FLINT HILLS RESOURCES®

North Pole Refinery
Flint Hills Resources Alaska, LLC.
1100 H & H Lane
North Pole, Alaska 99705
907.488.2741

CO-005-10 Certified Return Receipt # 7009 0080 0002 0390 9632

January 21, 2009

Ms. Ann Farris
State of Alaska
Department of Environmental Conservation
610 University Ave.
Fairbanks, AK 99709-3643

RE: Flint Hills Resources Alaska LLC's North Pole Refinery
December 2009 Groundwater Remediation Status Report

Dear Ms. Farris,

Please find attached the Flint Hills Resources Alaska LLC (FHR) December 2009 Groundwater Remediation Status Report. During December 2009, FHR recovered 46.0 gallons of liquid hydrocarbon. The wastewater discharged from the groundwater remediation system to the south gravel pit was reinstated during the month of December. As discussed in the October 2009 Groundwater Remediation Status Report cover letter on November 21, 2009, the remediation system was shut down due to the emulsion residue and sheen problems occurring on the gallery pond.

FHR identified and purchased a pre-filter unit and coalescer/water separator (coalescer system) as a viable interim measure to remove free hydrocarbons from the recovery well water prior to passing the well water through the remediation stripper towers to prevent free hydrocarbons from entering the gallery pond and passing to the south gravel pit. This equipment will allow FHR to operate the remediation system through the winter while we complete an assessment of our groundwater system and develop a groundwater model of the site which will enable us to finalize a plan for enhancing the remediation of the groundwater. The coalescer system is an interim measure to address this issue. Based on the results of the assessment over the winter, it may be determined that the coalescer should continue to be used or a new system may be recommended. The coalescer arrived on site on November 18, 2009. Installation of the equipment was completed but the remediation system was not brought back on line until December 1, 2009 due to frozen lines and heat trace issues.

FHR personnel worked with you to modify our corrective action plan to incorporate the use of the coalescer and Tim Pilon of the Wastewater Discharge Program to address any wastewater permit issues, covered under ADEC Permit 2005-DB0012, prior to the installation of the coalescer. No permit modifications were required.

The daily flow range was recorded as 0.000 – 0.198 million gallons per day (MMGD) and the average flow for the month was 0.198 MMGD. Samples from the influent and effluent streams of the remediation air strippers and the gallery pond effluent were collected on December 3, 8 and 17, 2009. Samples were collected from sixteen onsite monitoring wells during the month of December. Five monitoring wells were scheduled and sampled for BTEX in December. Eight monitoring wells were scheduled and sampled for sulfolane in December. Four additional onsite wells were also monitored for sulfolane (MW-148A, MW-148B, MW-149A and MW-149B).

The benzene and sulfolane sample results for the month of December and the associated monitoring wells are shown on Figure 1. Figure 1A shows the additional wells that have been installed off the refinery property as part of the ongoing sulfolane investigation. Per recommendations made in the independent sulfolane laboratory assessment report transmitted to you on December 10, 2009 by Mark Gregory, Pace Laboratories re-quantified certain final laboratory reports using the correct analytical curve. The corrected data are presented in this report. The corrected Pace data from November 11 is included in Figure 1A, Figure 3, and Table 3 as we had not received the updated report from Pace when the November report was submitted. As you are aware, FHR has also been in the process of sampling residential wells in the area, which results have either been provided to you on December 10, 2009 or are being provided to you pursuant to FHR's North Pole Sulfolane Plume Characterization Work Plan. The historical benzene and sulfolane concentrations for the monitoring wells are shown in Figures 2 and 3 respectively. The monitoring well BTEX and sulfolane concentrations are listed in Table 2.

As you requested during our July meeting, the monthly report has been revised to include the following figures:

- Figure 1. November Sample Results--Sulfolane and Benzene;
- Figure 1A. November Offsite Sample Results—Sulfolane
- Figure 2. Monitoring Wells--Benzene Data; and
- Figure 3. Monitoring Wells--Sulfolane Data.

Please note that the December 2009 DMR contains a discussion regarding: 1) how FHR is now recording the flow of water from the gallery pond to the gravel pit; 2) how FHR historically reported results below detection or reporting limits differently than what was required under the Quality Assurance Protection Plan; and 3) the fact that analytical data from MW-106 and MW-141 are from the September 2009 semi-annual sampling event.

North Pole Refinery – Flint Hills Resources Alaska, LLC. – 1100 H & H Lane – North Pole, Alaska 99705 – 907.488.2741

Monitoring wells MW-106 and MW-141 are located down gradient of the south and north gravel pits, respectively. These well were sampled on September 23, 2009.

Two incidents associated with the remediation system occurred during the month on December 3 and December 9. On December 3 one pint of well water leaked from a bonnet gasket on a discharge valve. A bucket was placed under the valve and the well was shut down until the valve was replaced. On December 9 one pint of well water leaked from a valve. The frozen well water was picked up and placed in the wastewater system.

If you have any questions or comments, please contact Donna Stevison at 907-488-5105.

Sincerely,

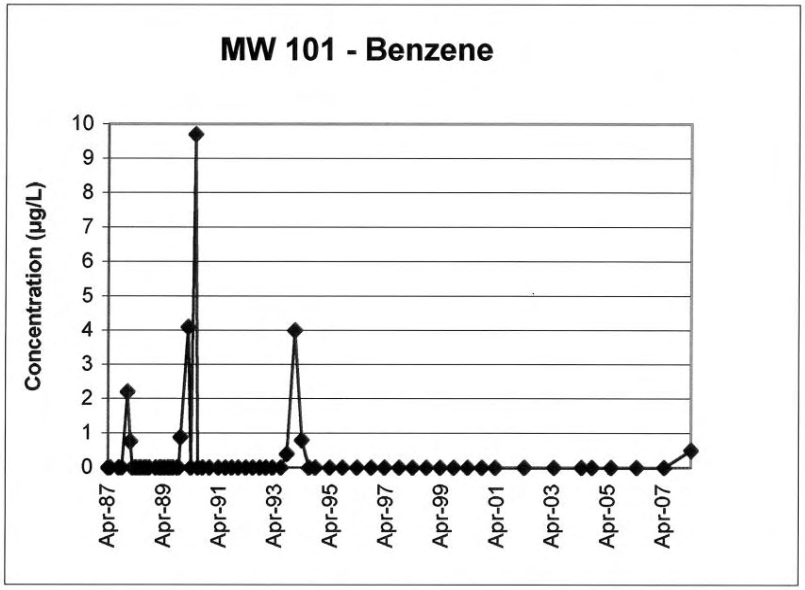
Donna Stevison

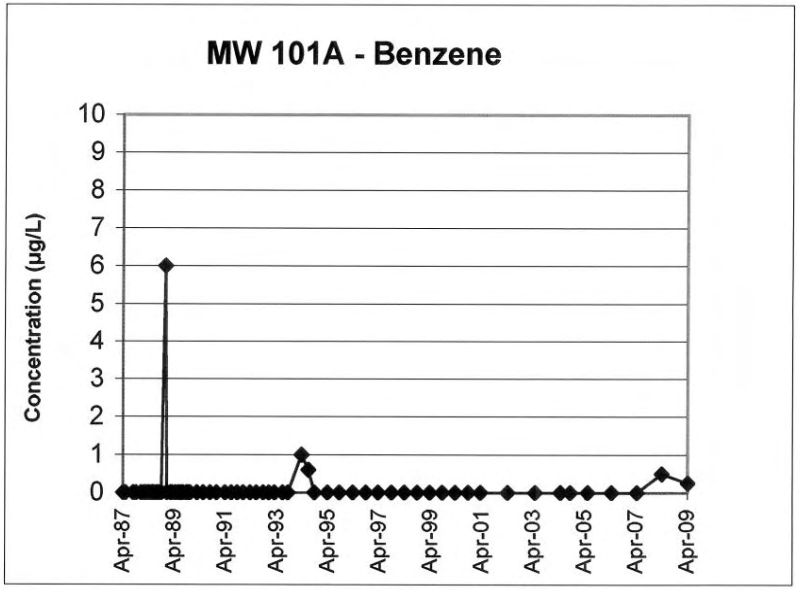
Donna Stevison
Environmental Engineer
Flint Hills Resources Alaska, LLC

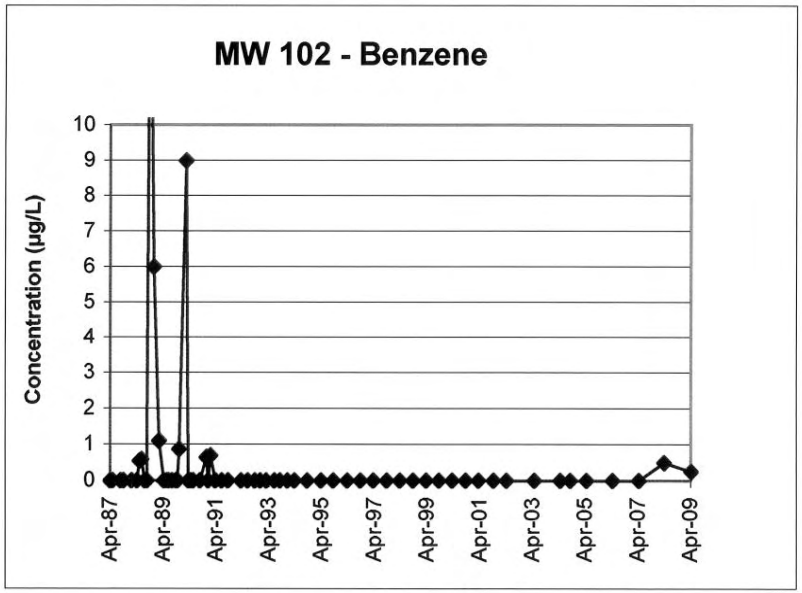
Enclosures: Figure 1. December Sample Results--Sulfolane and Benzene
Figure 2. Monitoring Wells--Benzene Data
Figure 3. Monitoring Wells--Sulfolane Data
December 2009 Groundwater Remediation Status Report Tables 1 & 2
NP Laboratory Work Order No. 1203
NP Laboratory Work Order No. 1207
NP Laboratory Work Order No. 1209
NP Laboratory Work Order No. 1222
Pace Laboratory Work Order No. 10117146
Pace Laboratory Work Order No. 10118752
SGS Laboratory Work Order No. 1096702
SGS Laboratory Work Order No. 1096705
SGS Laboratory Work Order No. 1096964
SGS Laboratory Work Order No. 1096986
December 2009 Data QA/QC
Lab Data Review Checklist: SGS Work Order No. 1096702
Lab Data Review Checklist: SGS Work Order No. 1096964 and 1096705
Lab Data Review Checklist: SGS Work Order No. 1096986
Lab Data Review Checklist: Pace Work Order No. 10117146
Lab Data Review Checklist: Pace Work Order No. 10118752

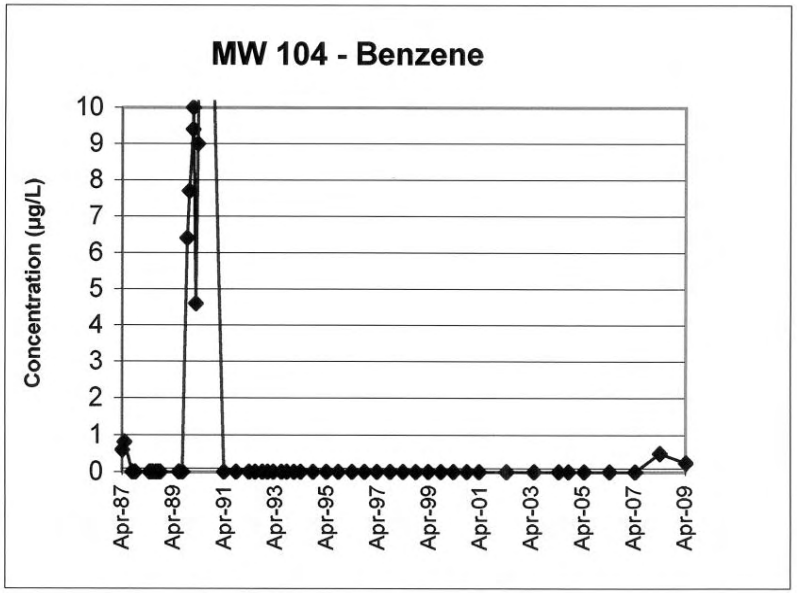
cc: Jan Palumbo (EPA)
Jon Lindstrom (Shannon & Wilson)

Figure 2. Monitoring Wells - Benzene Data









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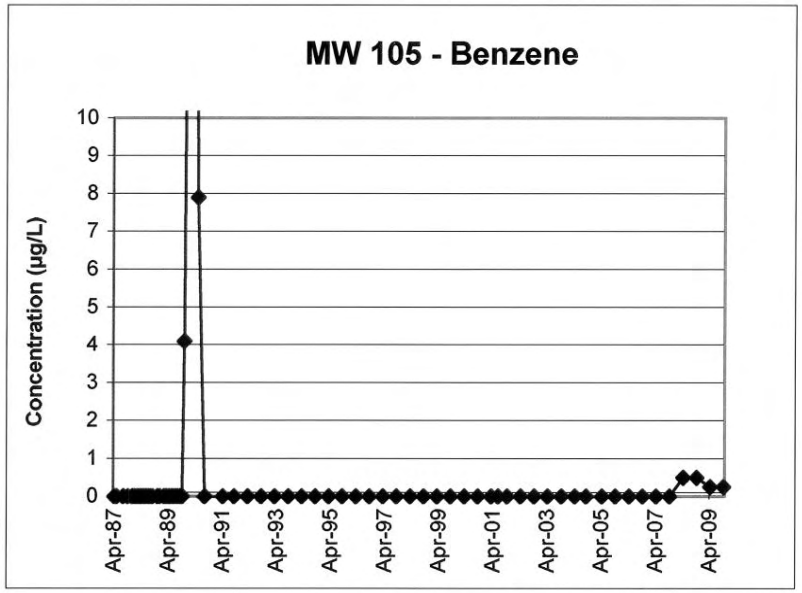

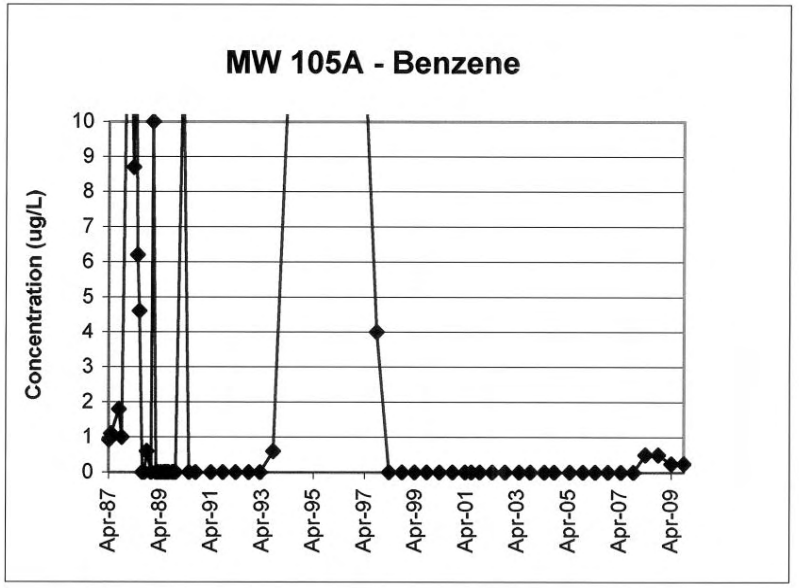

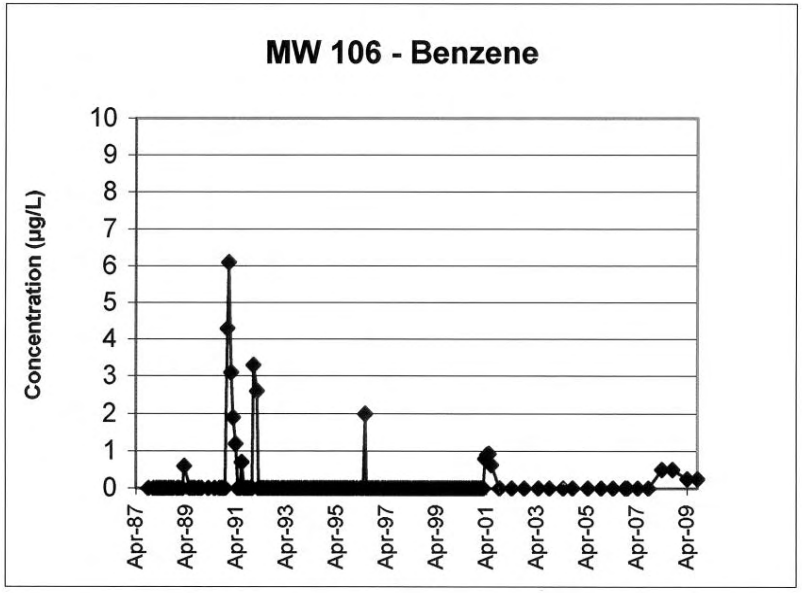

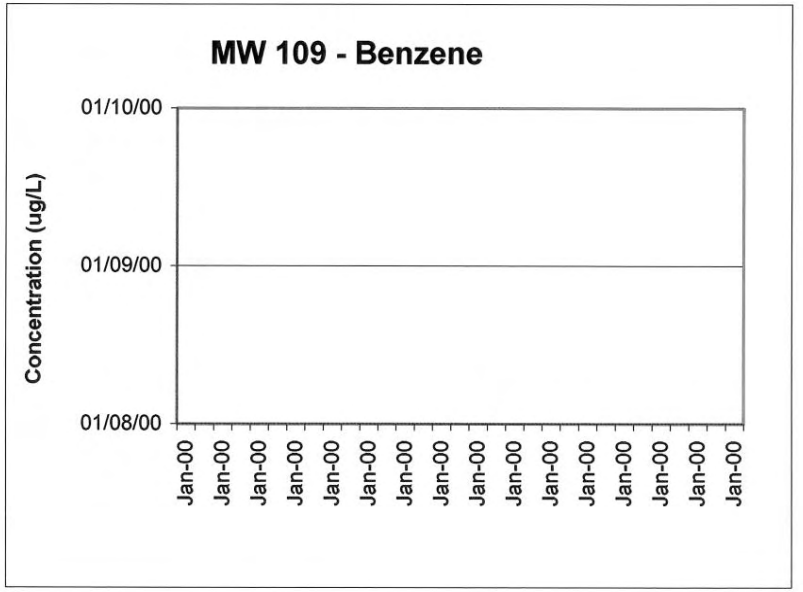

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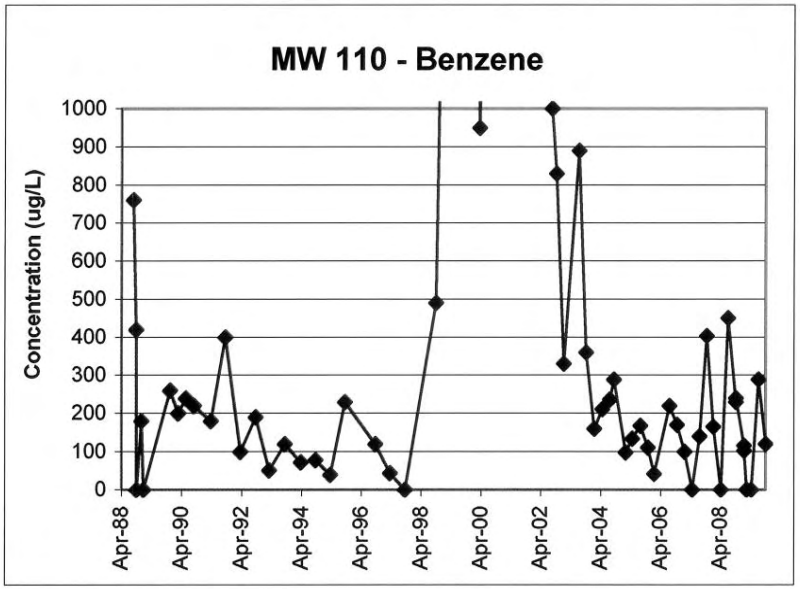

