

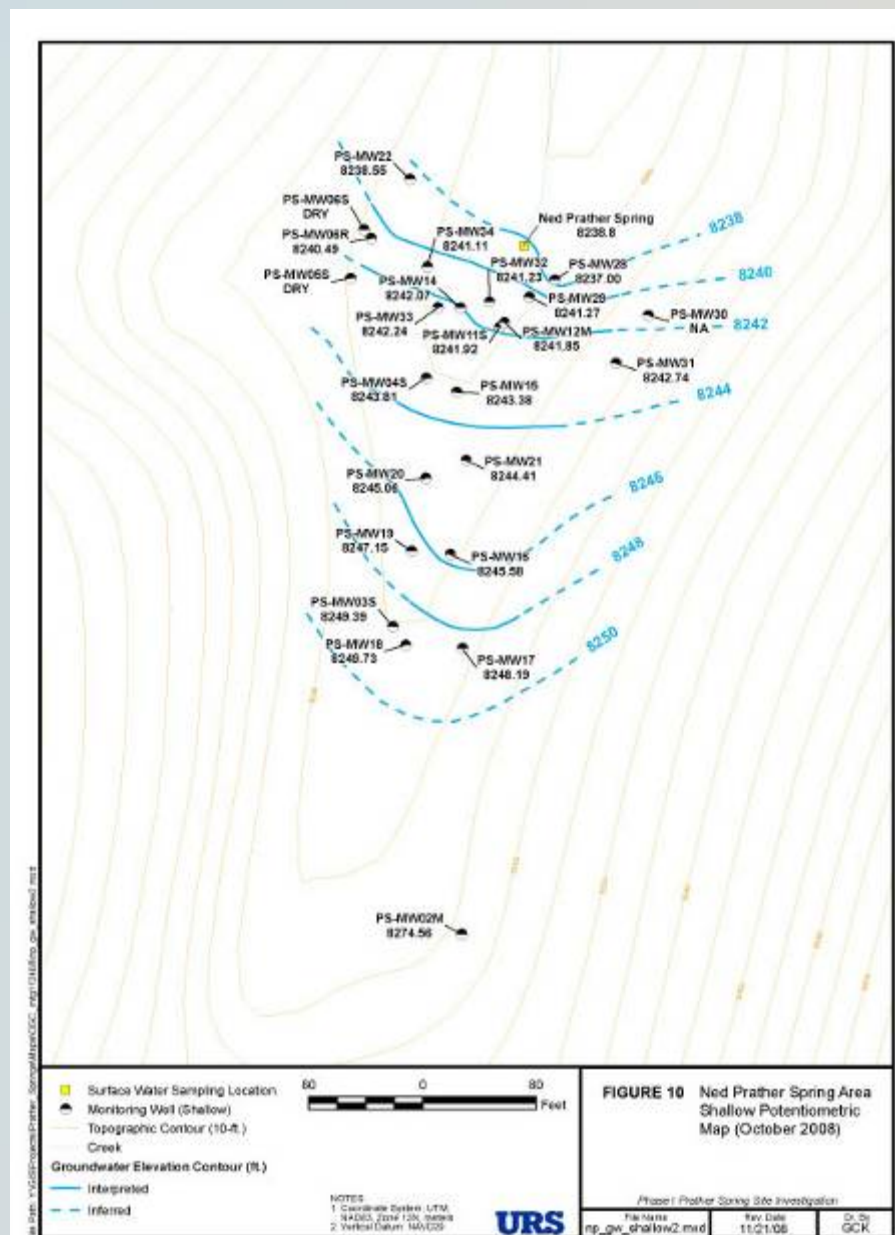


Hydrogeologic Conditions

- Depth to water
 - Prather drainage – 19 to 51 feet deep
 - Spring 2 drainage – 16 to 32 feet deep
- Colluvium saturated thickness
 - Dry to 2 feet maximum thickness
- Shallow wells screen upper bedrock
 - Shallow and “middle” versus deep flow zones
- Water levels are lower in the deeper zone
- Despite fracture flow conditions, appears to be relatively low permeability

