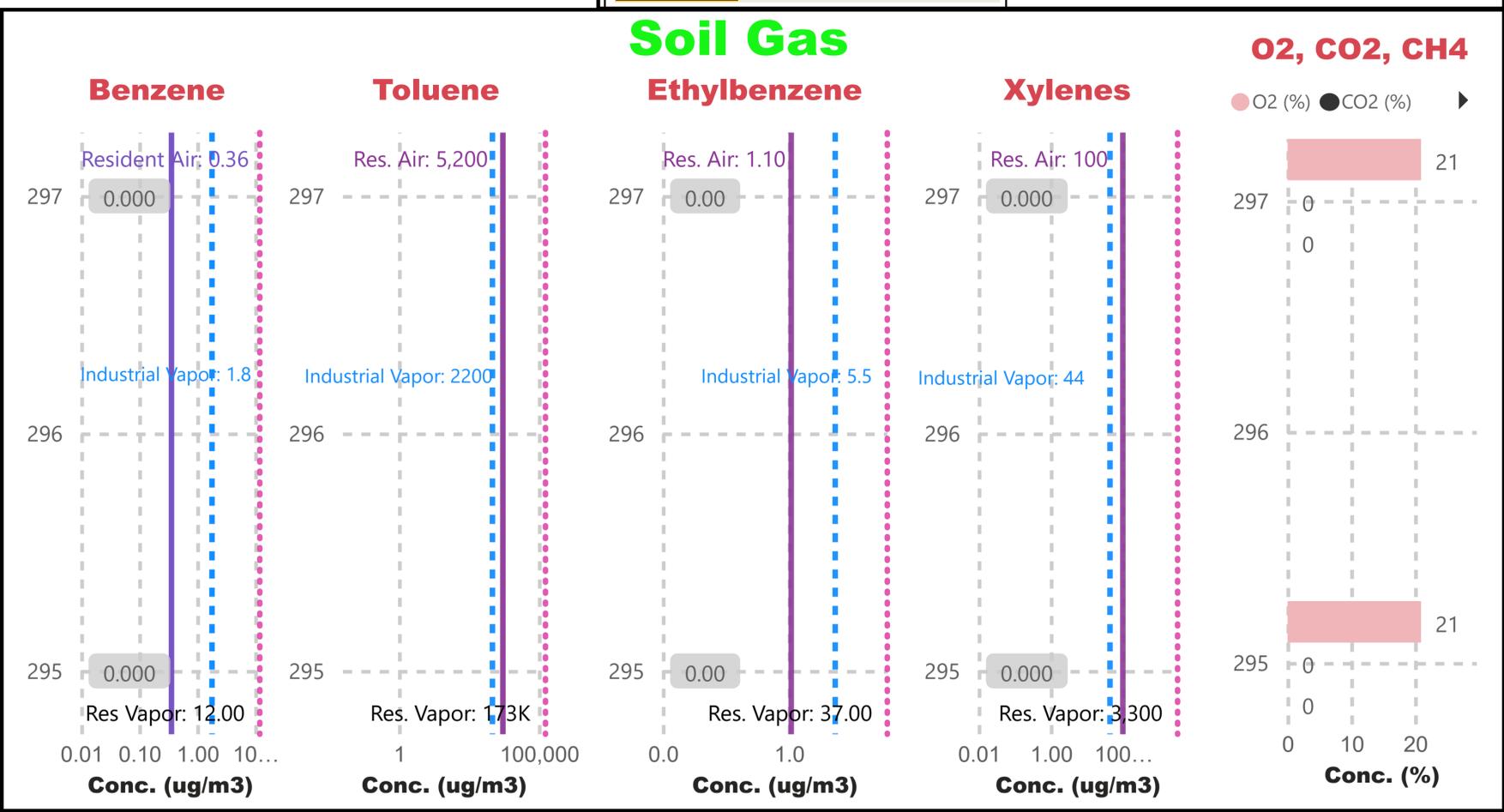
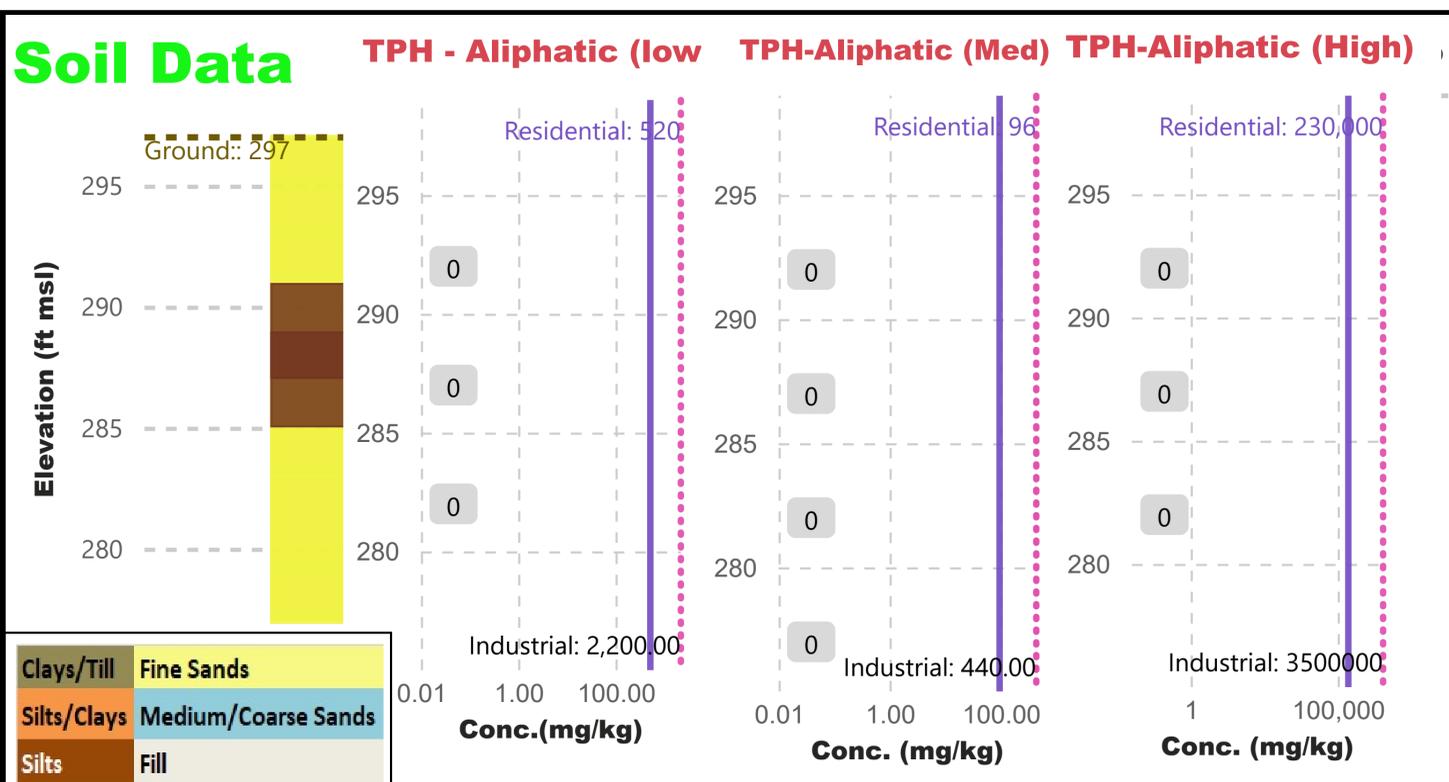
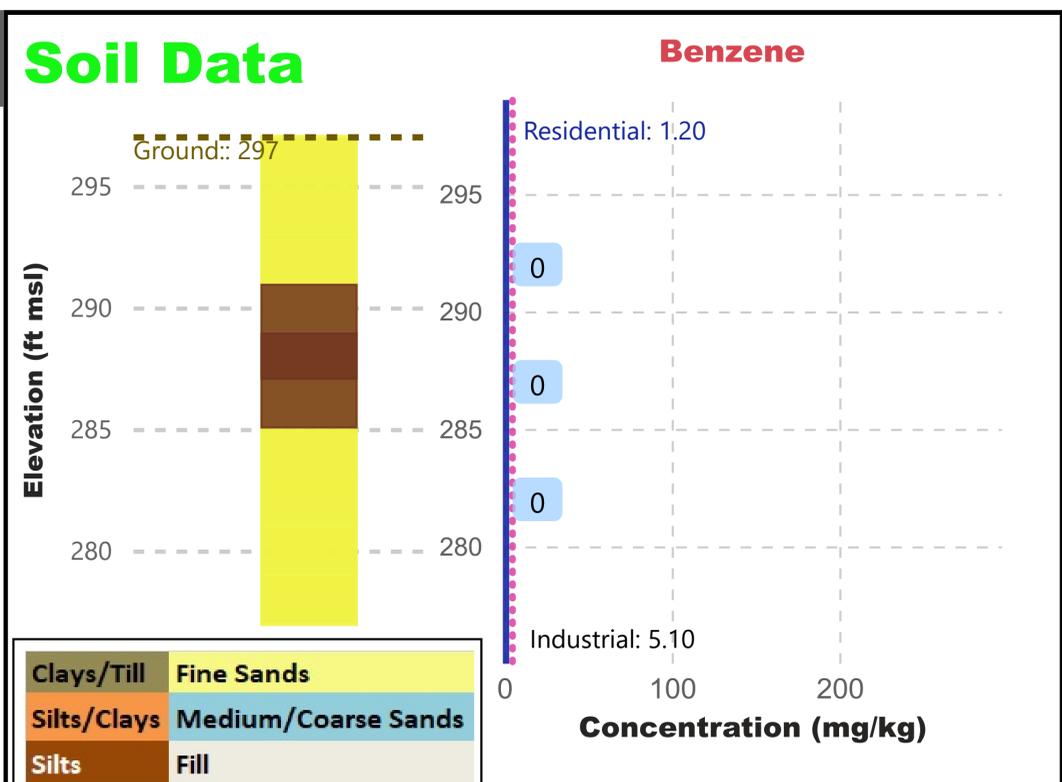
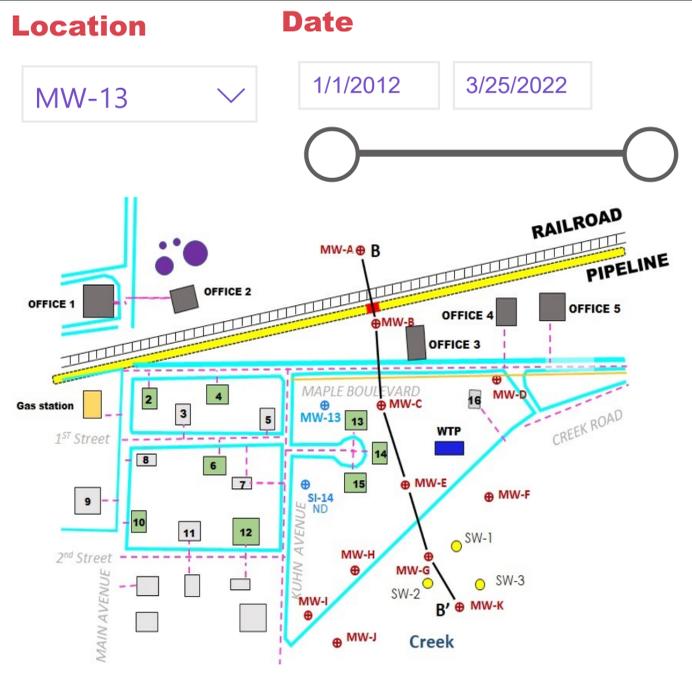
Molecular Structure	EC5-7	EC8-10	EC11-12	EC12-16	EC16-21	EC21-35	TPH Criteria Working Group 13 Transport Fractions	Molecular Structure	EC5-7	EC8-10	EC11-12	EC12-16	EC16-21	EC21-35	EPA 6 Toxicity Fractions
Aliphatic	EC5-7	EC8-10	EC11-12	EC12-16	EC16-21	EC21-35 (same properties as EC16-21) -- not considered a transport fraction--	EPA 6 Toxicity Fractions	Aliphatic	EC5-7	EC8-10	EC11-12	EC12-16	EC16-21	EC21-35	EPA 6 Toxicity Fractions
Aromatic	EC5-7	EC8-10	EC11-12	EC12-16	EC16-21	EC21-35		Aromatic	EC5-7	EC8-10	EC11-12	EC12-16	EC16-21	EC21-35	