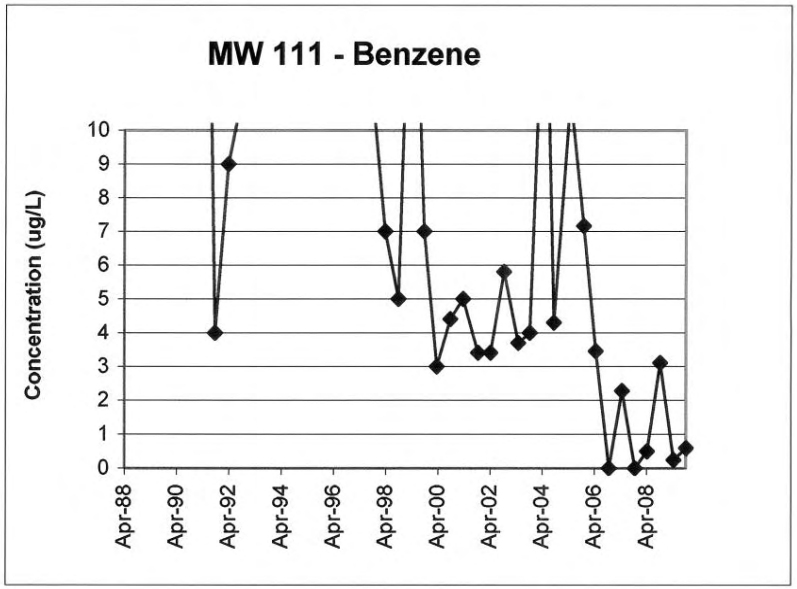

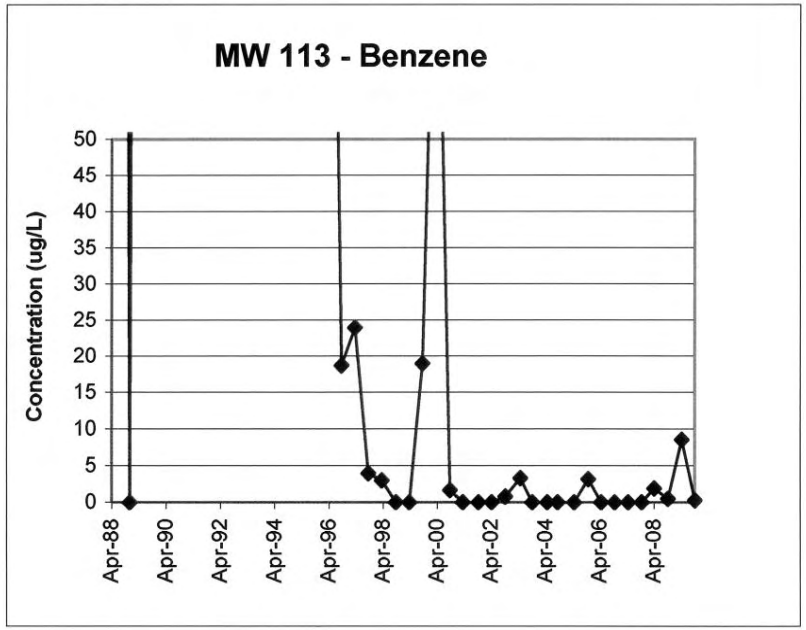

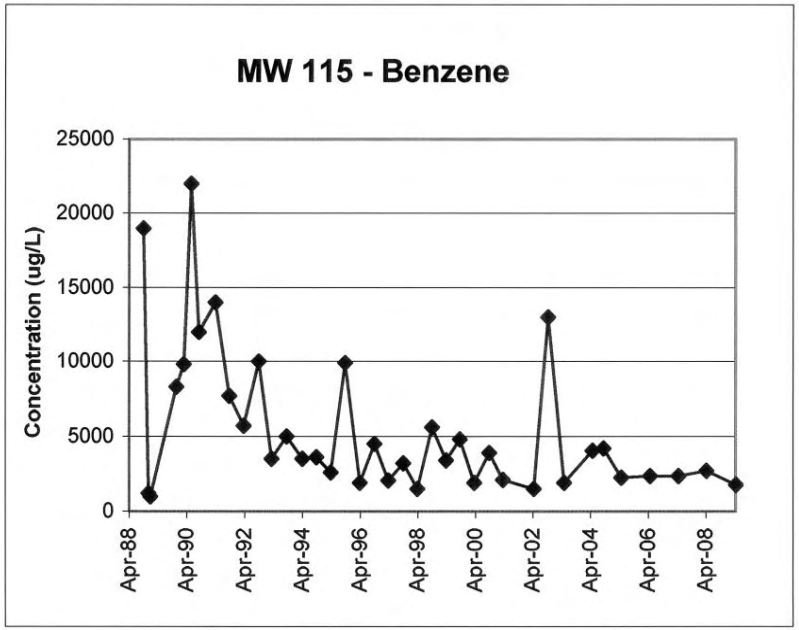

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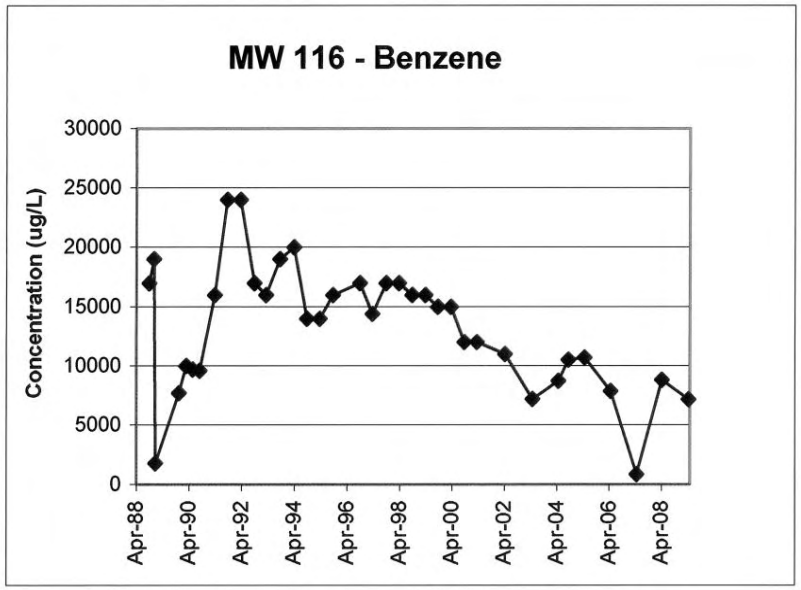

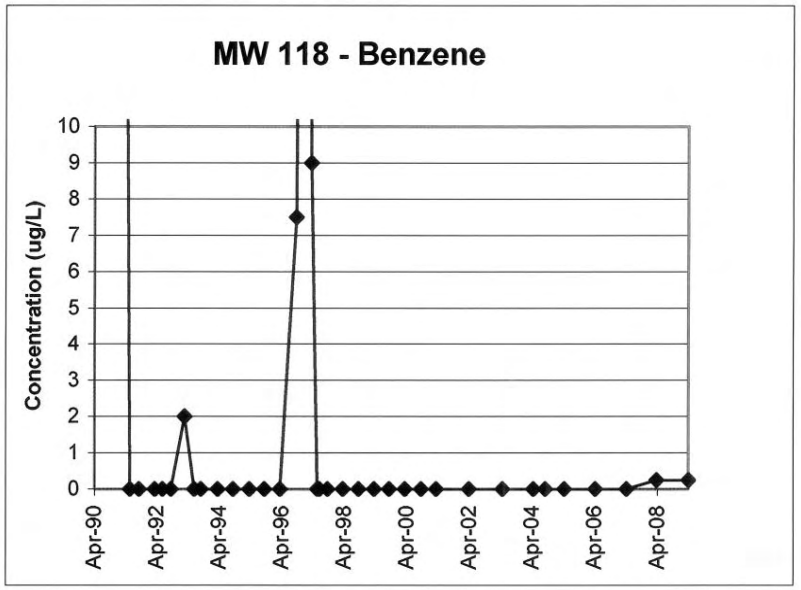

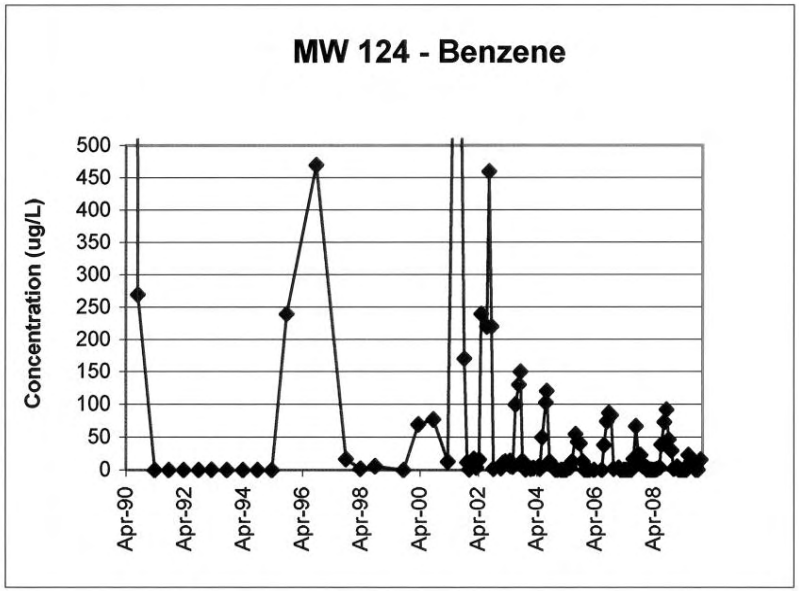

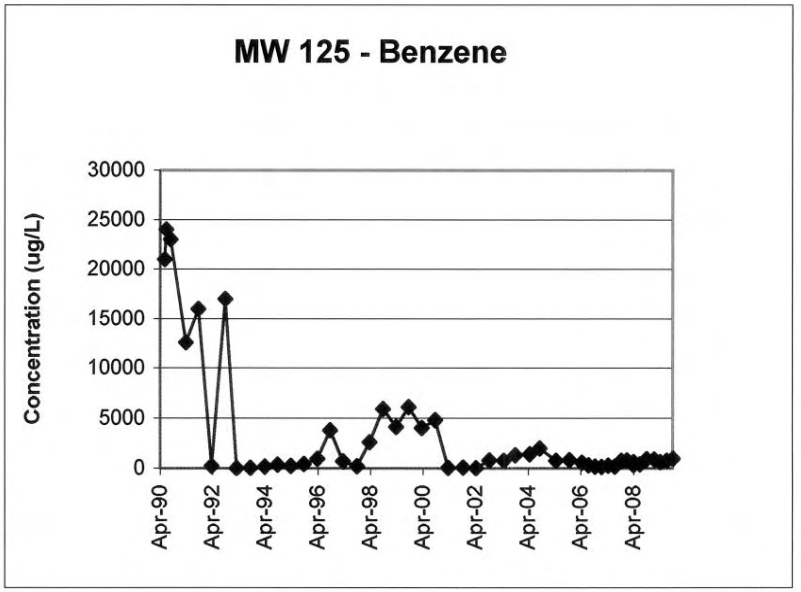

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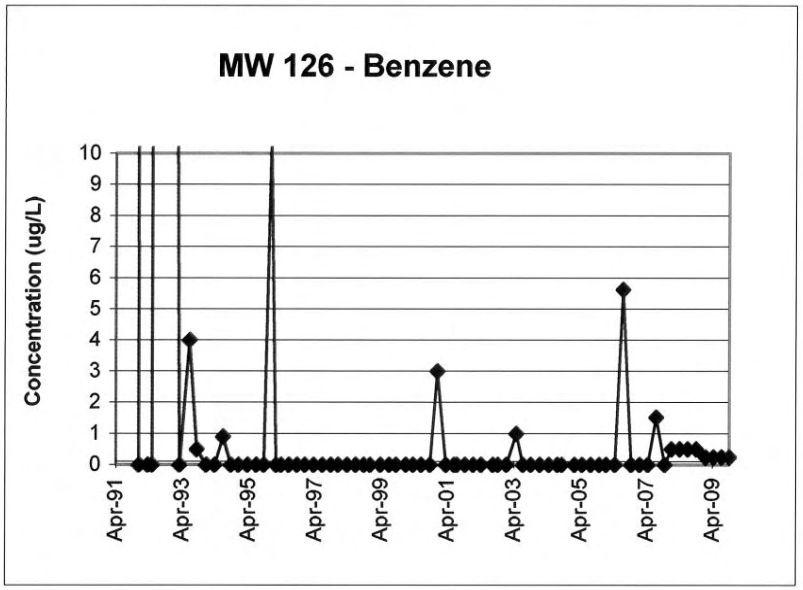

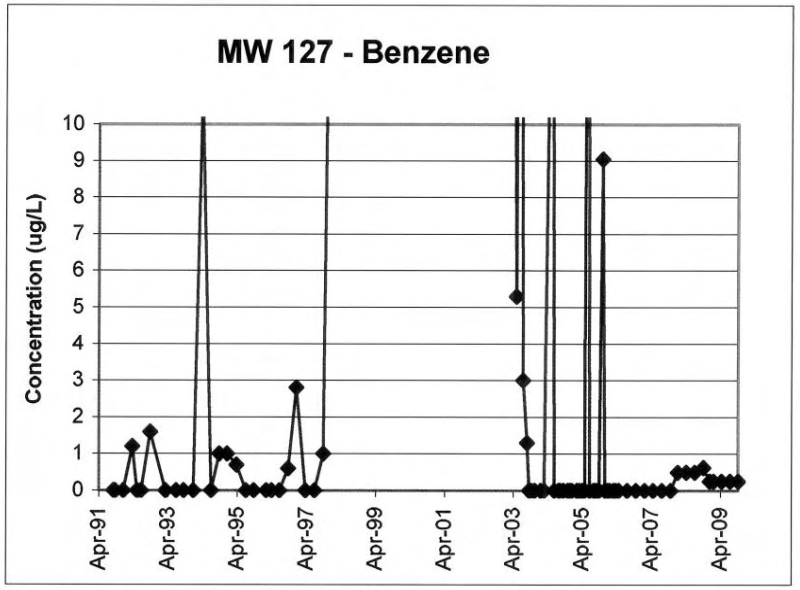

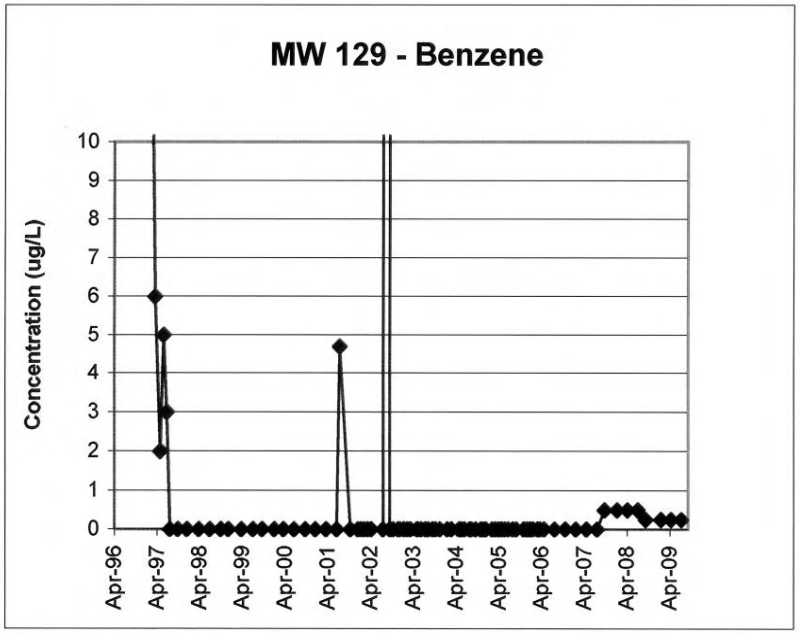

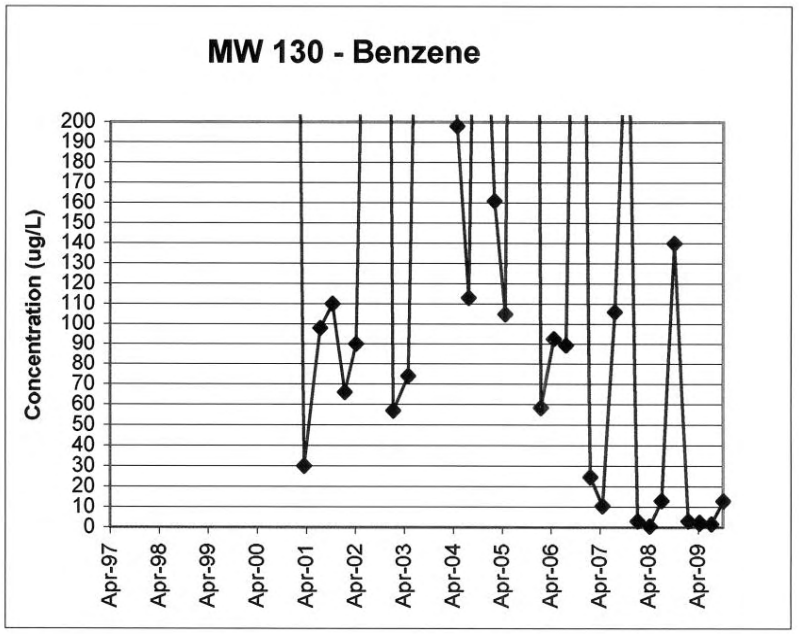

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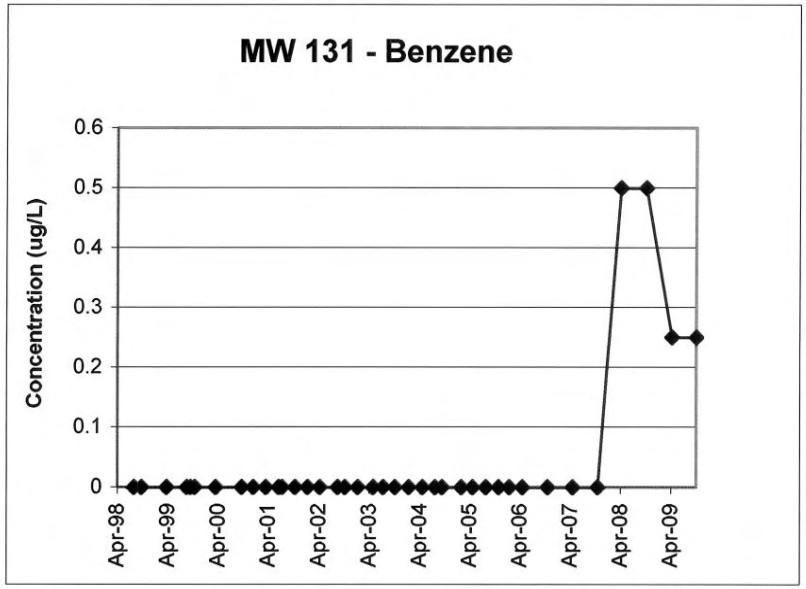