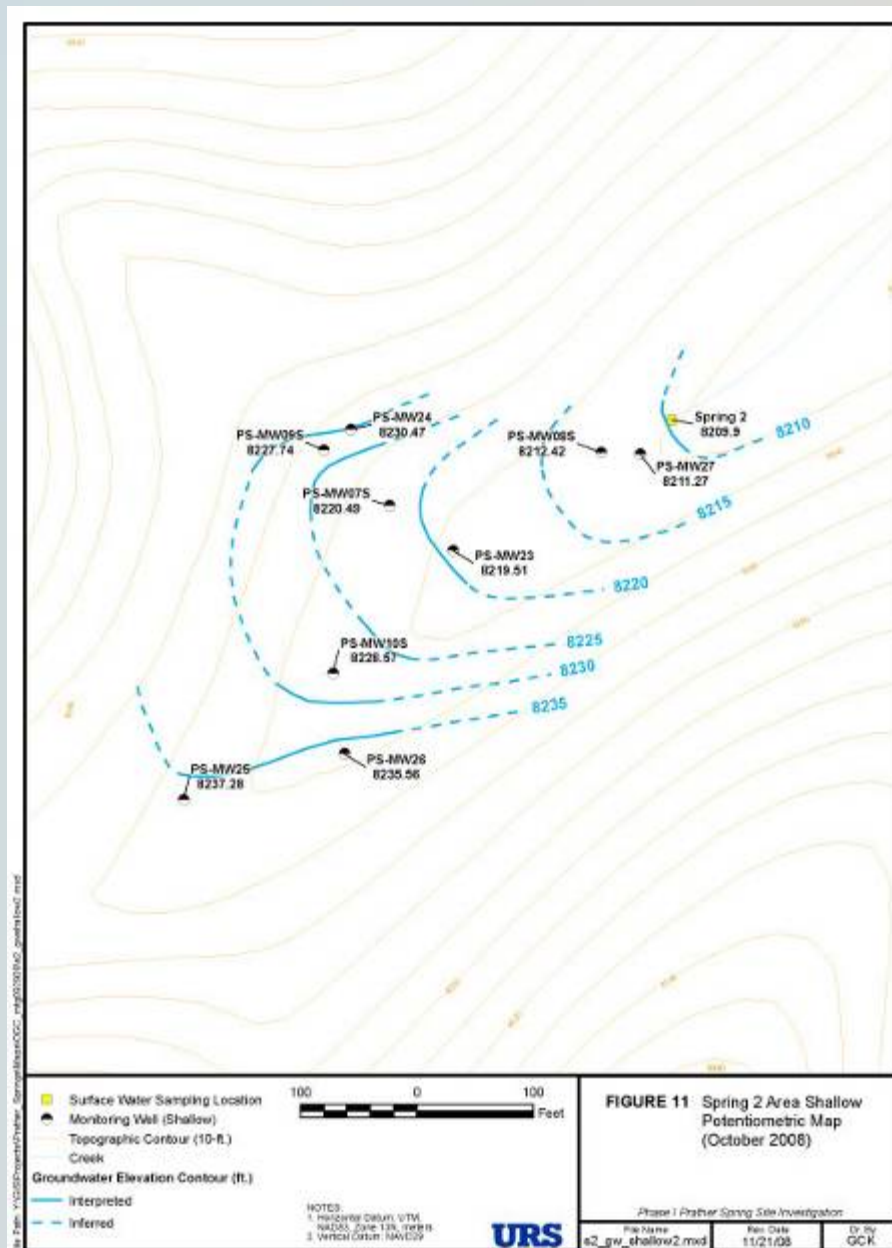
Potentiometric Surface Map

- Shallow wells - Prather Spring area
- Inferred curve to contours



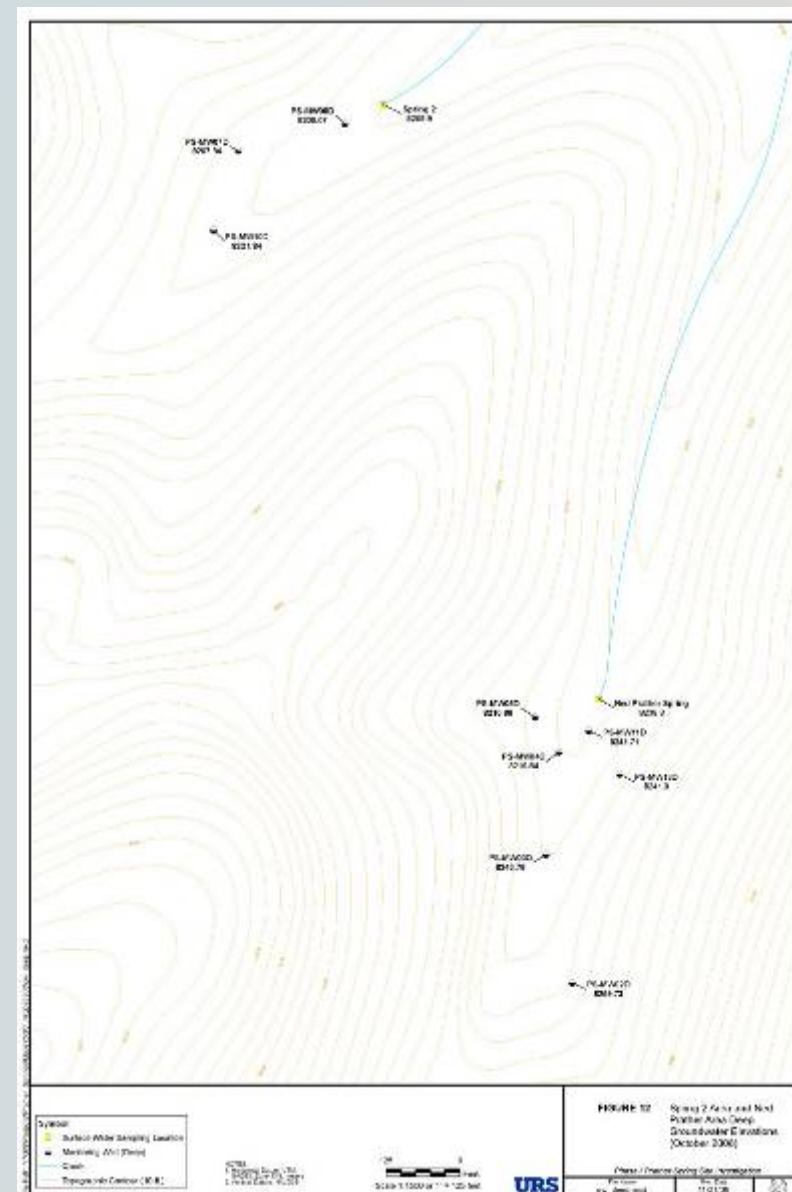
Potentiometric Surface Map

- Shallow wells - Spring 2 area
- Inferred curve to contours



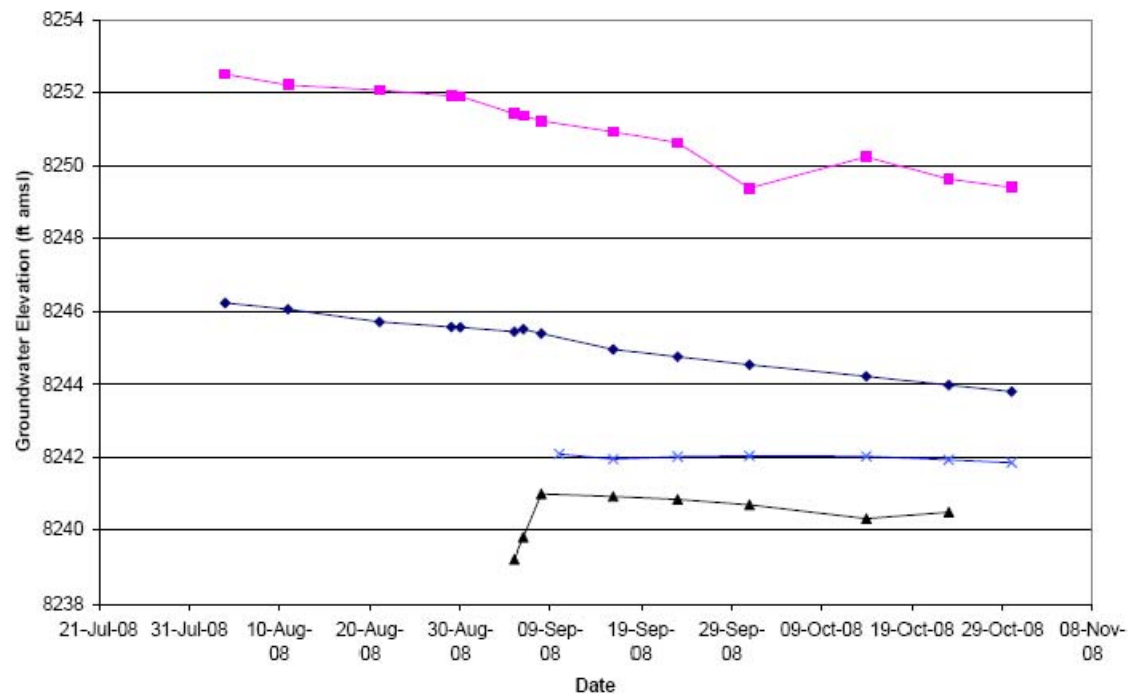
Deep Wells

- Prather and Spring 2 drainages



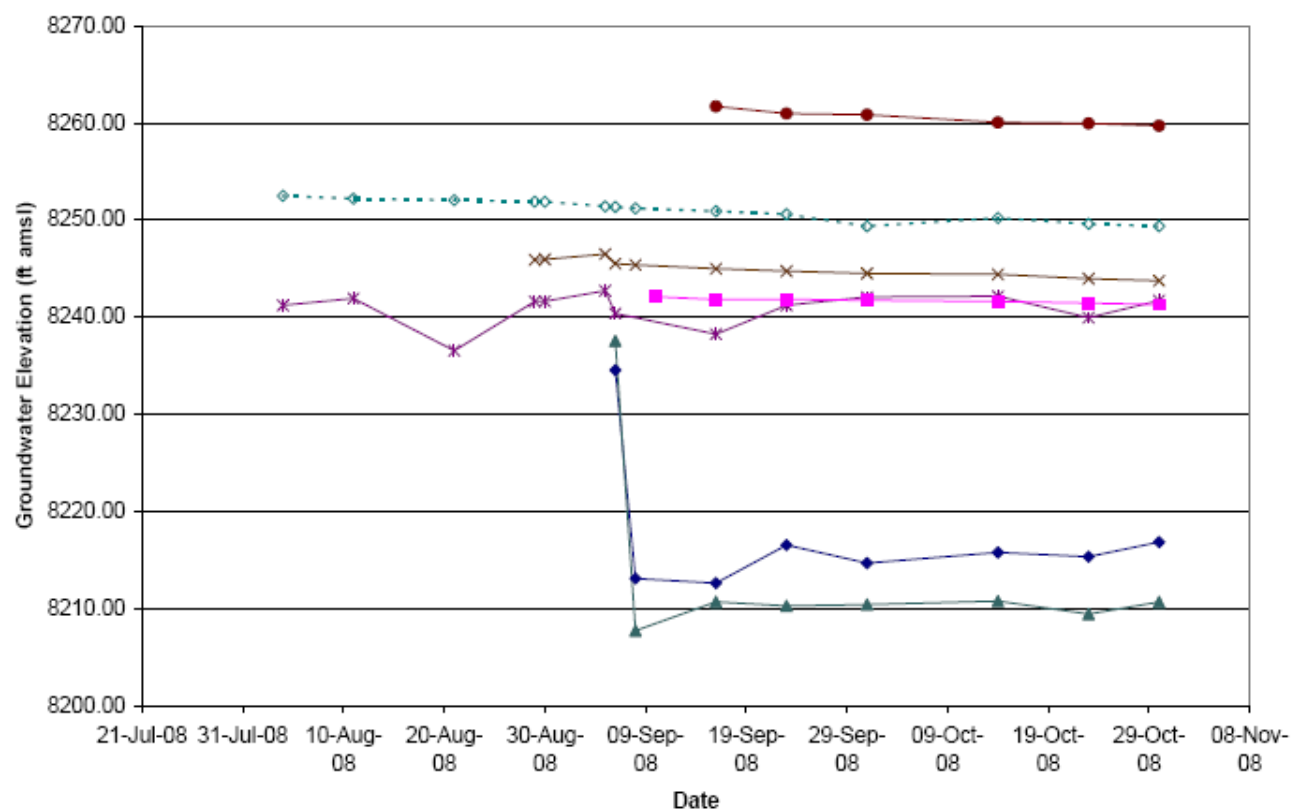
Well Hydrographs

Figure 13
Shallow Well Hydrographs
Prather Spring Wells



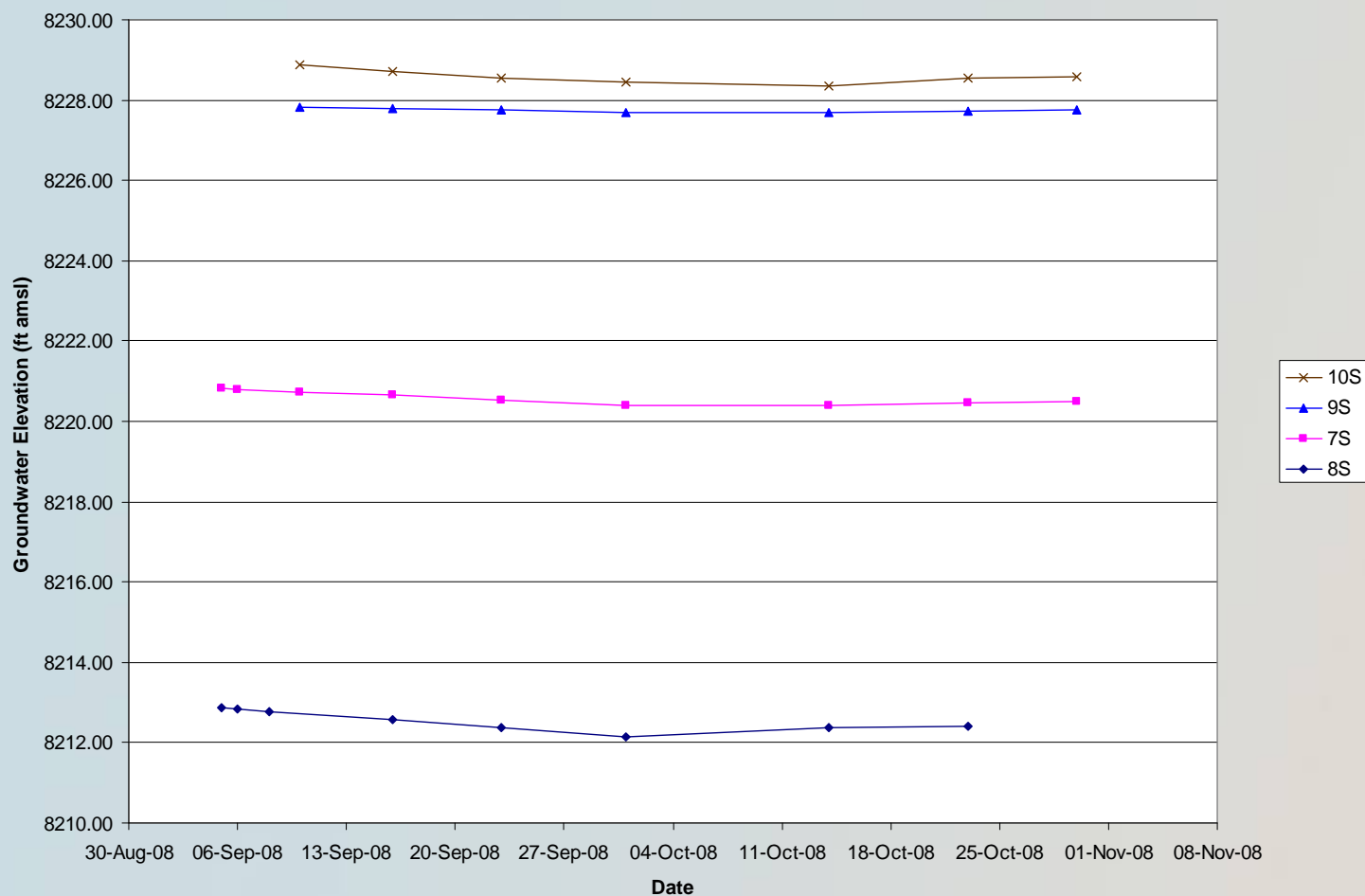
Well Hydrographs

Figure 14
Deep Well Hydrographs
Prather Spring Wells



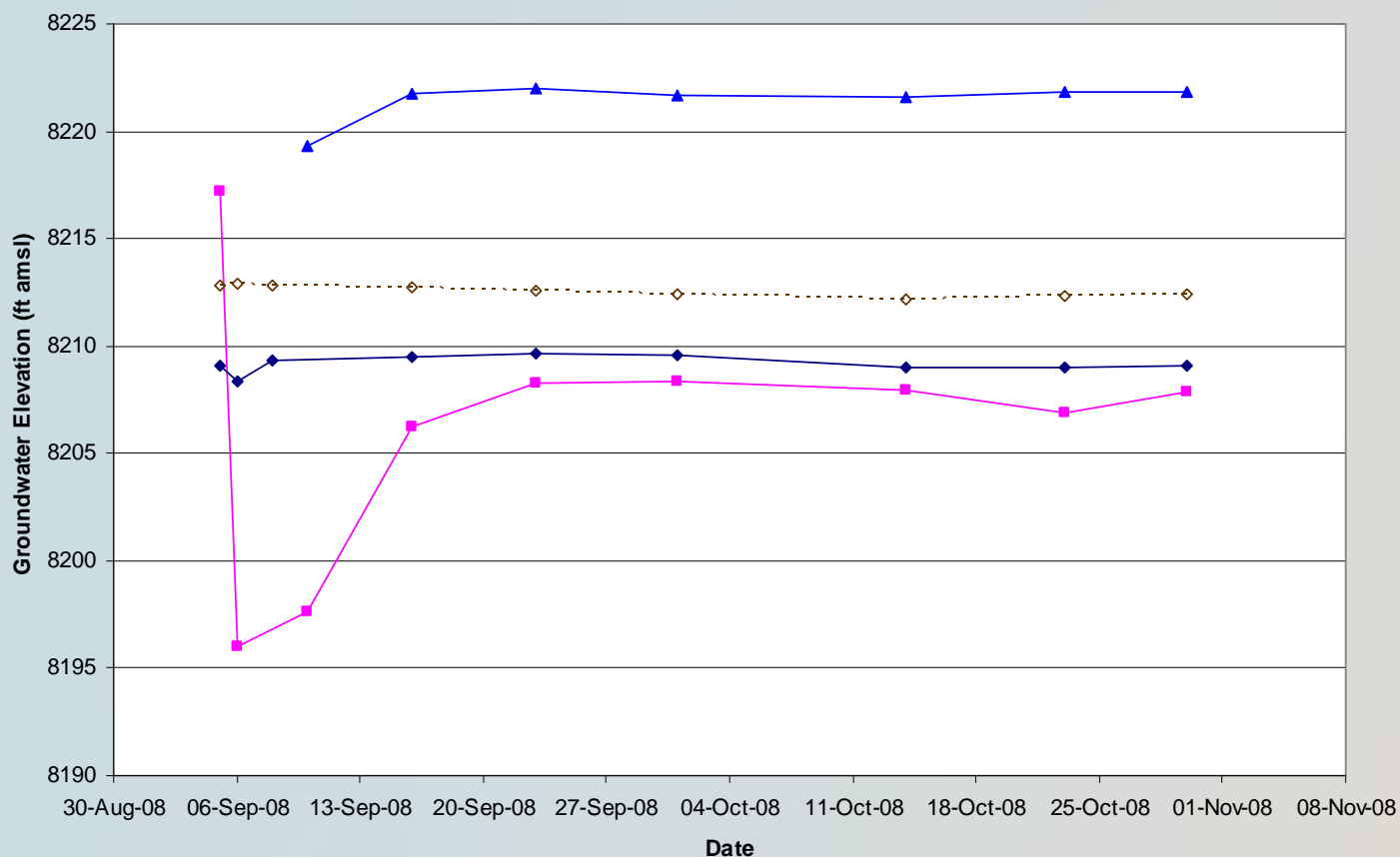
Well Hydrographs

Figure 15
Shallow Well Hydrographs
Spring 2 Wells



Well Hydrographs

Figure 16
Deep Well Hydrographs
Spring 2 Wells



Section 5