Clays/Till	Fine Sands
Silts/Clays	Medium/Coarse Sands
Silts	Fill

--- Screen	TOS/BOS	X Corrected Groundwater Surface CGWS
▲ Air/NAPL Interface	ANI	◆ Apparent NAPL Thickness ANT
● NAPL/Water Interface	NWI	

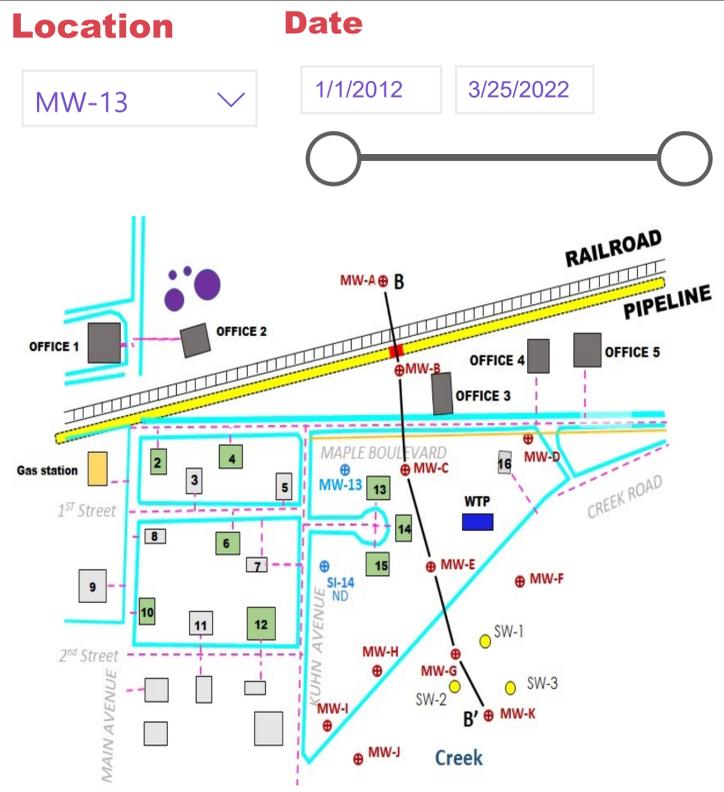
SW-3

Hydrograph & Dissolved Summary



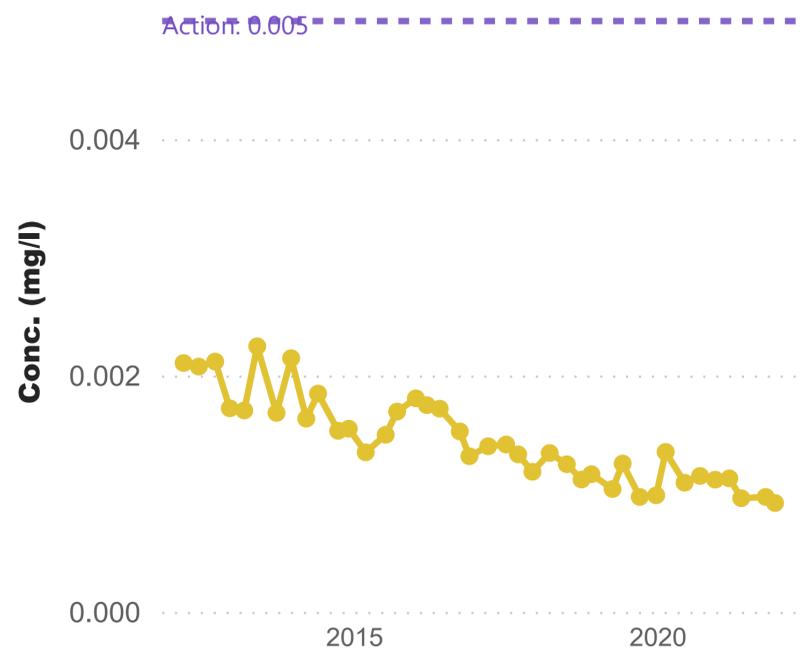
MW-13 Soil and Soil Gas Summary

Clays/Till	Fine Sands	<table border="1"> <tr><td>EC5-6</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC5-7</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC6-8</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC6-9</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC7-9</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC8-10</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC8-11</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC8-12</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-12</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-13</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-14</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-15</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-16</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-17</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-18</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-19</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-20</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-21</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-22</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-23</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-24</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-25</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-26</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-27</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-28</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-29</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> 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<tr><td>EC9-43</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-44</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-45</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-46</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-47</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-48</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-49</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> <tr><td>EC9-50</td><td>EC12-16</td><td>EC16-21</td><td>EC21-35</td></tr> </table>		EC5-6	EC12-16	EC16-21	EC21-35	EC5-7	EC12-16	EC16-21	EC21-35	EC6-8	EC12-16	EC16-21	EC21-35	EC6-9	EC12-16	EC16-21	EC21-35	EC7-9	EC12-16	EC16-21	EC21-35	EC8-10	EC12-16	EC16-21	EC21-35	EC8-11	EC12-16	EC16-21	EC21-35	EC8-12	EC12-16	EC16-21	EC21-35	EC9-12	EC12-16	EC16-21	EC21-35	EC9-13	EC12-16	EC16-21	EC21-35	EC9-14	EC12-16	EC16-21	EC21-35	EC9-15	EC12-16	EC16-21	EC21-35	EC9-16	EC12-16	EC16-21	EC21-35	EC9-17	EC12-16	EC16-21	EC21-35	EC9-18	EC12-16	EC16-21	EC21-35	EC9-19	EC12-16	EC16-21	EC21-35	EC9-20	EC12-16	EC16-21	EC21-35	EC9-21	EC12-16	EC16-21	EC21-35	EC9-22	EC12-16	EC16-21	EC21-35	EC9-23	EC12-16	EC16-21	EC21-35	EC9-24	EC12-16	EC16-21	EC21-35	EC9-25	EC12-16	EC16-21	EC21-35	EC9-26	EC12-16	EC16-21	EC21-35	EC9-27	EC12-16	EC16-21	EC21-35	EC9-28	EC12-16	EC16-21	EC21-35	EC9-29	EC12-16	EC16-21	EC21-35	EC9-30	EC12-16	EC16-21	EC21-35	EC9-31	EC12-16	EC16-21	EC21-35	EC9-32	EC12-16	EC16-21	EC21-35	EC9-33	EC12-16	EC16-21	EC21-35	EC9-34	EC12-16	EC16-21	EC21-35	EC9-35	EC12-16	EC16-21	EC21-35	EC9-36	EC12-16	EC16-21	EC21-35	EC9-37	EC12-16	EC16-21	EC21-35	EC9-38	EC12-16	EC16-21	EC21-35	EC9-39	EC12-16	EC16-21	EC21-35	EC9-40	EC12-16	