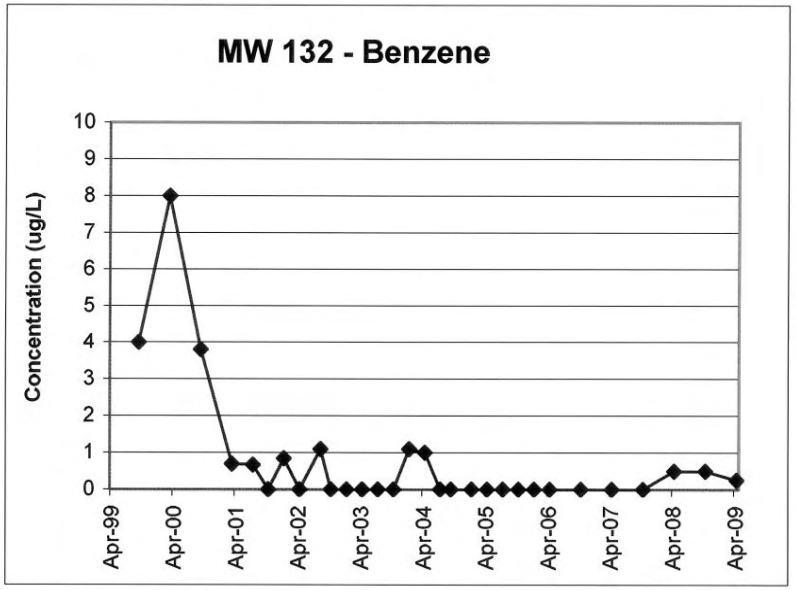

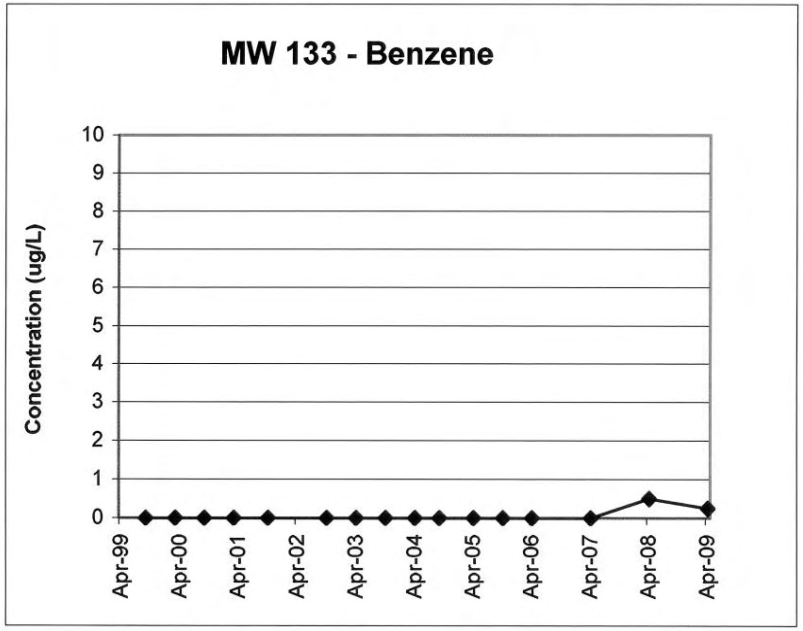

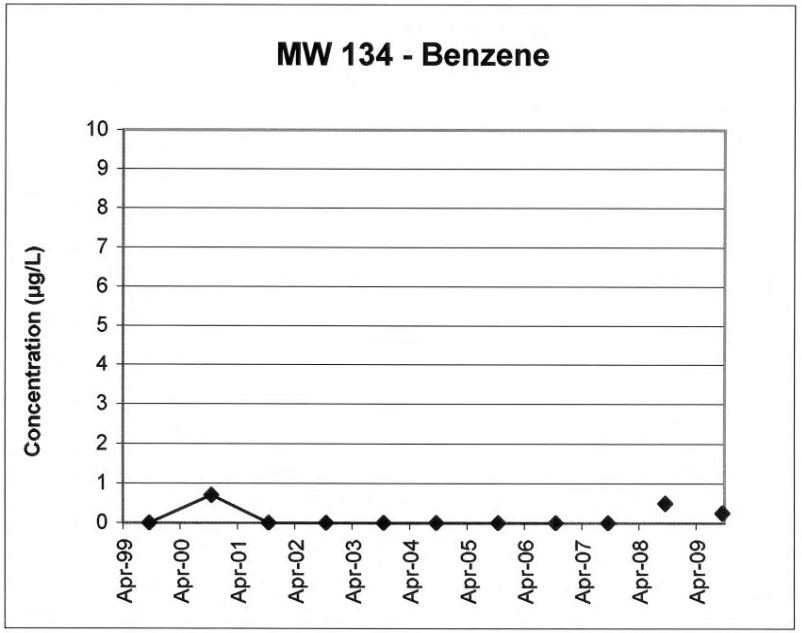

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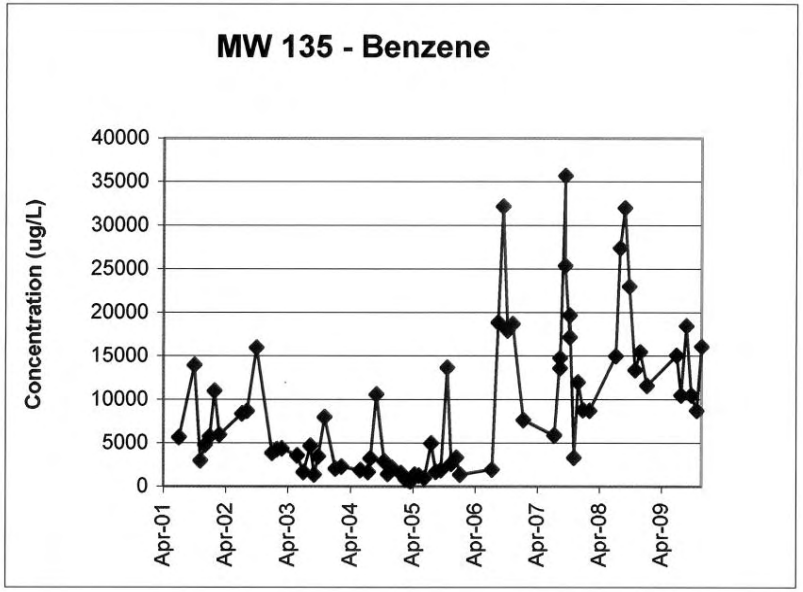

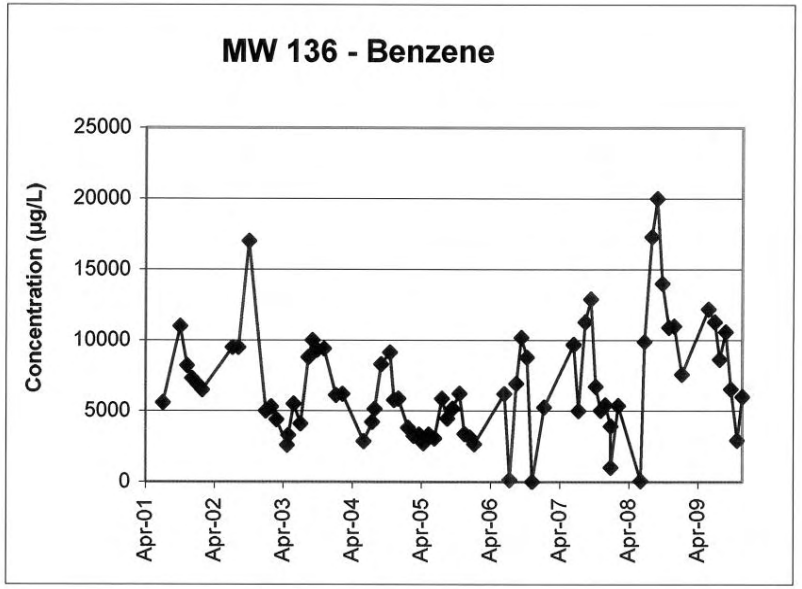

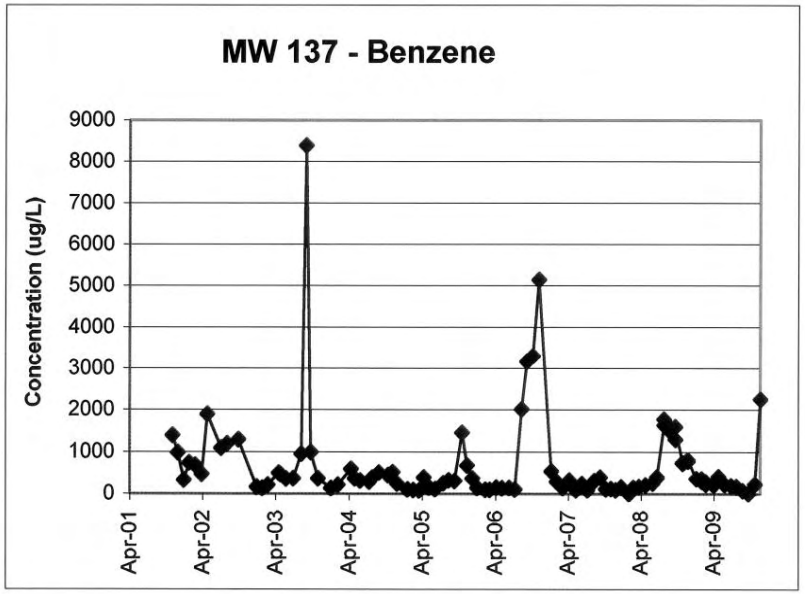

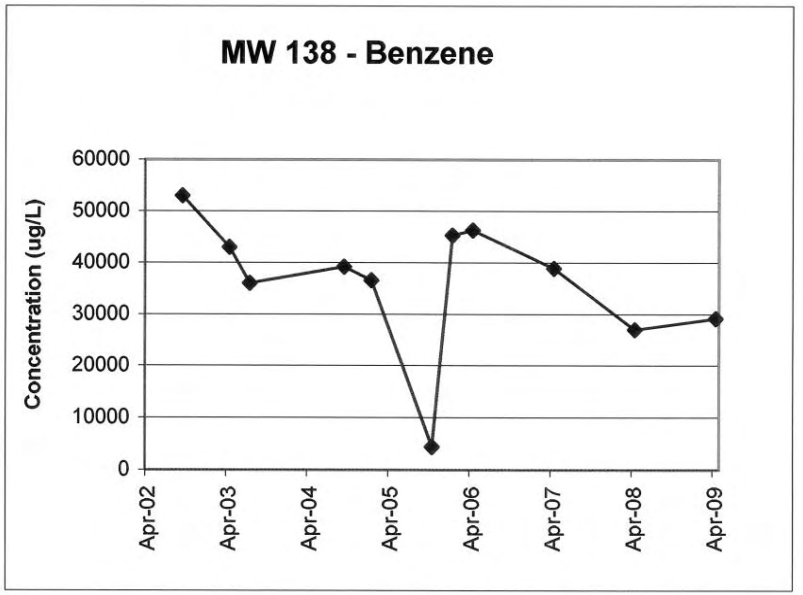

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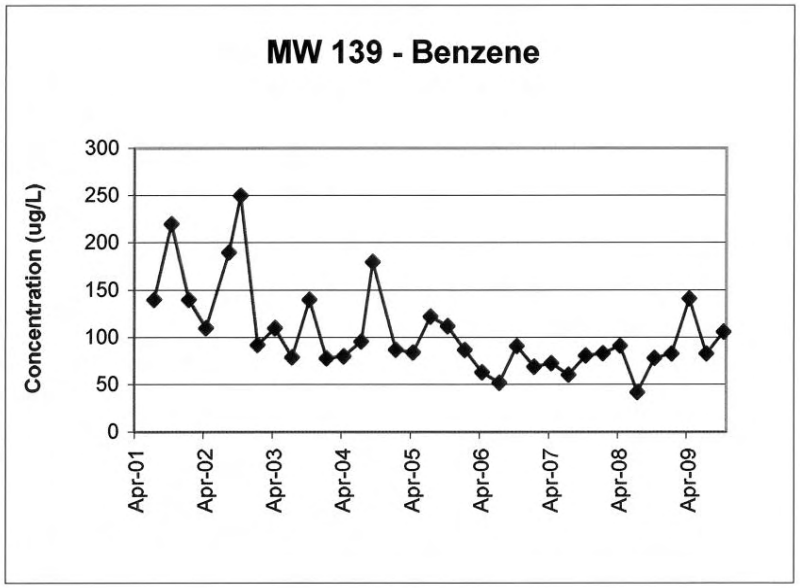

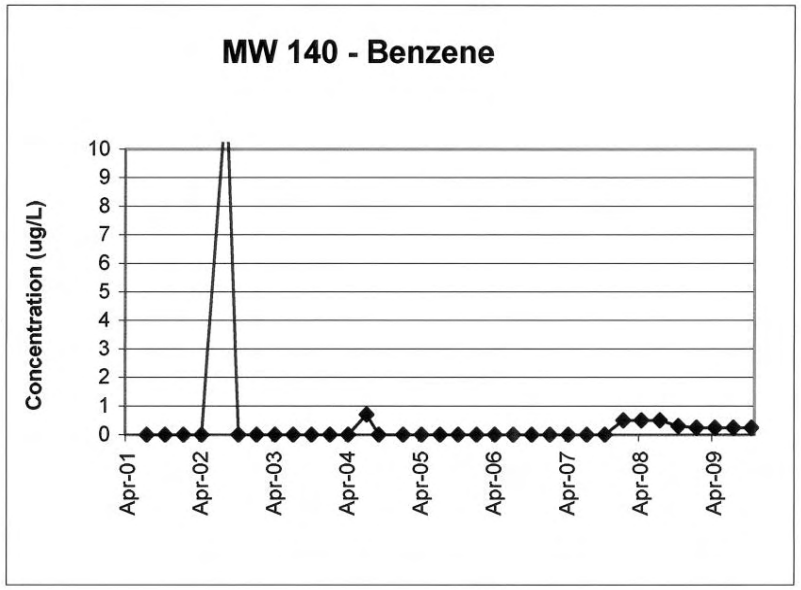

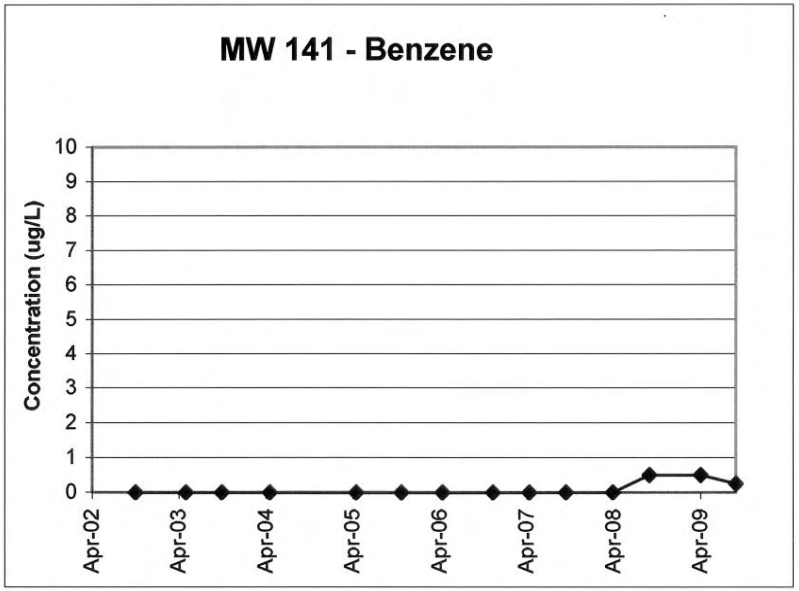

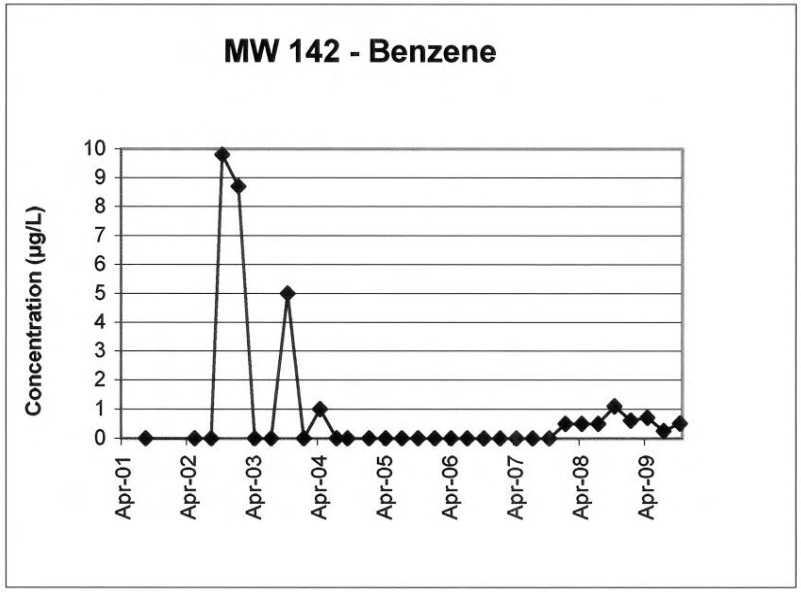

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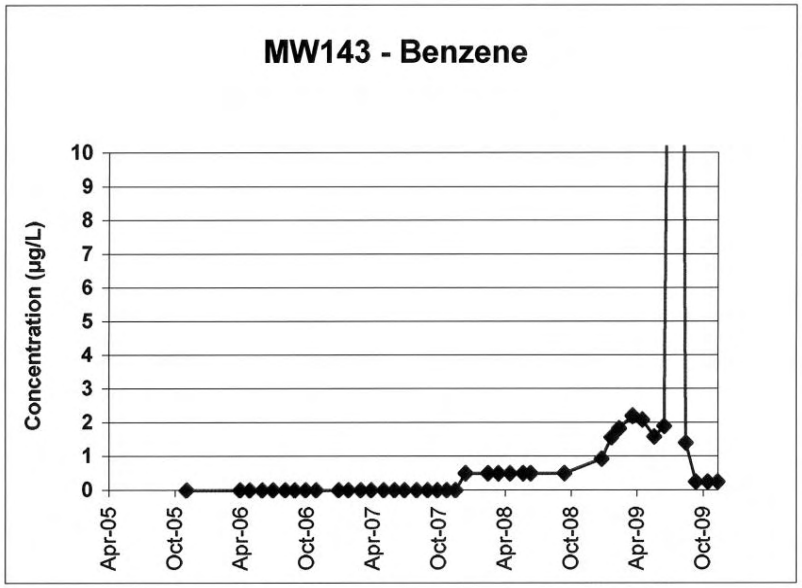