- Summary of Analytical Data
 - Data Quality
 - Data Validation
 - Database (Attachment 3)
 - Data Quantity
- Attachment 5 Contents
 - Data Packages
 - Data Validation Report Summaries
 - Qualified Data Reporting Forms

Summary of Number of Samples by Sample Matrix and Analyses

Summary of Number of Samples by Sample Matrix and Analyses
Phase 1 Site Investigation - Prather Spring Area

Sample Matrix	<u>BTEX:</u> SW8021B	<u>Inorganics:</u> A2320 (alkalinity), A2510B or E150.1 (SC), A2540C (TDS), A4500B (anions), A4500F (anions), A4500H (anions), E120.1 (SC)	<u>Dissolved Metals:</u> SW6010B (cations), SW6020 (trace metals), SW7470 (mercury)	<u>PHCD:</u> SW8015B, SW8260B	<u>PHCG:</u> SW8015B, SW8260B	<u>SVOCs:</u> SW8270C	<u>VOCs-Short List</u> (13-19 compounds): SW8260B	<u>VOCs-Long List 1</u> (39-49 compounds): R SK175 (methane), SW8260B	<u>VOCs-Long List 2</u> (51-70 compounds): E1664 (oil & grease), R SK175 (methane), SW8260B	Total
Soil	2	0	0	11	11	1	0	8	4	37
Surface Water	30	224	43	6	14	1	1	193	34	546
Drinking Water	0	24	2	0	0	0	0	24	1	51
Groundwater	0	32	32	8	46	0	36	26	32	212
Total	32	280	77	25	71	2	37	251	71	846

Total Number of Data Packages = 69

Table 10 – Summary of Data Packages Containing Phase I Site Investigation Data for Prather Spring

Table 9 – Summary of Data Packages Containing Phase I Site Investigation Data for Prather Spring

Collected By	Laboratory	Data Package Number	Contents	Collection Period	Analyses	Sampling Program