EC16-21	EC21-35	EC9-41	EC12-16	EC16-21	EC21-35	EC9-42	EC12-16	EC16-21	EC21-35	EC9-43	EC12-16	EC16-21	EC21-35	EC9-44	EC12-16	EC16-21	EC21-35	EC9-45	EC12-16	EC16-21	EC21-35	EC9-46	EC12-16	EC16-21	EC21-35	EC9-47	EC12-16	EC16-21	EC21-35	EC9-48	EC12-16	EC16-21	EC21-35	EC9-49	EC12-16	EC16-21	EC21-35	EC9-50	EC12-16	EC16-21	EC21-35	<p>TPH Criteria Working Group 13 Transport Fractions</p> <table border="1"> <tr><td>EC5-8</td><td>EC8-16</td><td>EC16-35</td></tr> <tr><td>Low</td><td>Medium</td><td>High</td></tr> <tr><td>EC6-9</td><td>EC9-22</td><td>EC22-35</td></tr> <tr><td>Low</td><td>Medium</td><td>High</td></tr> </table> <p>EPA 6 Toxicity Fractions</p>	EC5-8	EC8-16	EC16-35	Low	Medium	High	EC6-9	EC9-22	EC22-35	Low	Medium	High
EC5-6	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC5-7	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC6-8	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC6-9	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC7-9	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC8-10	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC8-11	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC8-12	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-12	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-13	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-14	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-15	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-16	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-17	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-18	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-19	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-20	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-21	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-22	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-23	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-24	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-25	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-26	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-27	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-28	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-29	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-30	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-31	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-32	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
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EC9-49	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC9-50	EC12-16	EC16-21	EC21-35																																																																																																																																																																																																									
EC5-8	EC8-16	EC16-35																																																																																																																																																																																																										
Low	Medium	High																																																																																																																																																																																																										
EC6-9	EC9-22	EC22-35																																																																																																																																																																																																										
Low	Medium	High																																																																																																																																																																																																										