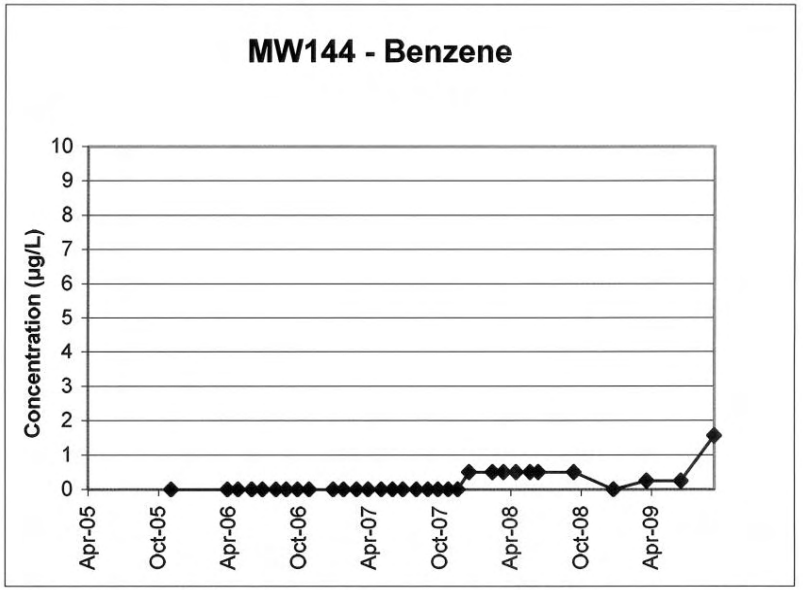

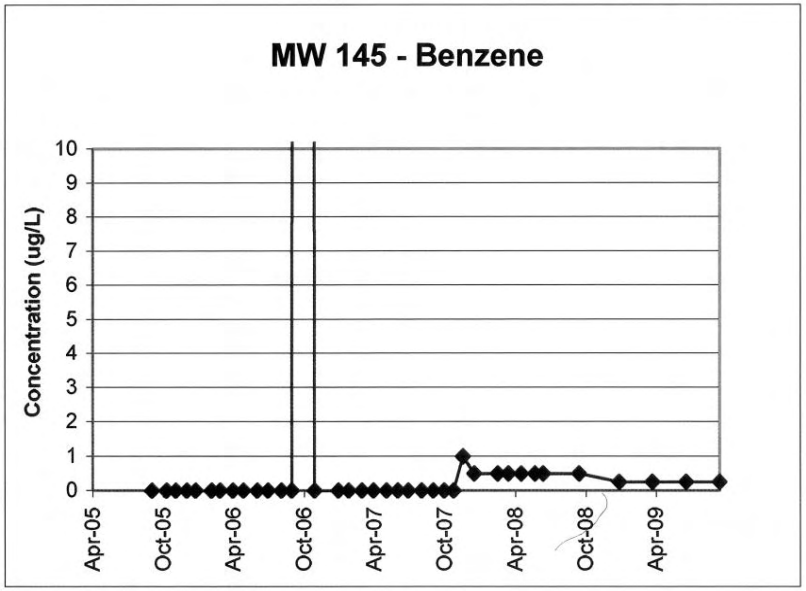

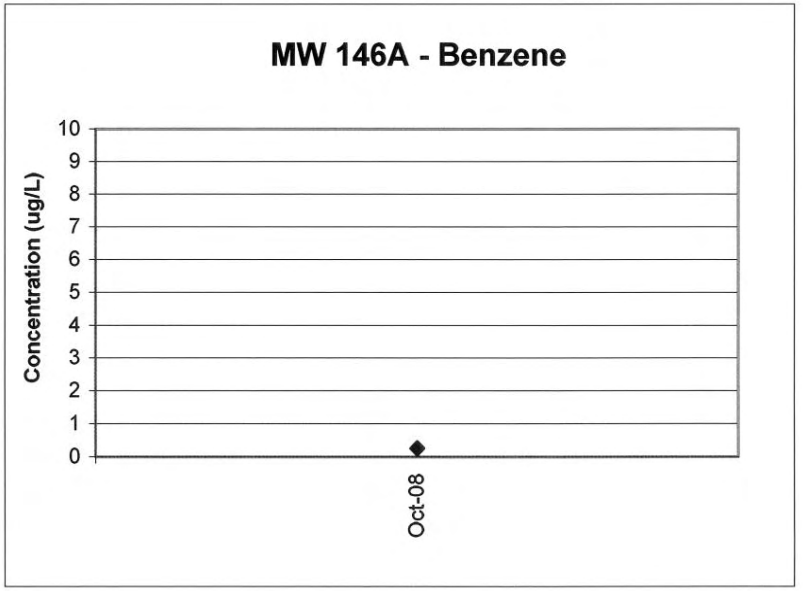

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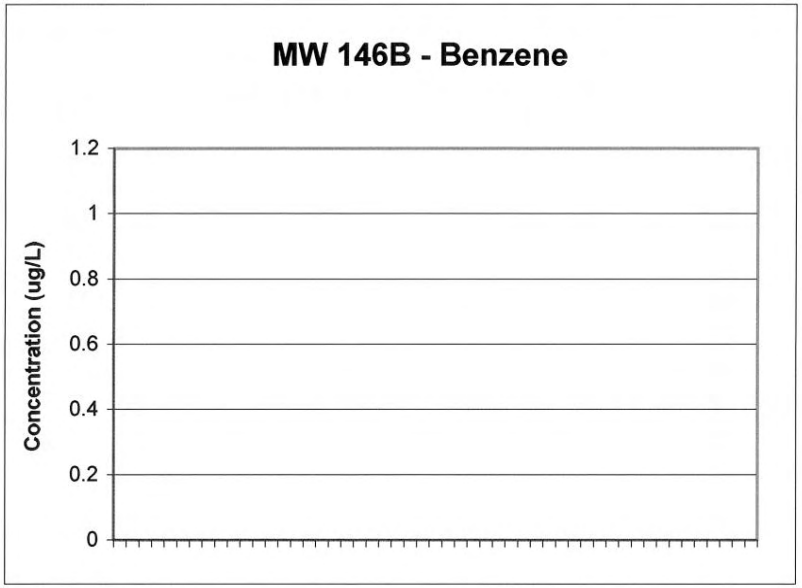

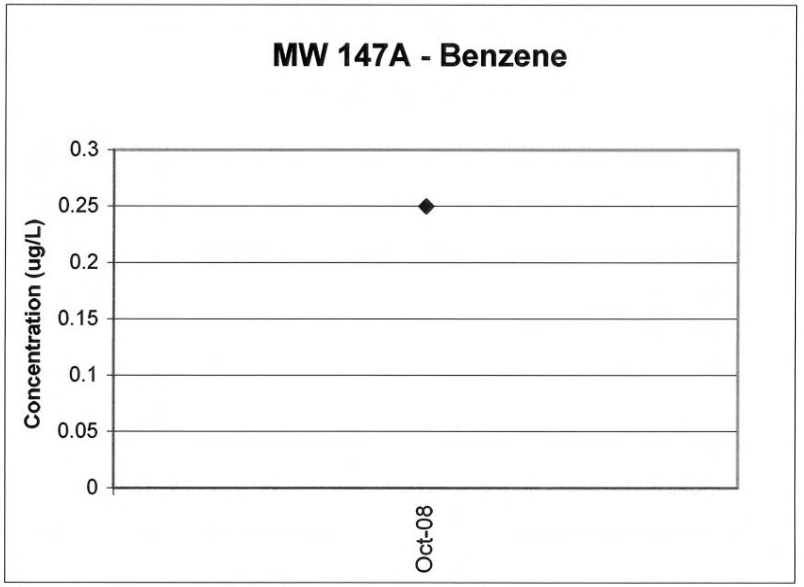

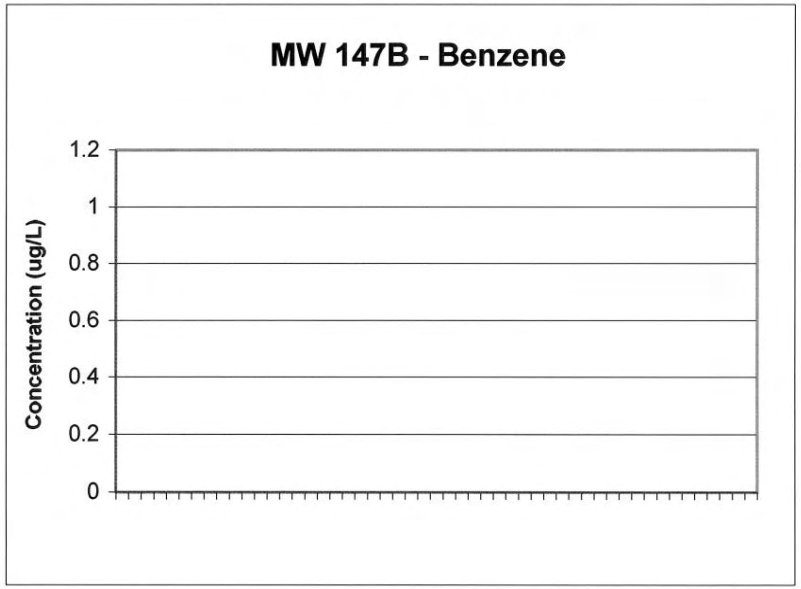

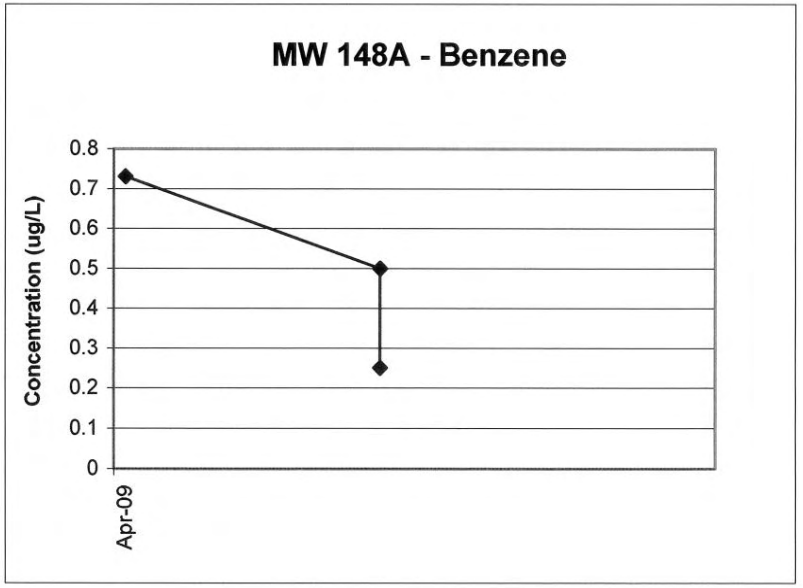

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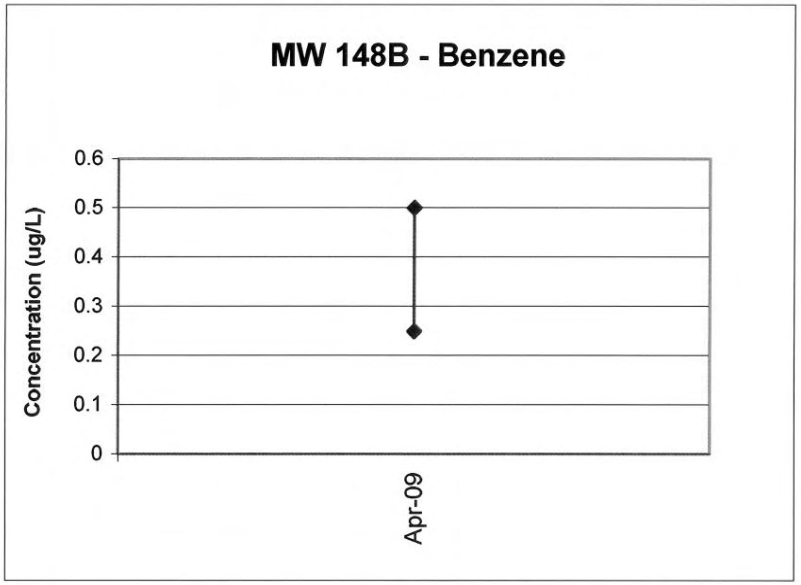

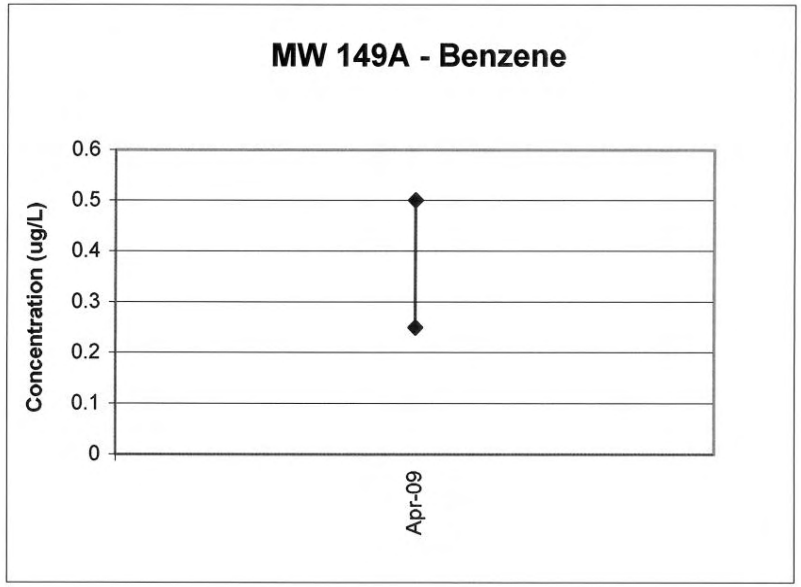

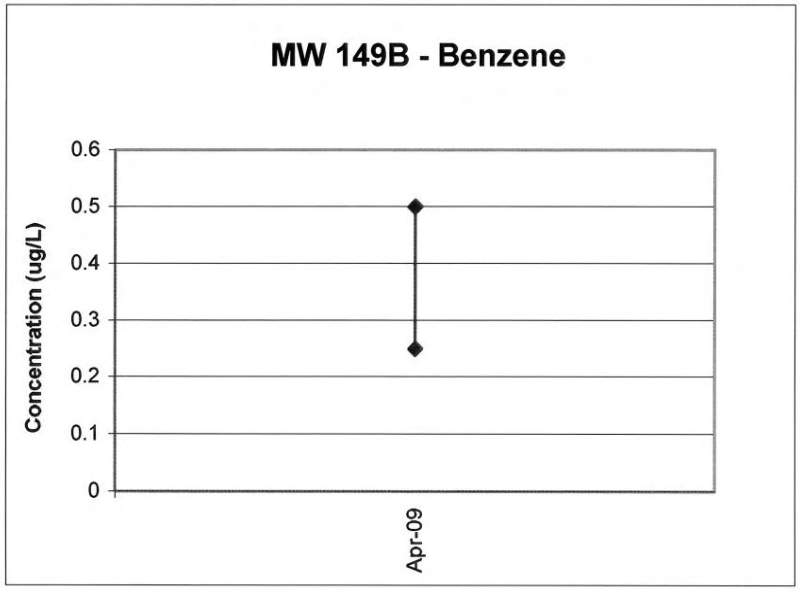

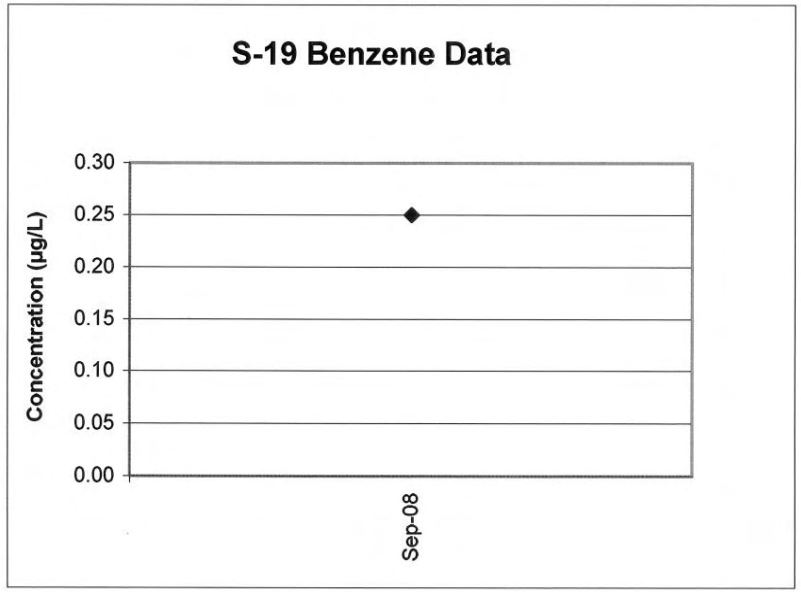

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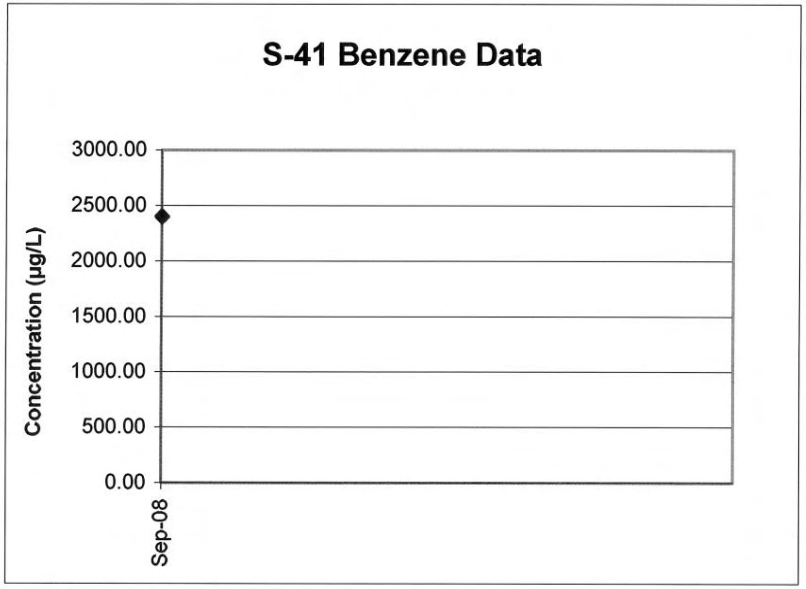


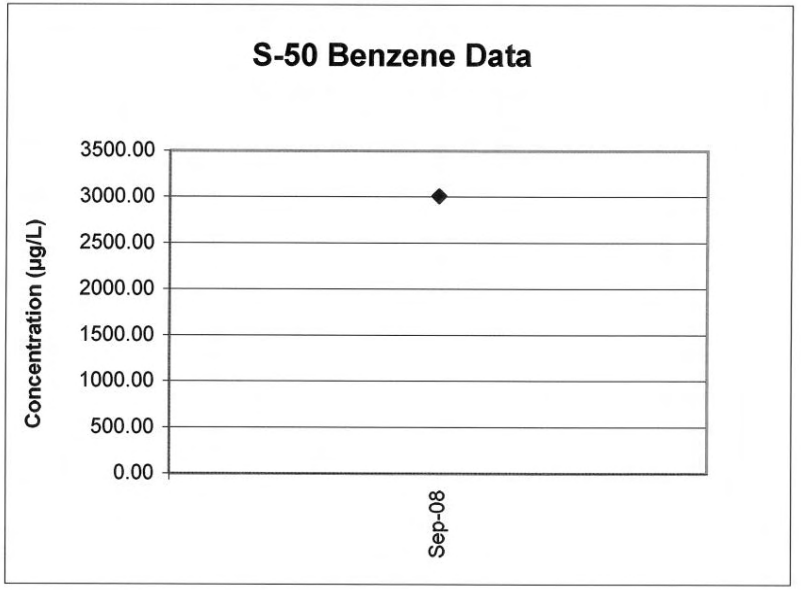
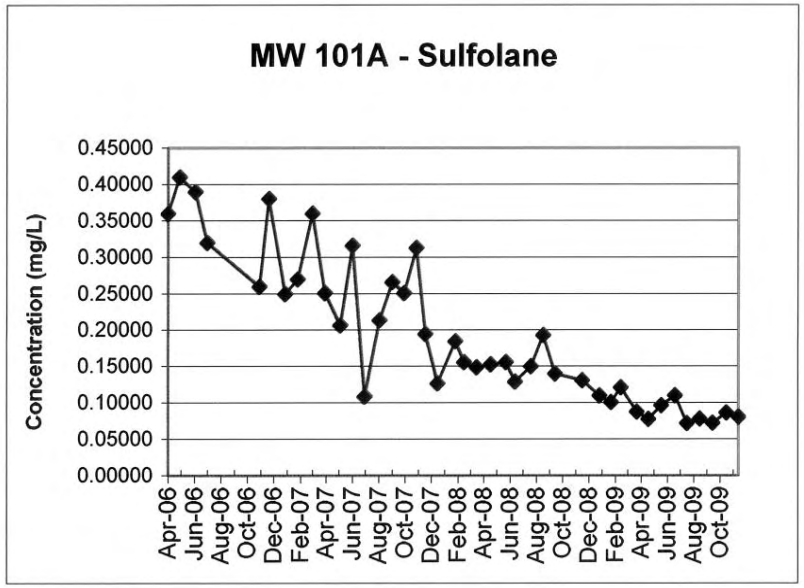
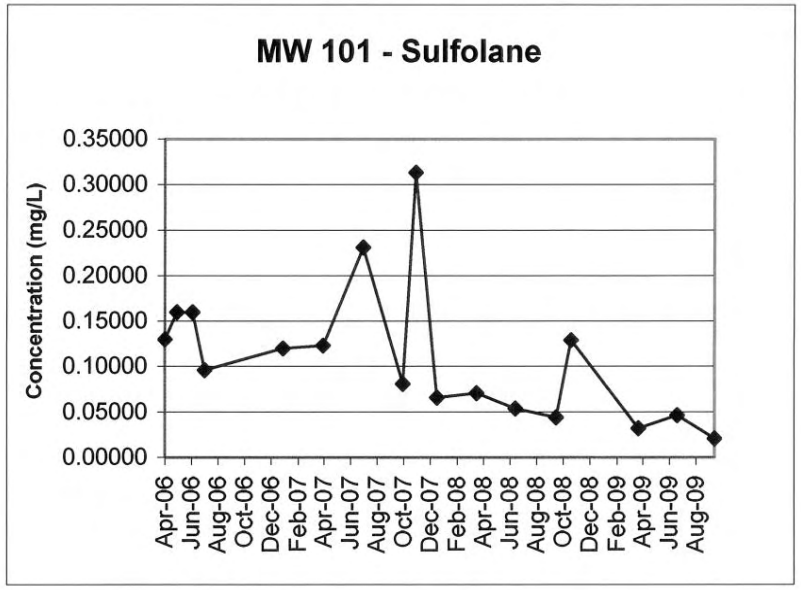
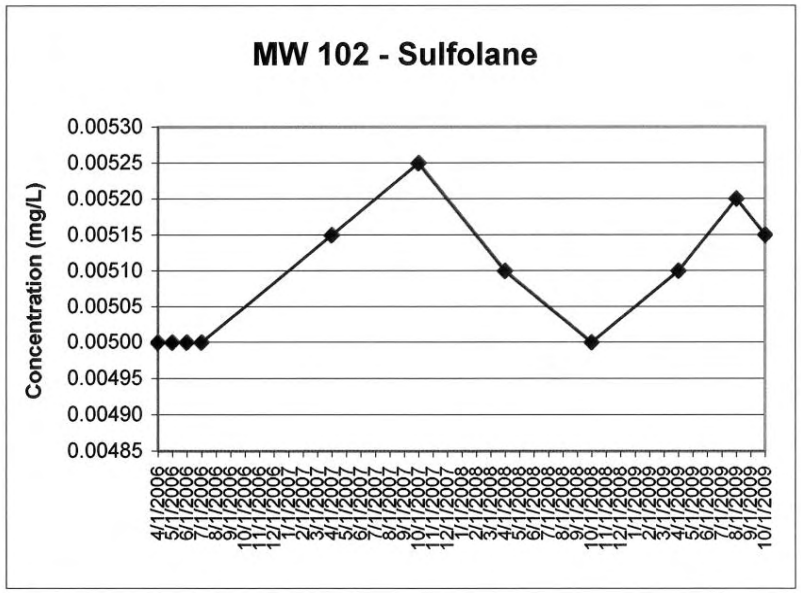