COCCC	TA	DGP030387	7 aquifers, incl. 1 PWT 1 solid sample (sediment)	6/4/08	sol: CRO, DRO aq: NO ₃ , CH ₄ , major cations, trace metals, major anions, SC, pH	COCCC initial response
LTE	BAL	08-4070	2 soil soils (Marechal, Nourack) Prather Spring	6/12/08	sol: CRO, DRO, MRO aq: GR ₂ , CH ₄ , major cations, trace metals, major anions, SC, pH, DO ₂	Individual company response
Marathon	Key	06008-1382	4 aquifers (NP direct, NP stream, Nourack Sgg, DP flood)	6/8/08	VOCs	Individual company response
Marathon	Key	06008-1382	2 aquifers (stock pond, NPS Sgg)	6/20/08	VOCs	
Marathon	Key	06208-1668	1 aquifer (creek below pond)	6/23/08	VOCs	
UPS	BAL	08-5065	Soil and GRW from 1st round of drilling	Soils: 7/15/08, 7/17/08 Water: 7/17/08, 7/18/08	GPO, DRO, VOCs; methane for ORW 1 soil for SVOCs also	Joint Work Plan
		08-5101				
		08-5151				
		08-5175				
		08-5166				
LTE	TA	NRO-1655	Split of Soil and GRW from 1st round of drilling	same as above	DRO, DRC, VOCs; methane for ORWs	Joint Work Plan
		NRO-1800				
		NRO-1903				
HRL	BAL	08-3744	Cabin Top and Spring	5/31/08 6/1/08 6/2/08	DRO, BTEX, Anions, TDS, CH ₄	Individual company response
HRL	BAL	08-3842	Cabin Top and Spring	6/3/08	DRO, BTEX, Anions, TDS, CH ₄	
HRL	BAL	08-4235	3 locations	6/18/08	BTEX	
HRL	BAL	08-4239	5 SPWs	6/23/08	BTEX, NO ₂ , NO ₃ , Cl	Addendum #1
HRL	BAL	08-4611	5 SPWs	7/1/08	BTEX, NO ₂ , NO ₃ , Cl	Addendum #1
HRL	BAL	08-4776	5 SPWs	7/8/08	BTEX, NO ₂ , NO ₃ , Cl	Addendum #1
HRL	BAL	08-5011	9 SPWs Sgg, incl. SPW3	7/15/08	VOCs - Short, some anions	Addendum #1

1 of 4

Table 10 – Summary of Data Packages Containing Phase I Site Investigation Data for Prather Spring cont.