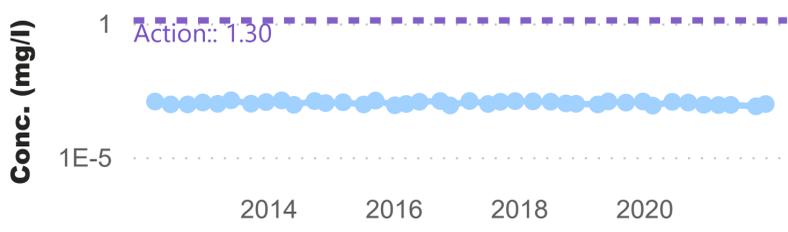


Dissolved Phase

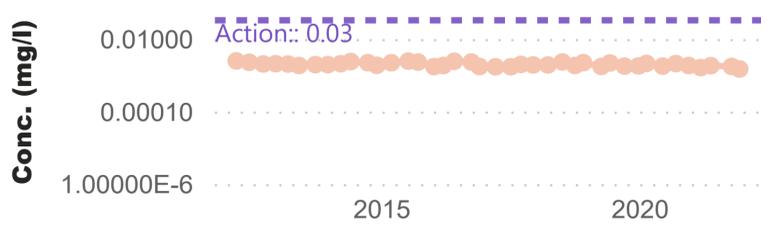
Benzene



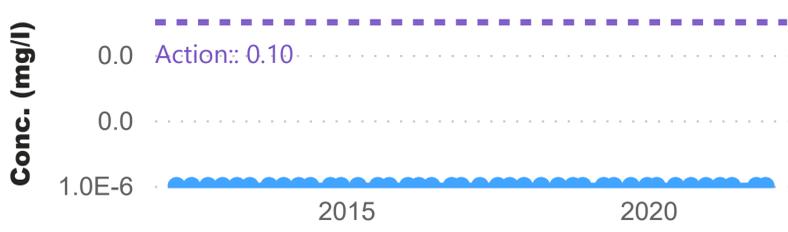
TPH-Aliphatic (Low)



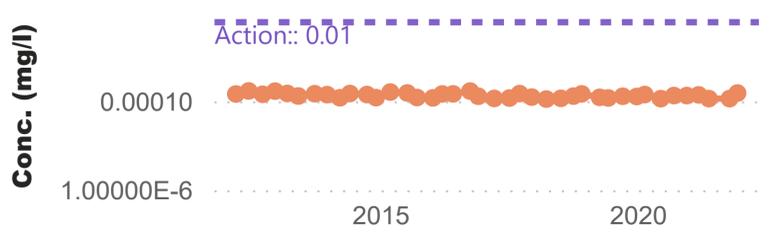
TPH-Aromatic (Low)