Figure 3. Monitoring Wells-- Sulfolane Data







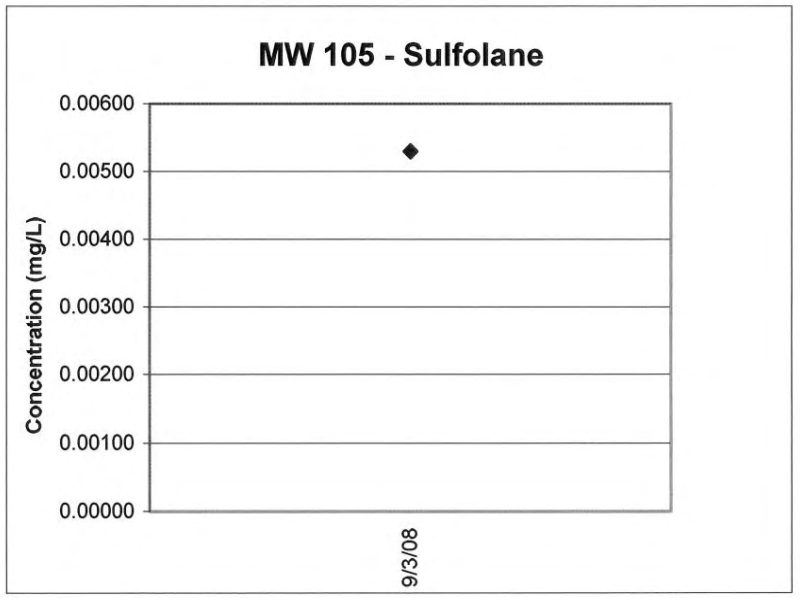
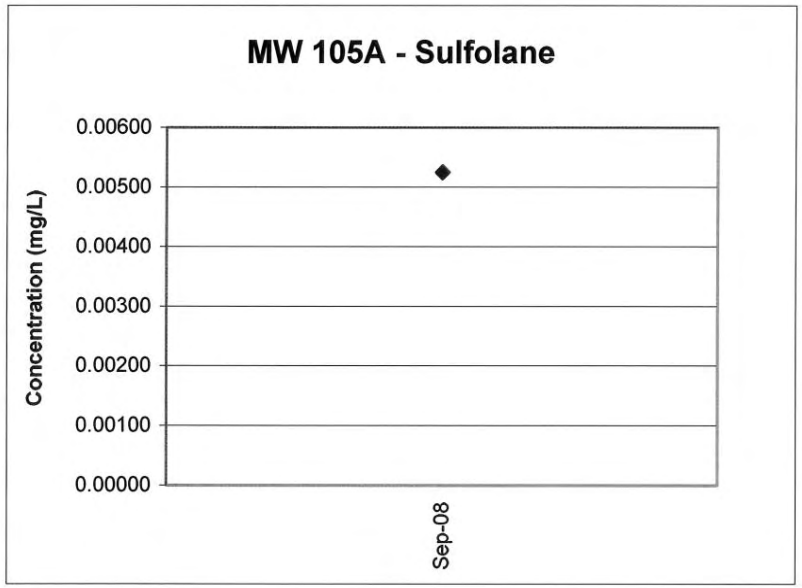
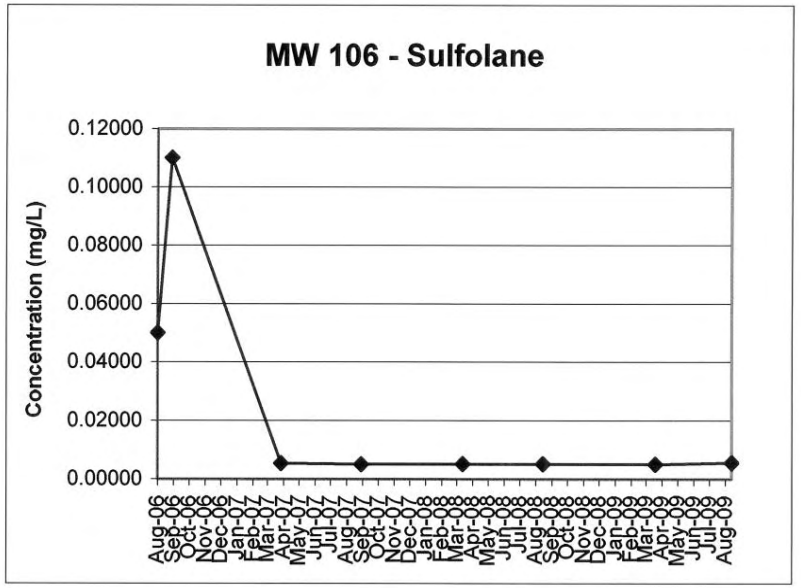
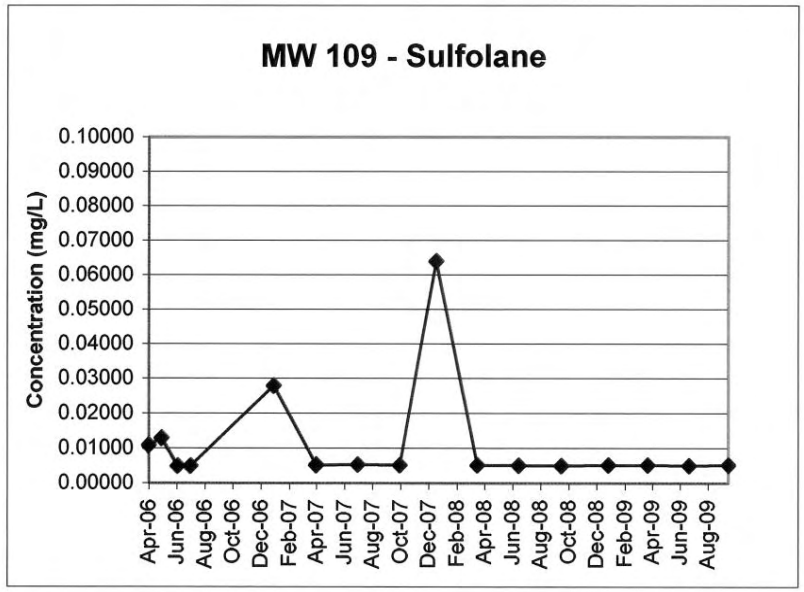


Figure 3. Monitoring Wells-- Sulfolane Data







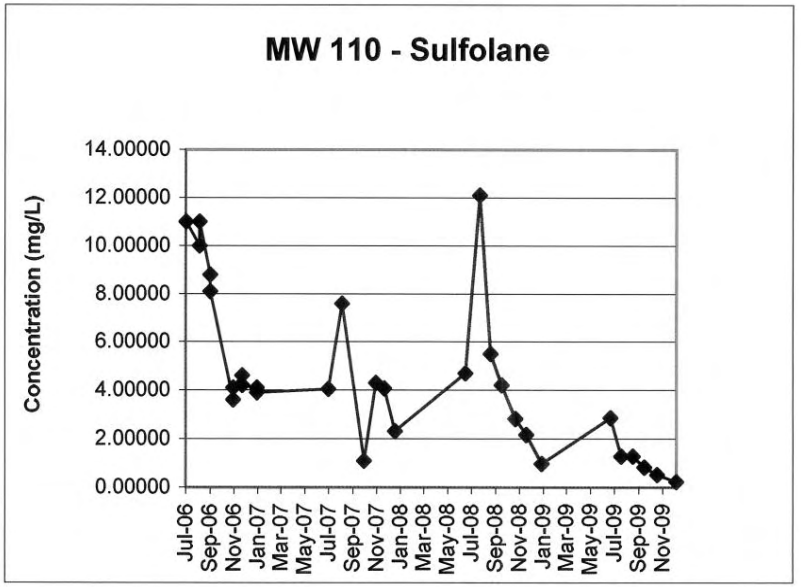
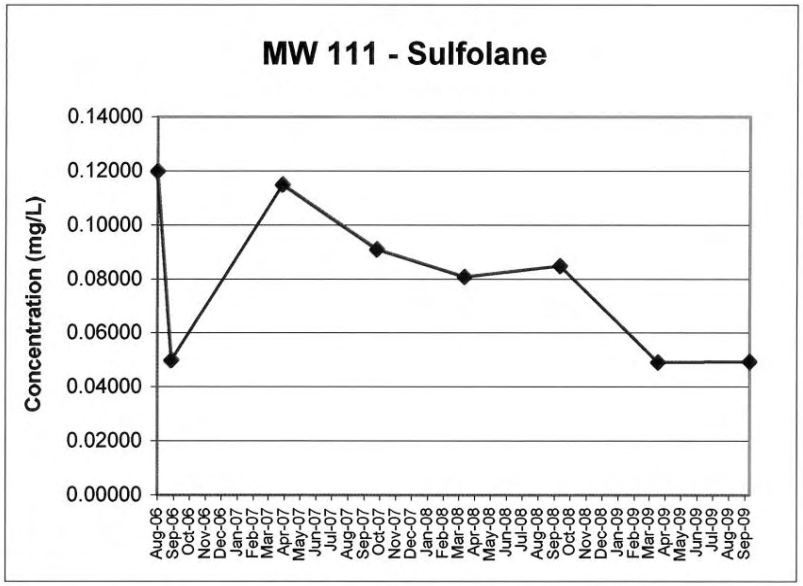
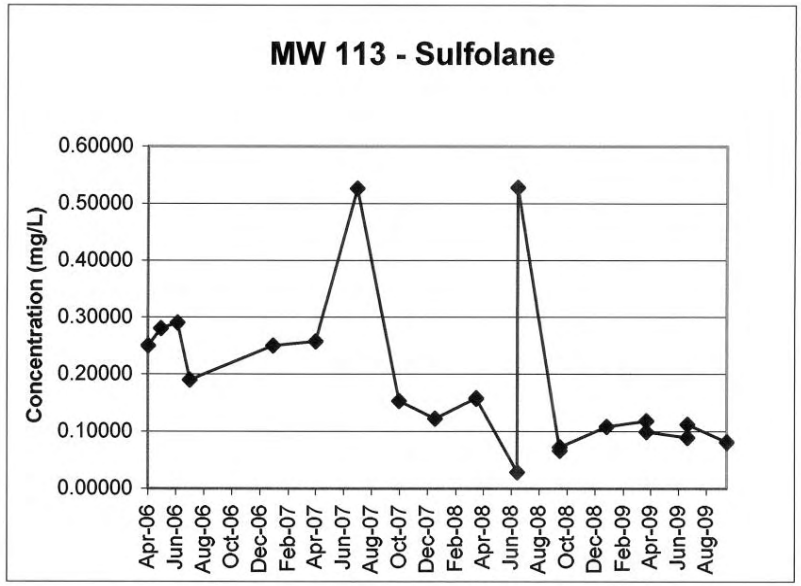
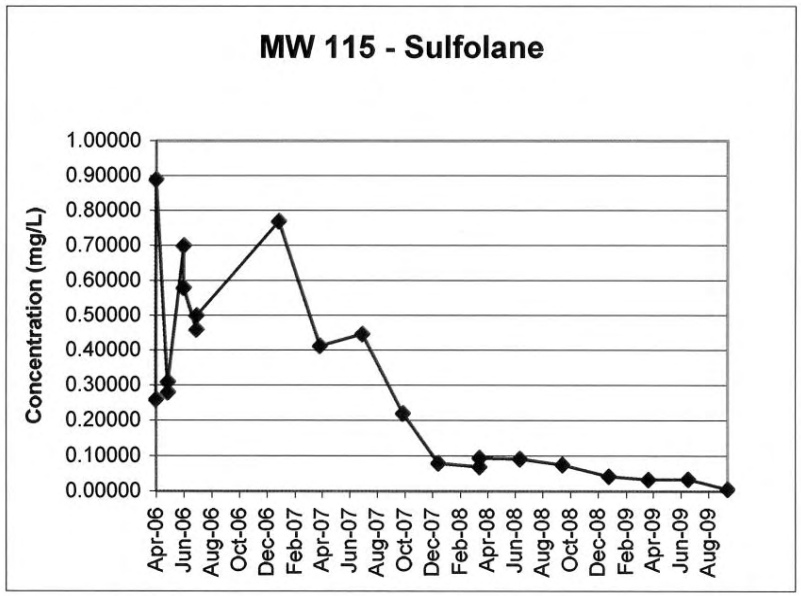
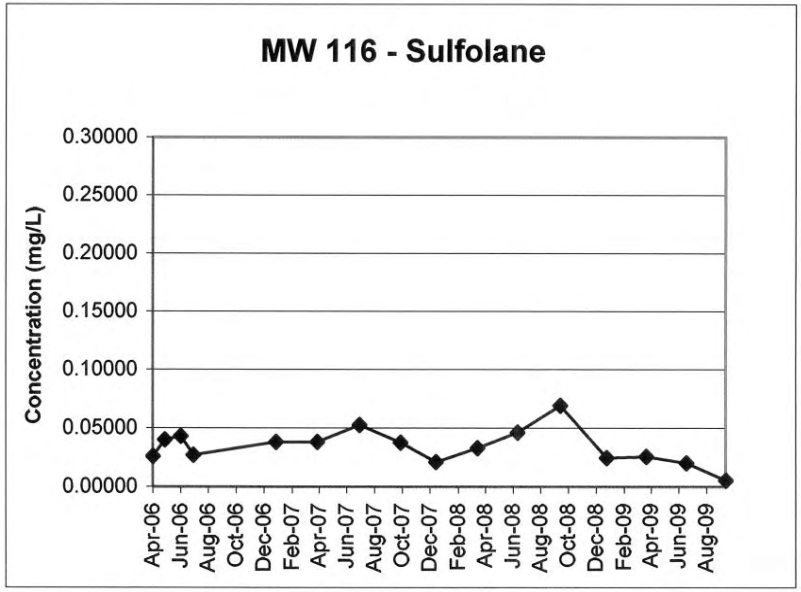


Figure 3. Monitoring Wells-- Sulfolane Data









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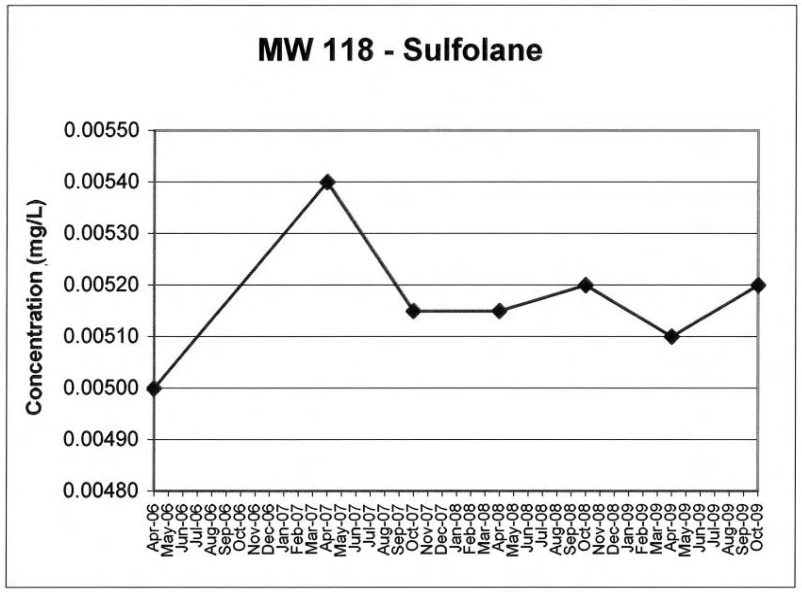

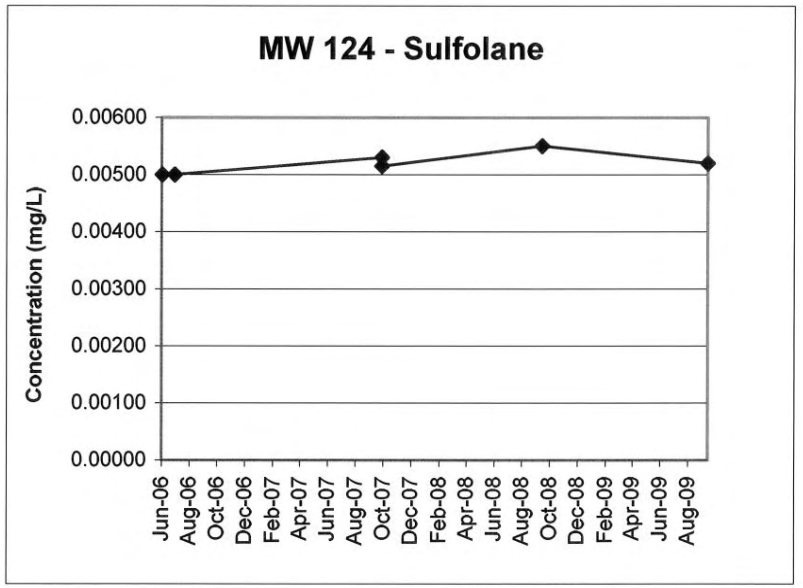

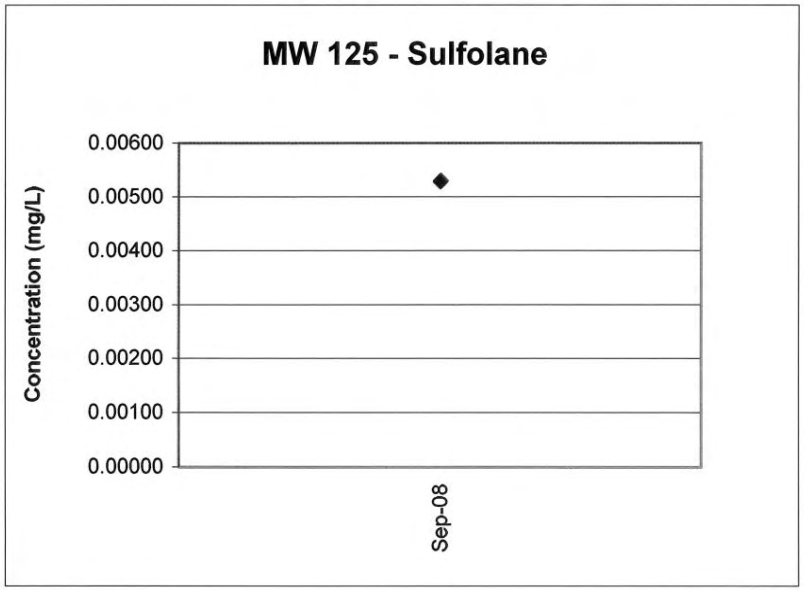

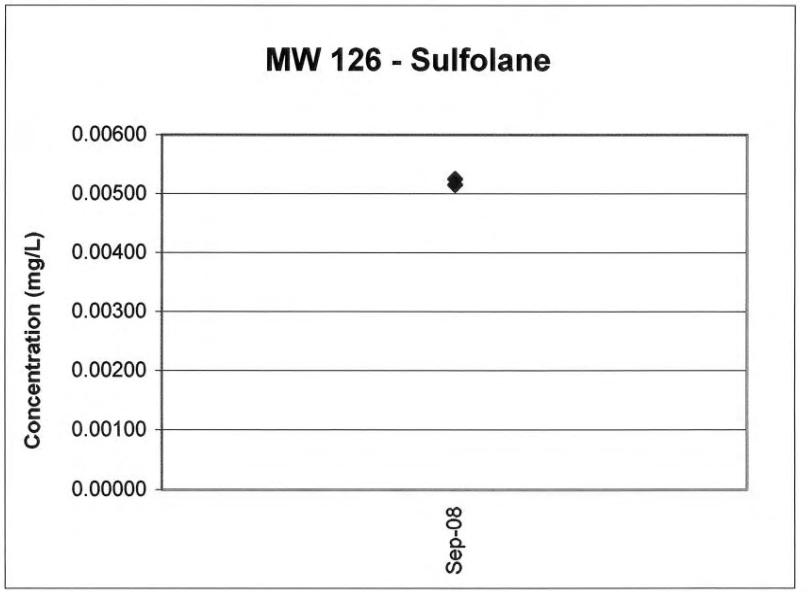

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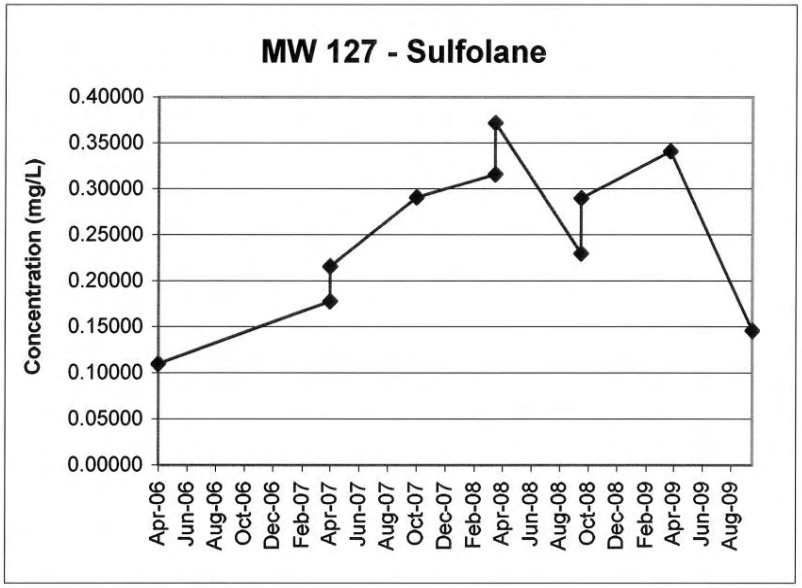