Table 9 – Summary of Data Packages Containing Phase I Site Investigation Data for Prather Spring

Collected By	Laboratory	Data Package Number	Contents	Collection Period	Analyses	Sampling Program
EDL	EAL	08-S117	9 SPW/Ssg, incl. SPO#2	7/17/08	VOCs-Short, some anions	Addendum #1
EDL	EAL	08-S218	9 SPW/Ssg, incl. SPO#2	7/23/08	VOCs-Short, some anions DM4 for Pesticide Ssg	Addendum #1
EDL	EAL	08-S309	9 SPW/Ssg, incl. SPO#2	7/24/08	VOCs-Short, some anions	Addendum #1
EDL	EAL	08-S418	9 SPW/Ssg, incl. SPO#2	7/29/08	VOCs-Short, some anions	Addendum #1
EDL	EAL	08-S544	10 SPW/Ssg, incl. SPO#2 and 2A	8/1/08	VOCs-Short, some anions	Addendum #1
EDL	EAL	08-S576	10 SPW/Ssg, incl. SPO#2 and 2A	8/4/08	VOCs-Short, some anions	Addendum #1
EDL	EAL	08-S777	11 SPW/Ssg, incl. SPO#2 and 2A	8/7/08	VOCs-Short, some anions	Addendum #1
LTR	TA	NRH-0888	3 SPWs	8/7/08	VOCs-Long, some metals, some anions and veterinary	Addendum #1
EDL	EAL	08-S833	10 aqueous, incl. SPO#2 and 2A	8/11/08	VOCs, some anions	Addendum #1
EDL	EAL	08-S848	10 aqueous, incl. SPO#2 and 2A	8/14/08	VOCs-Long, some anions	Addendum #1
EDL	EAL	08-S882	4 GRW, 1 FD	8/14/08	VOCs-Long, methane	Addendum #1
EDL	EAL	08-S168	10 aqueous, incl. SPO#2 and 2A	8/18/08	VOCs-Long, some anions	Addendum #1
EDL	EAL	08-S291	11 aqueous, incl. SPO#2 and 2A	8/21/08	VOCs-Long, some anions	Addendum #1
EDL	EAL	08-S339	11 aqueous, incl. SPO#2 and 2A	8/25/08	VOCs-Long, some anions	Addendum #1
EDL	EAL	08-S596	11 SPW	8/29/08	Addendum #2 List	Addendum #2
URS	ChemSol	URS037	3 GRW	8/29/08	VOCs and GRC	Addendum #3
URS	ChemSol	URS038	2 Sed, 5 GRW, R2	9/3/08	VOCs, GRC, DPO	Addendum #3
URS	ChemSol	URS039	1 Sed, 5 GRW, R2	9/4/08	VOCs, GRC, DPO	Addendum #3
URS	ChemSol	URS040	7 GRW	9/5/08	VOCs	Addendum #3
EDL	EAL	08-S745	11 SPW	9/4/08	Addendum #2 List	Addendum #2
EDL	EAL	08-S746	Portable Water Tank	9/4/08	Addendum #2 List	Addendum #2
EDL	EAL	08-S780	1 AC (Portable Water Tank), 1 TD	9/5/08	Addendum #2 List	Addendum #2
EDL	EAL	08-S806	MW089 (Pre-development), 2 acids	9/7/08	VOCs, GRC, DPO	Addendum #3

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Table 10 – Summary of Data Packages Containing Phase I Site Investigation Data for Prather Spring cont.

Table 9 – Summary of Data Packages Containing Phase I Site Investigation Data for Prather Spring