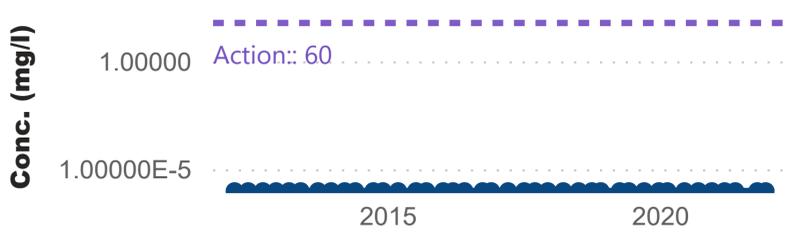
TPH-Aliphatic (Medium)



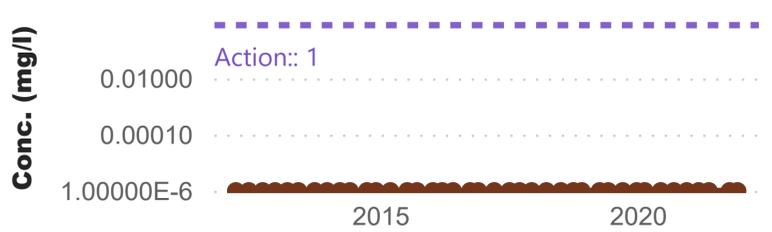
TPH-Aromatic (Medium)



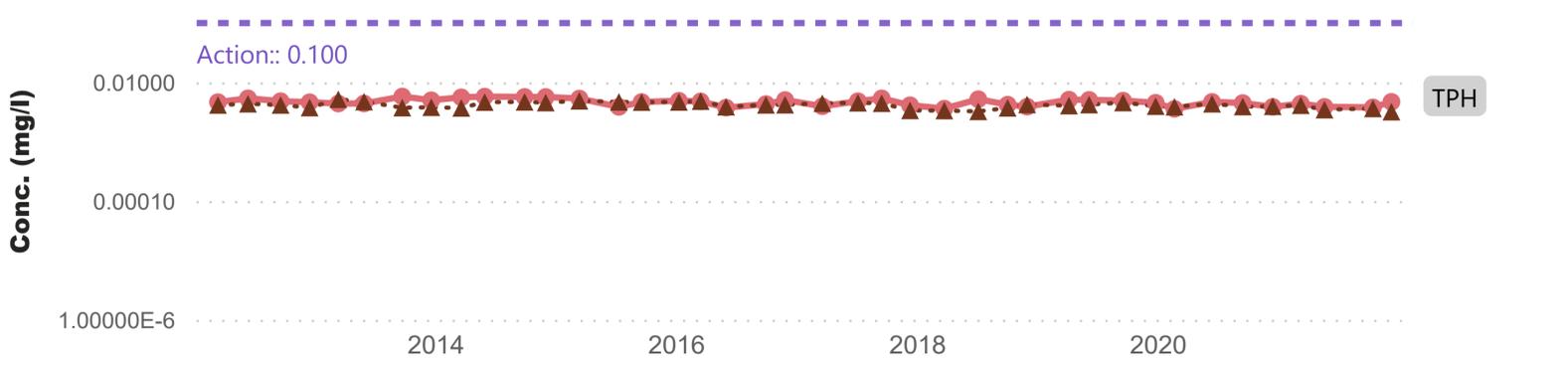
TPH-Aliphatic (High)