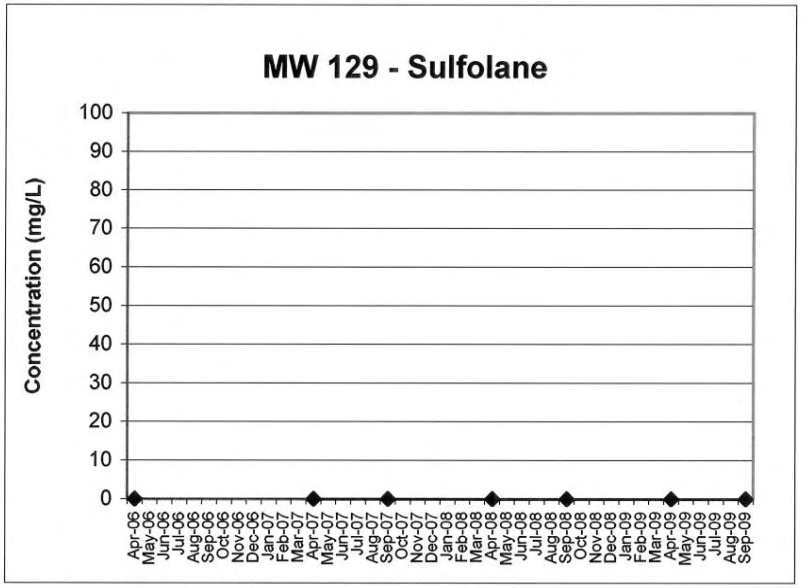

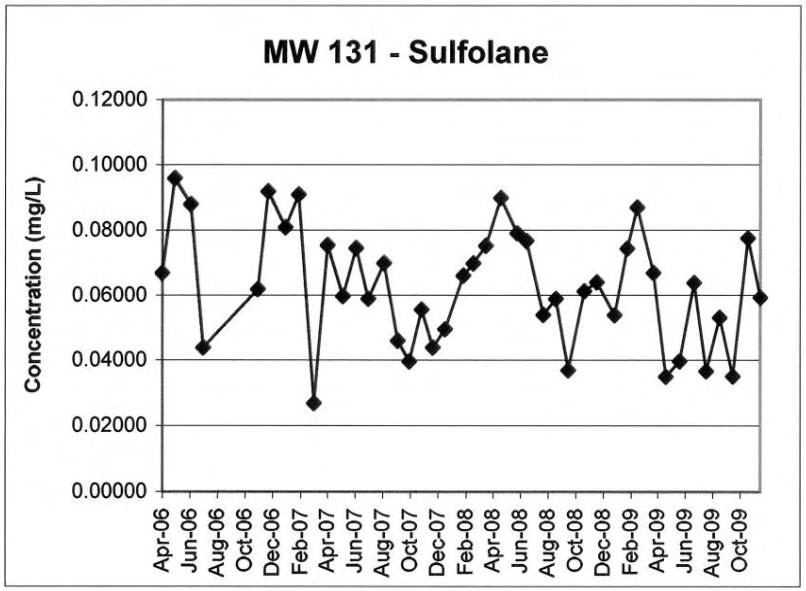

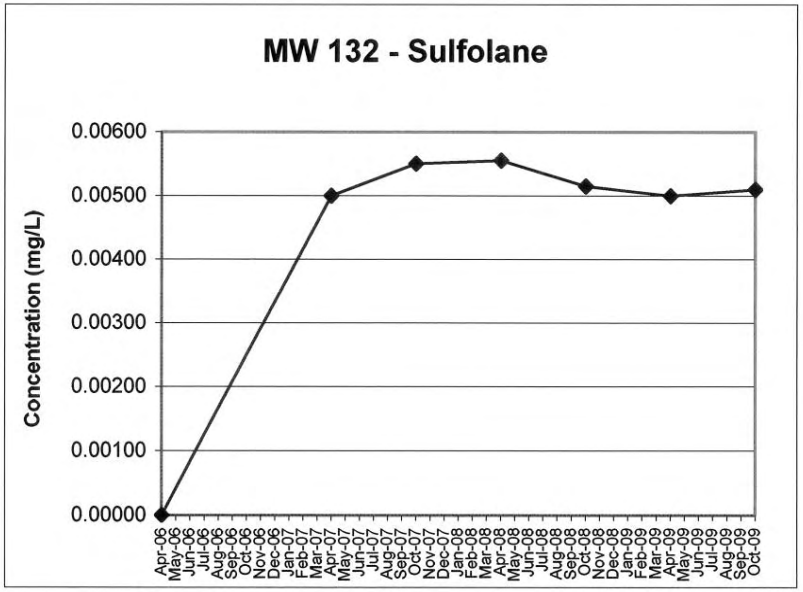

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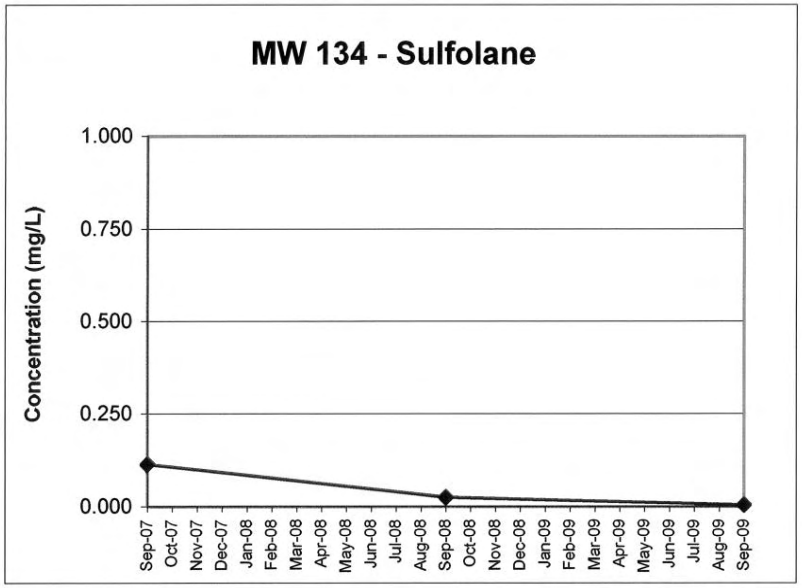
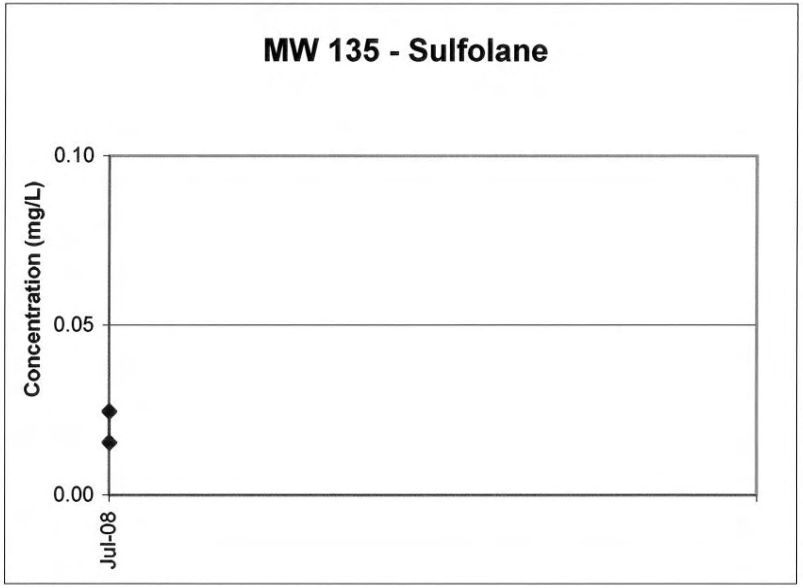
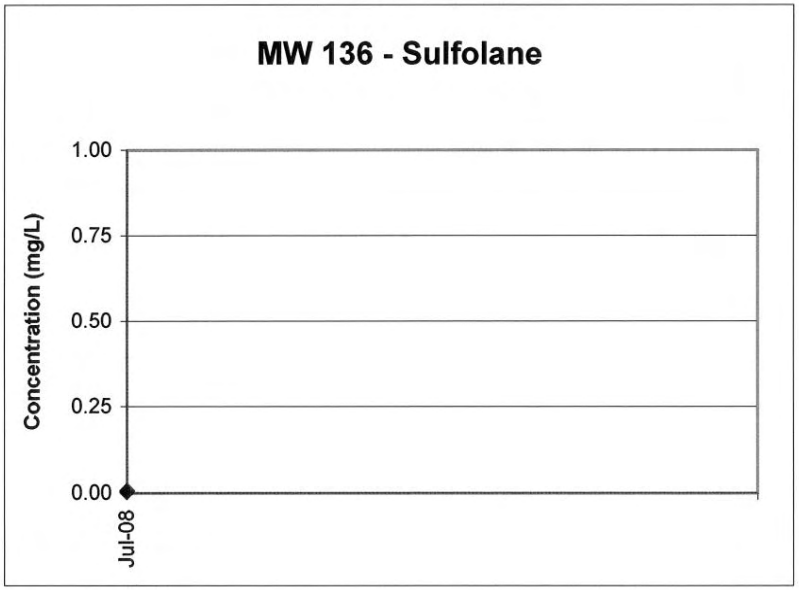






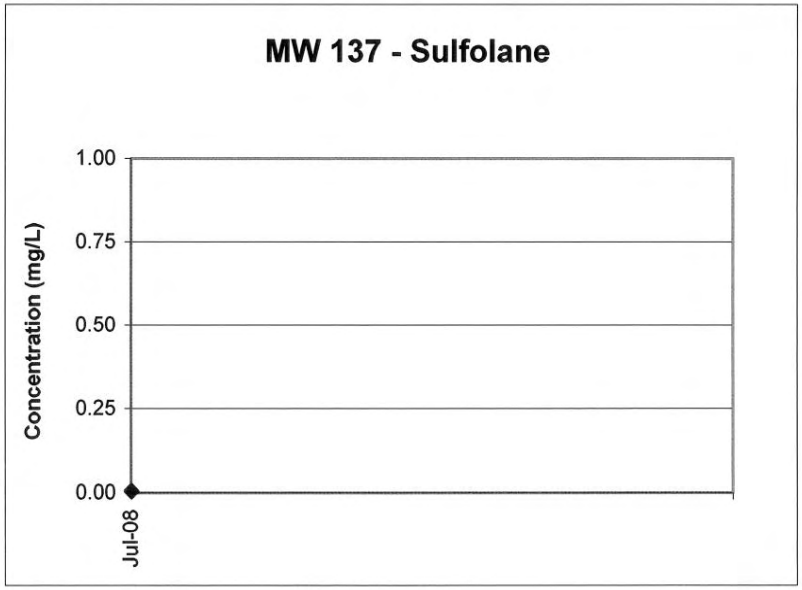
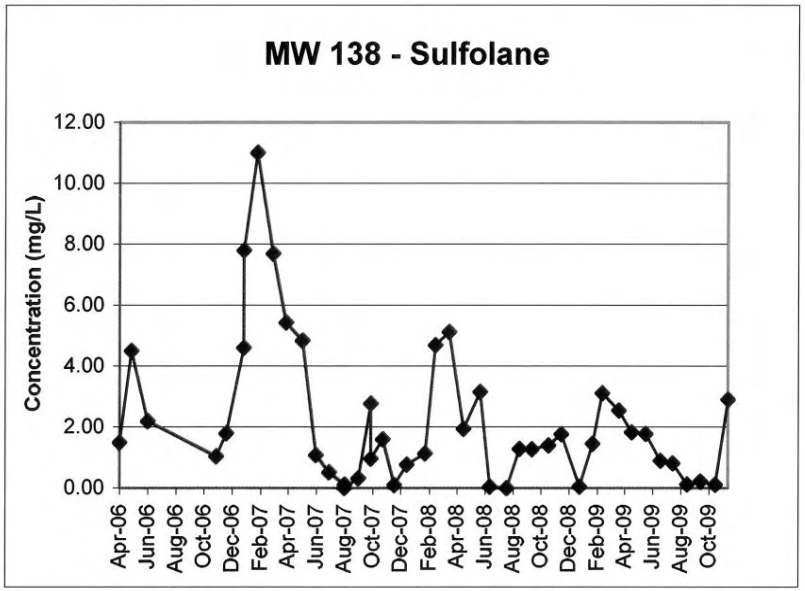
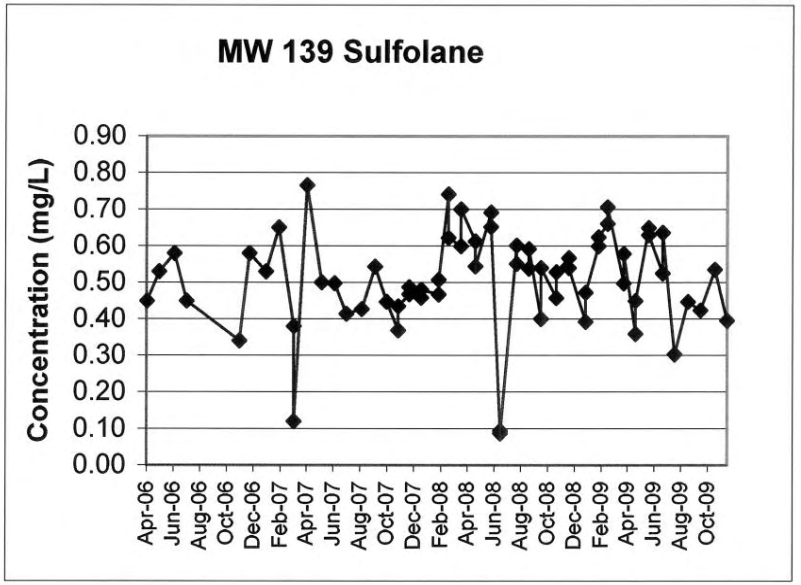
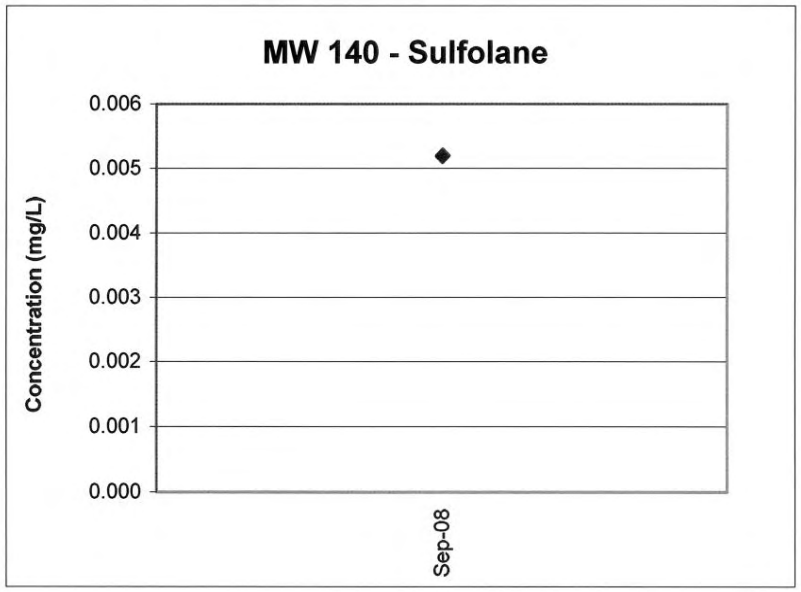


Figure 3. Monitoring Wells-- Sulfolane Data







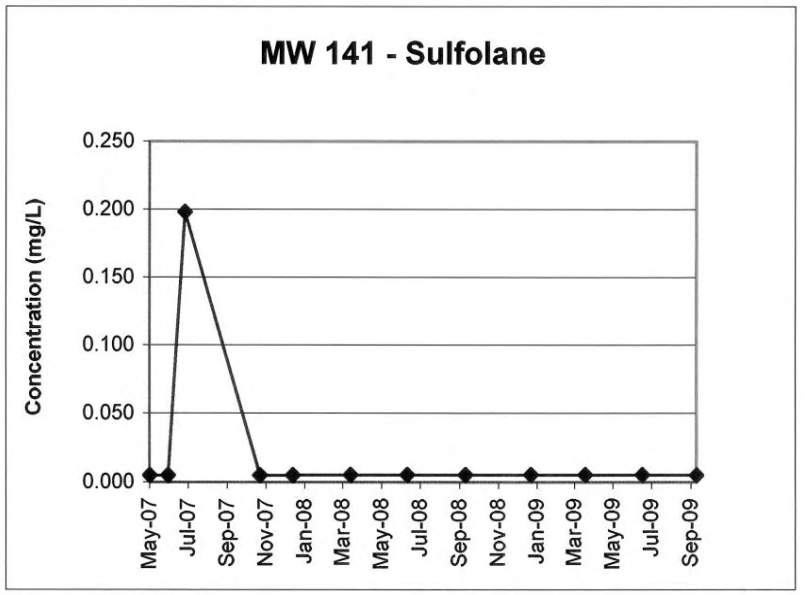
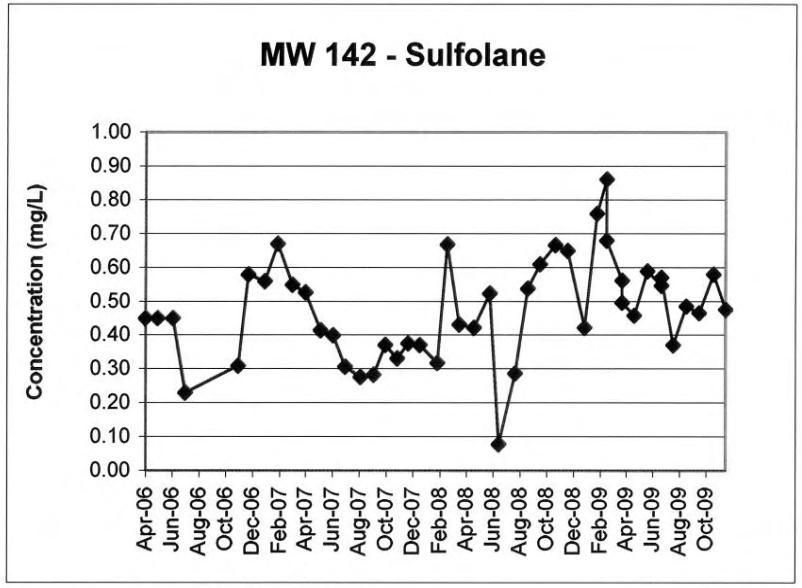
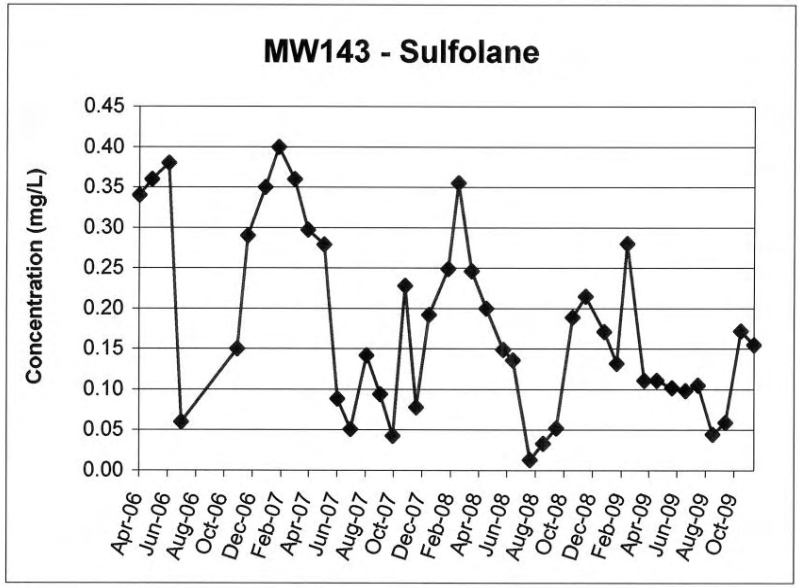
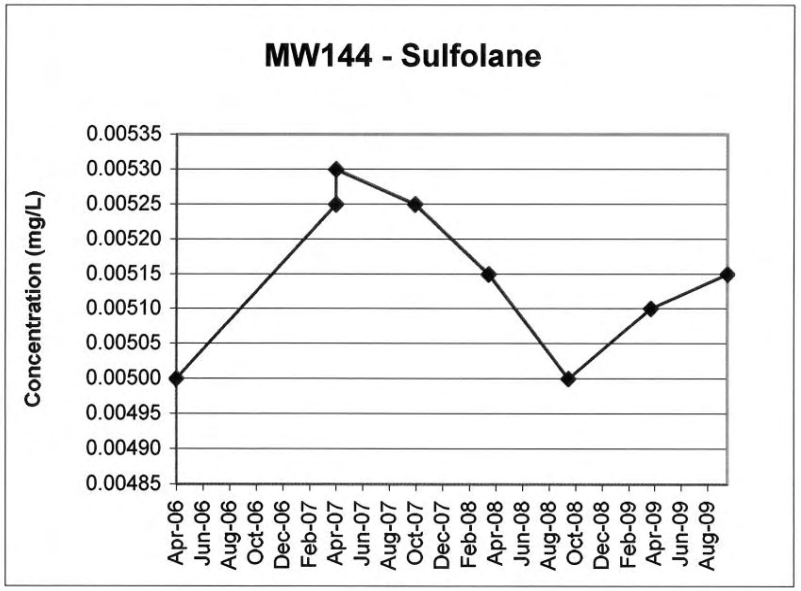
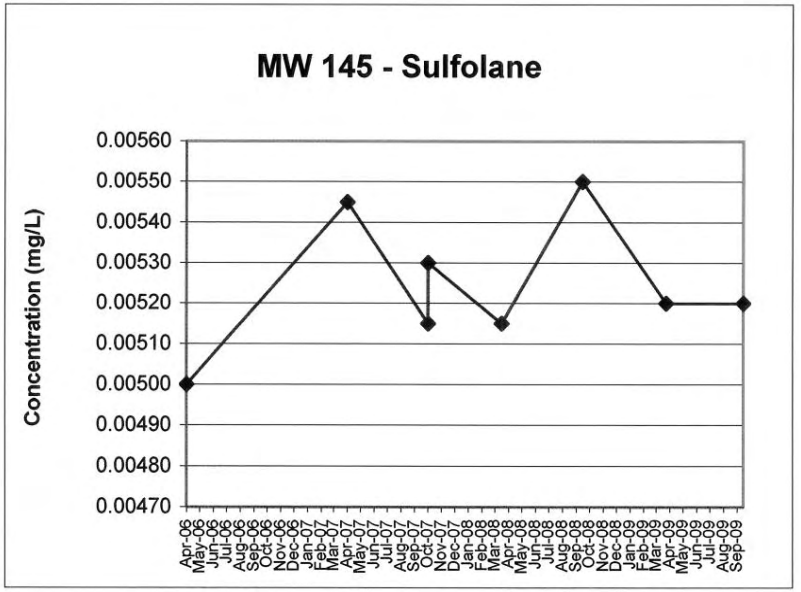


Figure 3. Monitoring Wells-- Sulfolane Data









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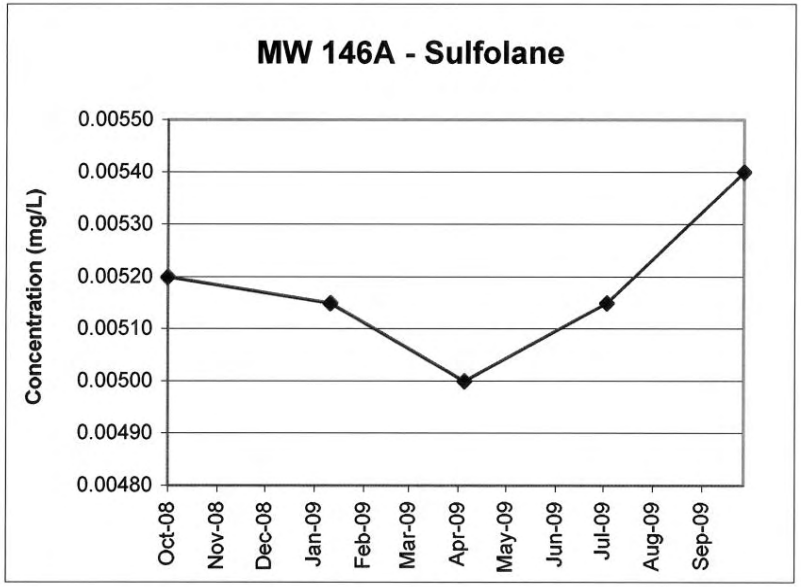

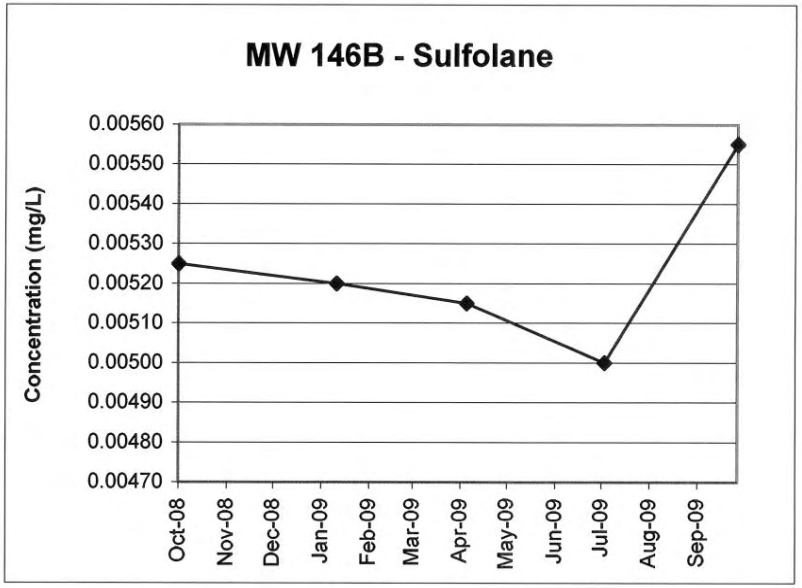

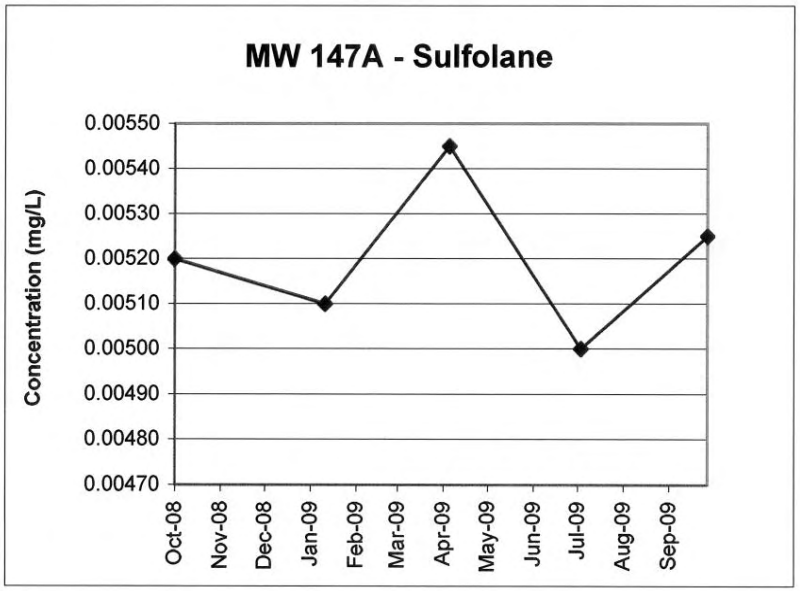

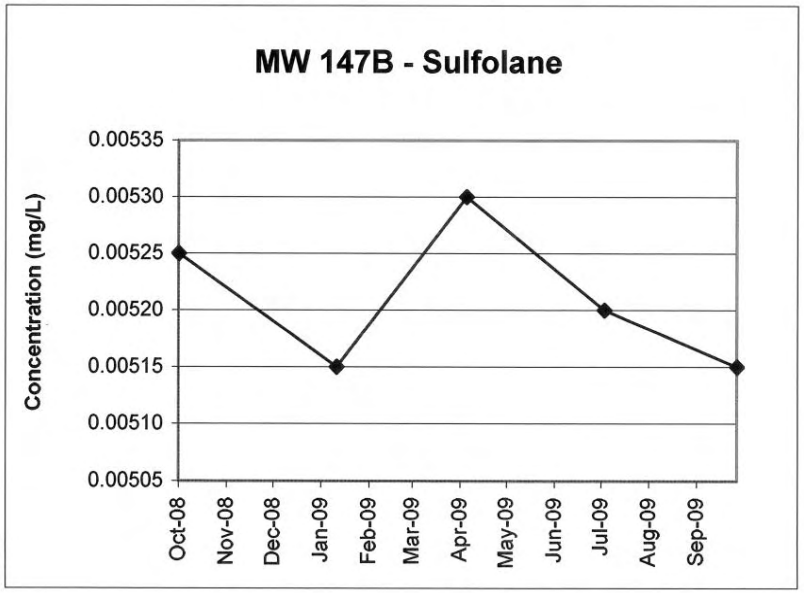

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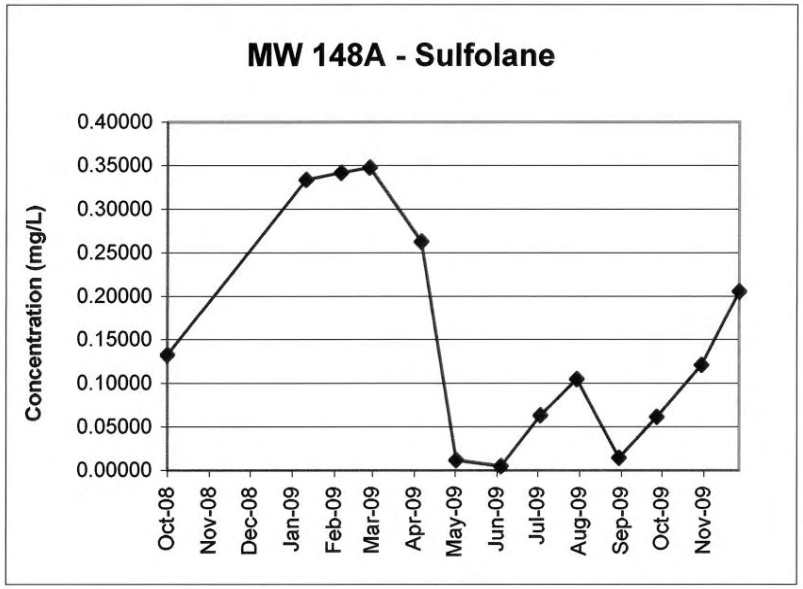

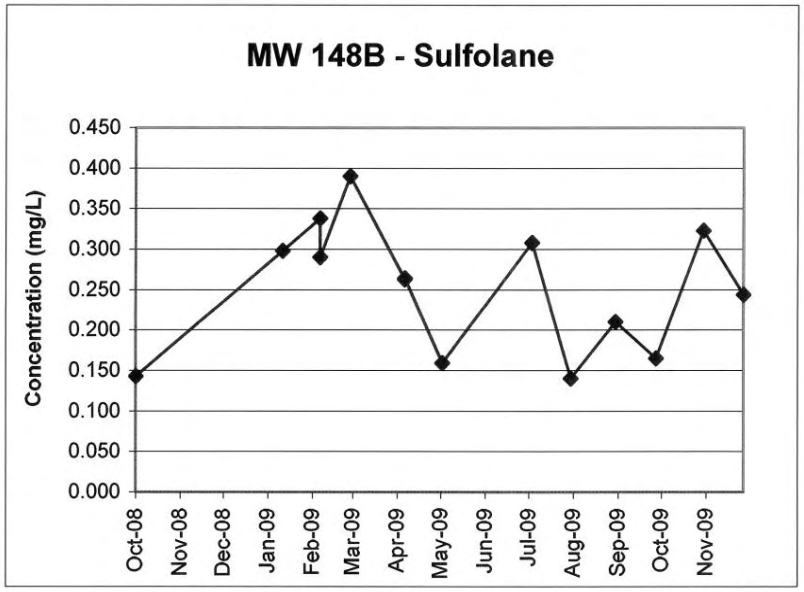

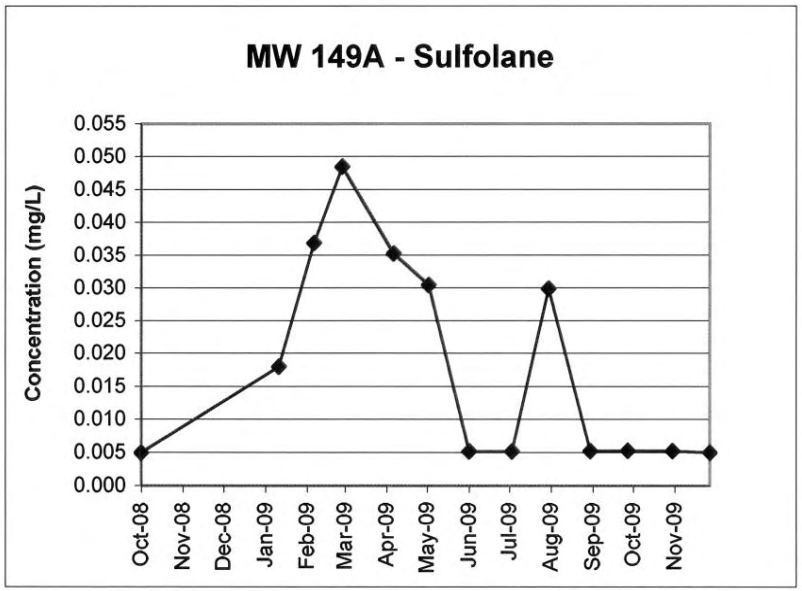

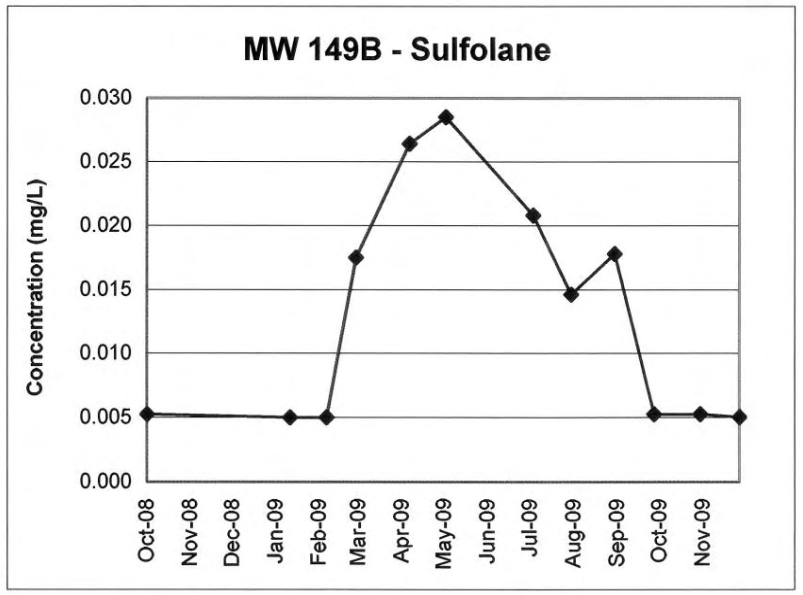

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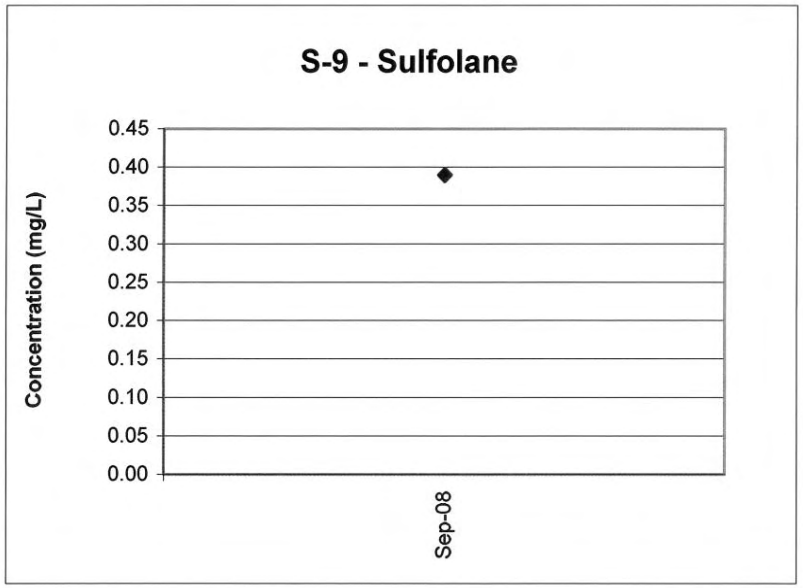