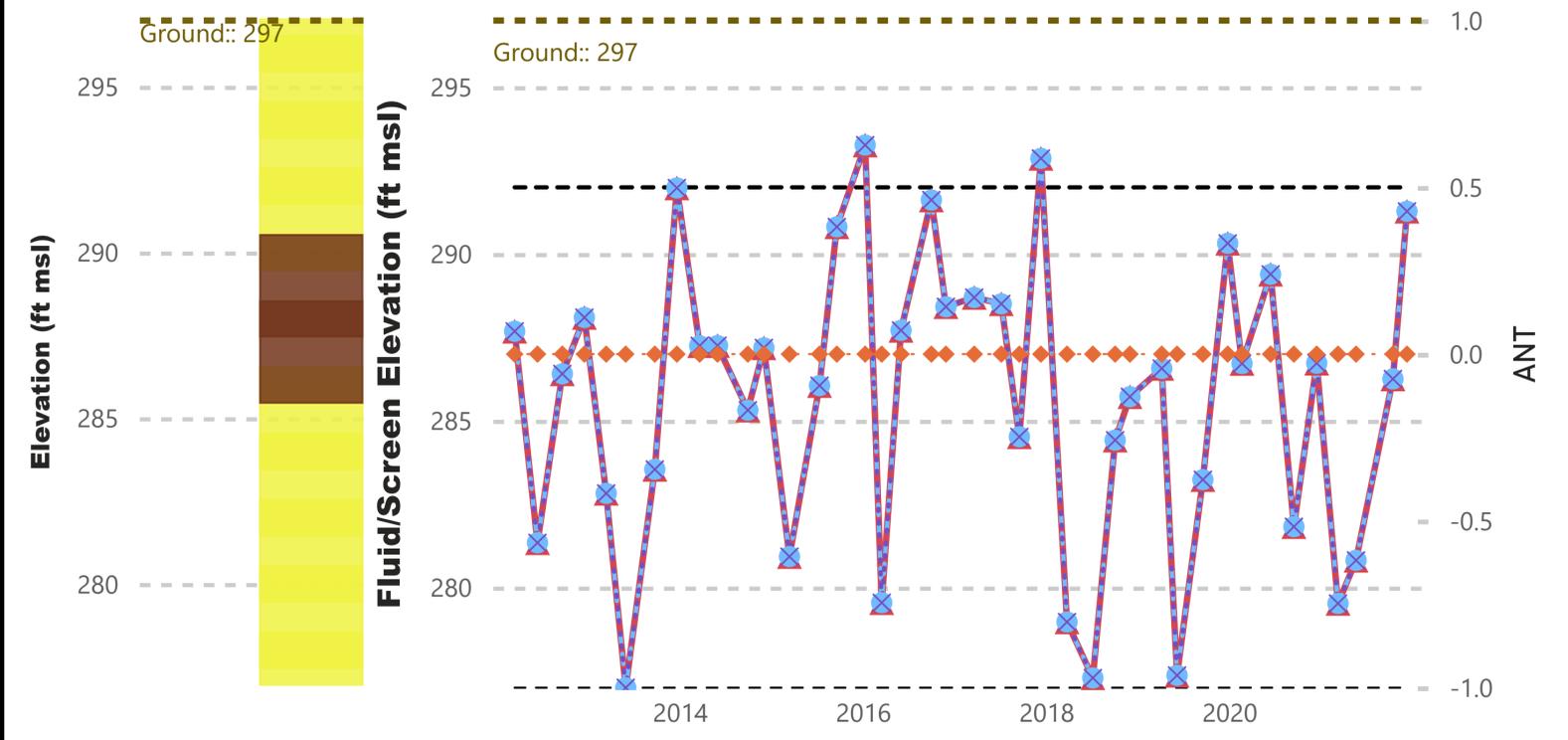
TPH-Aromatic (High)



TPH (with/without Silica Gel Cleanup)



Hydrograph



The Silica Gel Cleanup for TPH is a method used by the laboratory to "clean up" the sample extract before it is analyzed for TPH so that the extract contains primarily hydrocarbons (non-polar) compared to non-hydrocarbons like metabolites, natural organic matter, chlorinated solvents etc.

Molecular Structure	Aliphatic	Aromatic	TPH Criteria Working Group	13 Transport Fractions	EPA 6 Toxicity Fractions
EC5-7	EC5-6	EC8-16	Low	Low	Low
EC8-10	EC8-10	EC9-22	Medium	Medium	Medium
EC10-12	EC10-12	EC16-35	High	High	High
EC12-16	EC12-16	EC21-35	(same properties as EC16-21) -- not considered a transport fraction--	EC21-35	EC21-35
EC16-21	EC16-21				

Increasing Equivalent Carbon (EC) Number →

Clays/Till	Fine Sands	---	Screen	TOS/BOS	X	Corrected Groundwater Surface CGWS
Silts/Clays	Medium/Coarse Sands	▲	Air/NAPL Interface	ANI	◆	Apparent NAPL Thickness ANT
Silts	Fill	●	NAPL/Water Interface	NWI		

MW-13 Hydrograph & Dissolved Summary