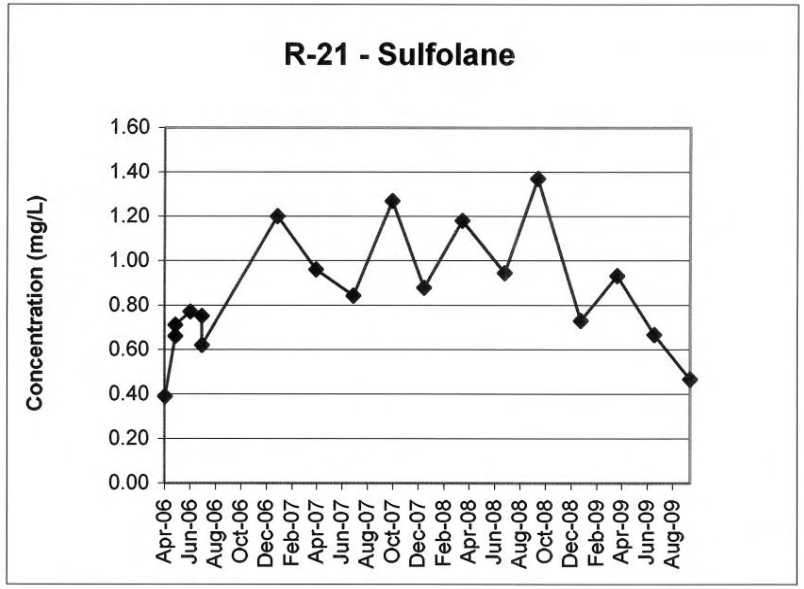

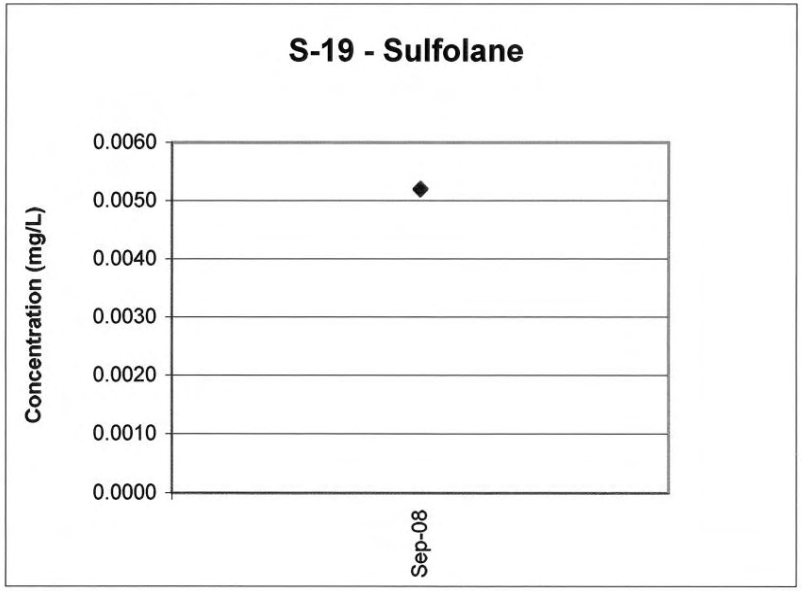

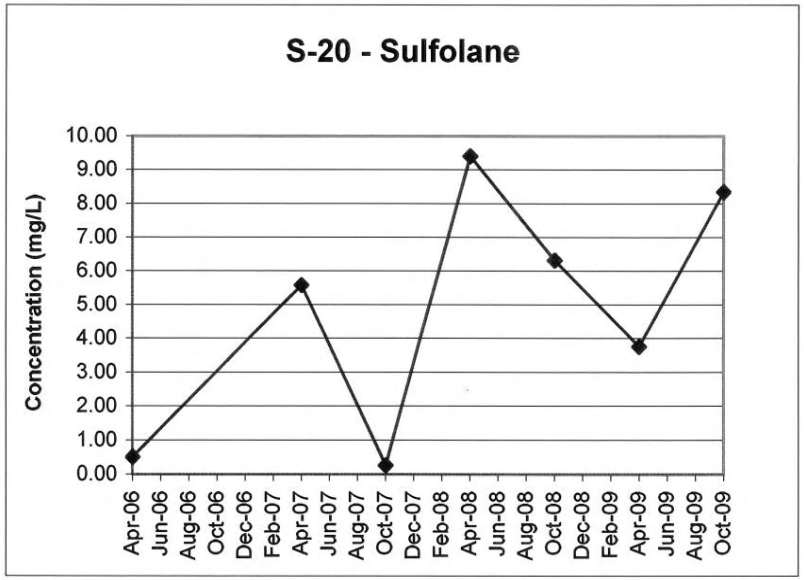

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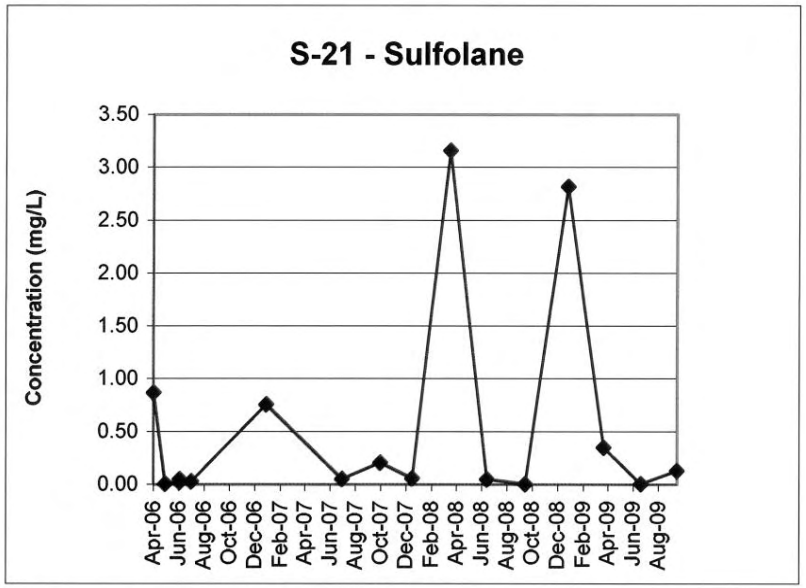

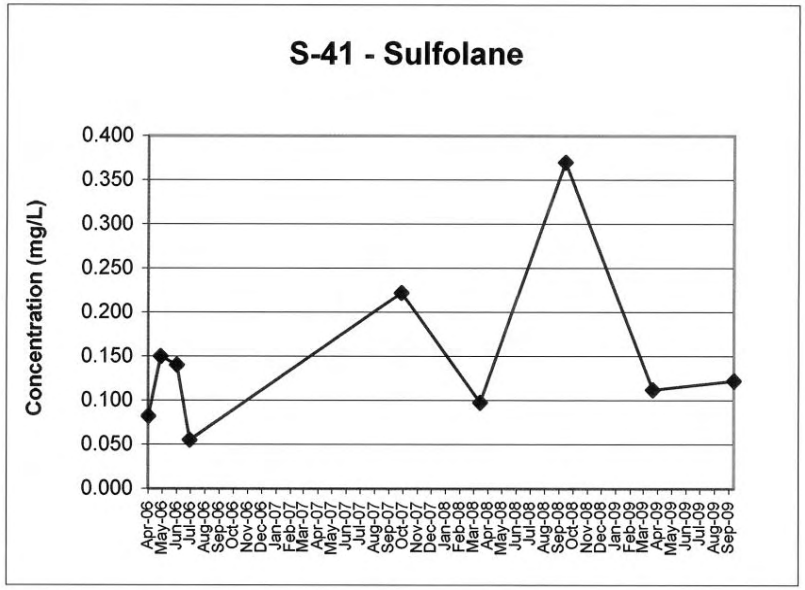

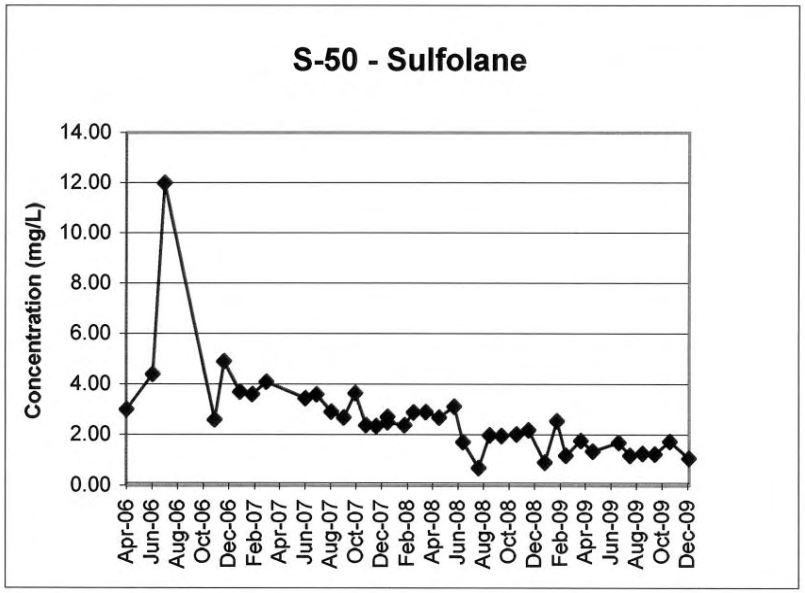

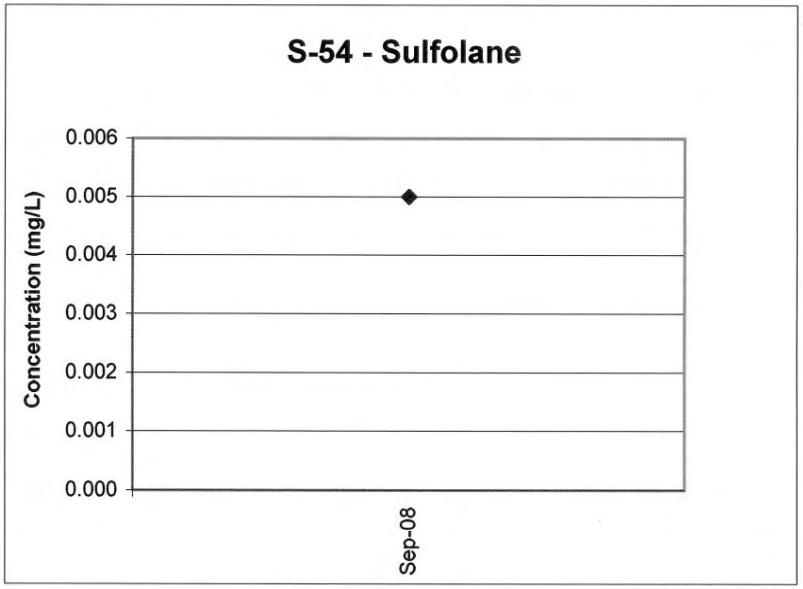

Table 1. Groundwater Remediation Air Stripper
Influent and Effluent BTEX Concentrations

Recovery Wells: 21, 35, 39, 40
Inlet Groundwater Flow (gpm): 0

Parameters	Combined Influent		Combined Effluent			MW-106	MW-206 Duplicate of MW-106	MW-141
Sample Date	12/3/09	12/8/09	12/4/09	12/8/09	12/17/09	9/2/09	9/2/09	9/3/09
pH	--	--	--	--	7.46	7.33	7.33	7.32
Conductivity (µS/cm at 25°C)	--	--	--	--	240	341	341	335
Temperature (°C)	--	--	--	--	4.7	5.6	5.6	7.4
Method 602/624 Analytical Results in ug/L								
Lab	FHR	FHR	FHR	FHR	SGS	SGS	SGS	SGS
Benzene	57.82	123.25	ND	ND	ND	ND	--	ND
Toluene	20.53	56.95	0.57	0.66	ND	ND	--	ND
Ethylbenzene	13.15	30.79	ND	ND	ND	ND	--	ND
Xylenes (total)	113.09	174.72	ND	0.96	ND	ND	--	ND
o-Xylene	18.78	42.26	ND	ND	ND	ND	--	ND
m,p-Xylene	94.31	132.46	ND	0.71	ND	ND	--	ND
Naphthalene	--	--	--	--	--	--	--	--
Chlorobenzene	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	--	--	--	--	--	--	--	--
1,3-Dichlorobenzene	--	--	--	--	--	--	--	--
Method 625M Analytical Results in ug/L								
Napthalene	--	--	--	--	0.329	ND	ND	ND
Acenaphthene	--	--	--	`	ND	ND	ND	ND
Acenaphthylene	--	--	--	--	ND	ND	ND	ND
Anthracene	--	--	--	--	ND	ND	ND	ND
Benzene	--	--	--	--	--	ND	--	ND
Benzo(a)anthracene	--	--	--	--	ND	ND	ND	ND
Benzo(a)pyrene	--	--	--	--	ND	ND	ND	ND
Benzo(b)fluoranthene	--	--	--	--	ND	ND	ND	ND
Benzo(g,h,i)perylene	--	--	--	--	ND	ND	ND	ND
Benzo(k)fluoranthene	--	--	--	--	ND	ND	ND	ND
Chrysene	--	--	--	--	ND	ND	ND	ND
Dibenz(a,h)anthracene	--	--	--	--	ND	ND	ND	ND
Ethylbenzene	--	--	--	--	--	ND	--	ND
Fluoranthene	--	--	--	--	ND	ND	ND	ND
Fluorene	--	--	--	--	0.0894	ND	ND	ND
Indeno(1,2,3-cd)pyrene	--	--	--	--	ND	ND	ND	ND
Methyl tert-butyl ether	--	--	--	--	--	--	--	--
Napthalene	--	--	--	--	0.329	ND	ND	ND
o-Xylene	--	--	--	--	--	ND	--	ND
P&M Xylene	--	--	--	--	--	ND	--	ND
Phenanthrene	--	--	--	--	0.0894	ND	ND	ND
Pyrene	--	--	--	--	ND	ND	ND	ND
Toluene	--	--	--	--	--	ND	--	ND
1-Methylnaphthalene	--	--	--	--	0.434	--	--	
2-Methylnaphthalene	--	--	--	--	0.320	--	--	--
mg/L								
Sulfolane	--	--	--	--	--	ND	--	ND

Notes:

[1] Analytical results for monitoring wells MW-106 and MW-141 reference data from the most recent semi-annual sampling event. Semi-annual sampling events are conducted in April and September.

[2] All results listed as ND are below the respective labs detection

Table 2. Onsite Monitoring Well Sample
BTEX and Sulfolane Data - December 2009

Parameters	MW-101A	MW-110	MW-124	MW-131	MW-135	MW-136	MW-137	MW-237 Duplicate of MW-137	MW-138 (R-5)
Sample Date	12/1/09	12/22/09	12/1/09	12/1/09	12/1/09	12/1/09	12/1/09	12/1/09	12/1/09
pH	7.13	7.21	6.93	6.60	6.86	6.78	6.96	6.96	NM
Conductivity (µS/cm at 25°C)	401	330	451	417	617	636	609	609	NM
Temperature (°C)	4.4	4.6	6.2	5.3	6.3	6.5	4.8	4.8	NM
Lab	SGS	SGS	SGS	SGS	SGS	SGS	SGS	SGS	SGS
Benzene (ug/L)	-	-	15.8	-	16,100	6,000	1,980	2,260	--
Toluene (ug/L)	-	-	ND	-	26,900	7,150	25.9	26.9	--
Ethylbenzene (ug/L)	-	-	ND	-	2,060	1,390	90.5	106	--
o-Xylene (ug/L)	-	-	8.58	-	3,190	2,300	381	433	--
m,p-Xylene (ug/L)	-	-	44.0	-	7,160	5,400	989	1,140	--
Sulfolane (mg/L)	0.0808	0.227	-	0.0593	--	--	--	--	2.910

Notes:

-- No analysis requested or required

ND - Analyte less than lab's reporting limit

NM - No measurement due to product in well

US - Unable to sample

F - Frozen

+ - pH meter failed, re-calibrated at lab after marked samples.

Labs:

SGS = SGS Environmental Services

TA = Test America

Pace = Pace Analytical

FHR = Flint Hills North Pole Refinery

Table 2. Onsite Monitoring Well Sample
BTEX and Sulfolane Data - December 2009

Parameters	MW-139	MW-239 Duplicate of MW-139	MW-142	MW-143	MW-148A	MW-148B	MW-149A	MW-149B	S-50
Sample Date	12/1/09	12/1/09	12/1/09	12/1/09	12/1/09	12/1/09	12/1/09	12/1/09	12/22/09
pH	7.17	7.17	7.44	7.37	6.70	7.50	6.97	7.03	NM
Conductivity (µS/cm at 25°C)	481	481	461	439	325	397	441	485	NM
Temperature (°C)	5.8	5.8	5.2	4.6	4.6	4.1	1.7	1.0	NM
Lab	SGS	SGS	SGS	SGS	SGS	SGS	SGS	SGS	SGS
Benzene (ug/L)	--	--	--	ND	--	--	--	--	--
Toluene (ug/L)	--	--	--	ND	--	--	--	--	--
Ethylbenzene (ug/L)	--	--	--	ND	--	--	--	--	--
o-Xylene (ug/L)	--	--	--	ND	--	--	--	--	--
m,p-Xylene (ug/L)	--	--	--	ND	--	--	--	--	--
Sulfolane (mg/L)	0.395	0.392	0.476	0.155	0.203	0.244	ND	ND	1.070

Notes:

-- No analysis requested or required

ND - Analyte less than lab's reporting limit

NM - No measurement due to product in well

US - Unable to sample

F - Frozen

+ - pH meter failed, re-calibrated at lab after marked samples.

Labs:

SGS = SGS Environmental Services

TA = Test America

Pace = Pace Analytical

FHR = Flint Hills North Pole Refinery

Table 3. Offsite Monitoring Well Sample
BTEX and Sulfolane Data - December 2009

Parameters	MW-155RE	MW-156RE	MW-256RE	MW-157RE	MW-158RE	MW-159RE	MW-160RE	MW-160	MW-161
Sample Date	11/14/09	11/14/09	11/14/09	11/14/09	11/14/09	11/14/09	11/14/09	11/14/09	12/11/09
pH	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm at 25°C)	-	-	-	-	-	-	-	-	-
Temperature (°C)	-	-	-	-	-	-	-	-	-
Lab	Pace	Pace	Pace	Pace	Pace	Pace	Pace	Pace	SGS
Benzene (ug/L)	--	--	--	--	--	--	--	--	--
Toluene (ug/L)	--	--	--	--	--	--	--	--	--
Ethylbenzene (ug/L)	--	--	--	--	--	--	--	--	--
o-Xylene (ug/L)	--	--	--	--	--	--	--	--	--
m,p-Xylene (ug/L)	--	--	--	--	--	--	--	--	--
Sulfolane (mg/L)	0.0354	0.1810	0.1950	0.1070	0.2480	ND	ND		0.0914

Notes:

-- No analysis requested or required

ND - Analyte less than lab's reporting limit

NM - No measurement due to product in well

US - Unable to sample

F - Frozen

+ - pH meter failed, re-calibrated at lab after marked samples.

Labs:

SGS = SGS Environmental Services

TA = Test America

Pace = Pace Analytical

FHR = Flint Hills North Pole Refinery

Note--The Pace Analytical lab results for analyses conducted on November 14 were requantified and are included in this report. The well identification for the corrected analyses end with the letters RE to indicate the data reported is corrected.

Table 3. Offsite Monitoring Well Sample
BTEX and Sulfolane Data - December 2009

Parameters	MW-161	MW-162	MW-162	MW-163	MW-163	MW-164	MW-164	MW-264	MW-264
Sample Date	12/11/09	12/11/09	12/11/09	12/11/09	12/11/09	12/11/09	12/11/09	12/11/09	12/11/09
pH	-	-	-	-	-	-	-	-	-
Conductivity (µS/cm at 25°C)	-	-	-	-	-	-	-	-	-
Temperature (°C)	-	-	-	-	-	-	-	-	-
Lab	Pace	SGS	Pace	SGS	Pace	SGS	Pace	SGS	Pace
Benzene (ug/L)	--	--	--	--	--	--	--	--	--
Toluene (ug/L)	--	--	--	--	--	--	--	--	--
Ethylbenzene (ug/L)	--	--	--	--	--	--	--	--	--
o-Xylene (ug/L)	--	--	--	--	--	--	--	--	--
m,p-Xylene (ug/L)	--	--	--	--	--	--	--	--	--
Sulfolane (mg/L)	0.0889	0.0778	0.0577	0.0334	0.0368	0.0987	0.0778	0.0776	0.0817

Notes:

-- No analysis requested or required

ND - Analyte less than lab's reporting limit

NM - No measurement due to product in well

US - Unable to sample

F - Frozen

+ - pH meter failed, re-calibrated at lab after marked samples.

Labs:

SGS = SGS Environmental Services

TA = Test America

Pace = Pace Analytical

FHR = Flint Hills North Pole Refinery

Note--The Pace Analytical lab results for analyses conducted on November 14 were requantified and are included in this report. The well identification for the corrected analyses end with the letters RE to indicate the data reported is corrected.