Collected By	Laboratory	Data Package Number	Contents	Collection Period	Analyses	Sampling Program
ERL	Dasgon	0009060	7 GRW (MV3D, MW3S, MW3D, MW4S, MW4D, MW3S, MW3D)	9/8/08	Addendum #2 List	Addendum #2
ERL	Dasgon	0009076	11 SFW	9/10/08	Addendum #2 List	Addendum #2
HRL	Dasgon	0009093	2 GRW (3S, 2D)	9/10/08	Addendum #3 List	Addendum #3
HRL	Dasgon	0009141	2 GRW (2S, 2D)	9/17/08	Addendum #2 List	Addendum #2
LTE	TA	NR10466	3 soil (6R 17-21, 2S 10-12, 7S 14-16) + 1 TB	9/10/08, 9/14/08	VOCs-Long, DRO	Addendum #3
LTE	TA	NR10739	3 GRW (3D, 8S, 8D), 1 TB	9/10/08, 9/14/08	VOCs-Long, DRO, DRO, Metals, Cations, Anions, Alkalinity, TDS, Sulfide	Addendum #3
LTE	TA	NR10739	3 GRW (10S, 3D, 4D, 6R), 1 soil (10S 10-12) + 1 TB	9/10/08	VOCs-Long, DRO, DRO, Metals, Cations, Anions, Alkalinity, TDS, Sulfide	Addendum #3
LTE	TA	NR10654	2 GRW (10S, 10D) + TB	9/9/08	VOCs-Long, Alkalinity, Anions, Dissolved Metals, Methane	Addendum #3
LTE	TA	NR10660	2 GRW (2S, 9S) + TB	9/9/08	VOCs-Long, Alkalinity, Anions, Dissolved Metals, Methane	Addendum #3
LTE	TA	NR10652	3 GRW (12D, 13D, 7D) + 1 TB	9/9/08	VOCs-Long, Alkalinity, Anions, Dissolved Metals, Methane VOCs-Long + Metals for FS (MV13D and FS-MV13D)	Addendum #3
LTE	TA	NR16965	1 GRW (02D) + 1 TB	9/17/08	VOCs-Long, Alkalinity, Anions, Dissolved Metals, Methane	Addendum #3
HRL	EAL	08-7173	10 GRW + 1 PD + 1 TB	9/17/08	VOCs, Total Alkalinity, Metals, Cations, Anions, Sulfide, TDS, Conductivity	Addendum #3
ERL	EAL	08-7264	10 GRW + 1 PD + 1 TB	9/24/08	VOCs (Metals and Inorganics on Hold)	Addendum #3
ERL	EAL	08-7373	1 GRW (FS-MV-3S)	9/24/08	VOCs	Addendum #3
HRL	EAL	08-7609	10 GRW + 1 PD + 1 TB	10/1/08	VOCs, Calcite	Addendum #5

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Table 10 – Summary of Data Packages Containing Phase I Site Investigation Data for Prather Spring cont.

Table 9 – Summary of Data Packages Containing Phase I Site Investigation Data for Prather Spring

Collected By	Laboratory	Data Package Number	Contents	Collection Period	Analyses	Sampling Program
LTE	EAL	08-7657	1 Drinking Water (NP Chlorine)	10/0/08	VOCs, Lead, Alkalinity, Ammonia, Dissolved Metals, Methane	Addendum #4
HRL	Ruscon	08-10431	NP Chlorine (water + soil), 1 FD, 2 TBs	10/3/08	VOCs, SVOCs, GRG, DRD, Organics, Metals, Inorganics	Addendum #4
URS	ChemSol	URS041	38 soil vapor samples	10/15, 16, 17/08	VOCs, GRG	Addendum #4
URS	ChemSol	URS042	3 GRW	10/28/08	VOCs, GRG	
URS	ChemSol	URS043	3 GRW	10/29/08	VOCs, GRG	
HRL	EAL	08-7885	10 GRW + 1 FD + 1 TB	10/8/08	VOCs, Chloride	Addendum #2
HRL	EAL	08-8072	16 GRW + 1 FD + 1 TB	10/16/08	VOCs, Alkalinity, Metals, Ammonia, Sulfide, TDS, Conductivity	Addendum #2
HRL	EAL	08-8074	10 GRW + 1 FD + 1 TB	10/16/08	VOCs, Chloride	Addendum #2
HRL	EAL	08-8263	10 SPW + 1 TB	10/28/08	VOCs, Chloride	Addendum #2
HRL	EAL	08-8406	10 SPW + 1 FD + 1 TB	10/28/08	VOCs, Chloride	Addendum #2
HRL	EAL	08-8584	1 SPW (Old Prather Spring clean response)	11/4/08	BTEX, TPH, TPH	NA

69 = Total number of data packages

BTEX = benzene, toluene, ethylbenzene, xylene
 CH4 = methane
 ChemSol = Chem Solutions (outside laboratory)
 CL = chloride
 DRD = dissolved organic carbon
 EAL = Evergreen Analytical
 FD = field duplicate
 GRG = gasoline range organics
 GRW = groundwater
 HRL = HRL Compliance Solutions
 LTE = LT Environmental
 NO2 = nitrite
 NO3 = nitrate

NP = Ned Prather
 PW = pond water
 RD = road blank
 SPW = surface water
 STD = spring
 SVOC = semi-volatile organic compound
 TB = Test Ammonia
 TD = trip blank
 TDS = total dissolved solids
 TPH = total petroleum hydrocarbon
 TPH = total petroleum hydrocarbon
 URS = URS Corporation
 VOC = volatile organic compound

8 of 4

Summary of Analytical Results

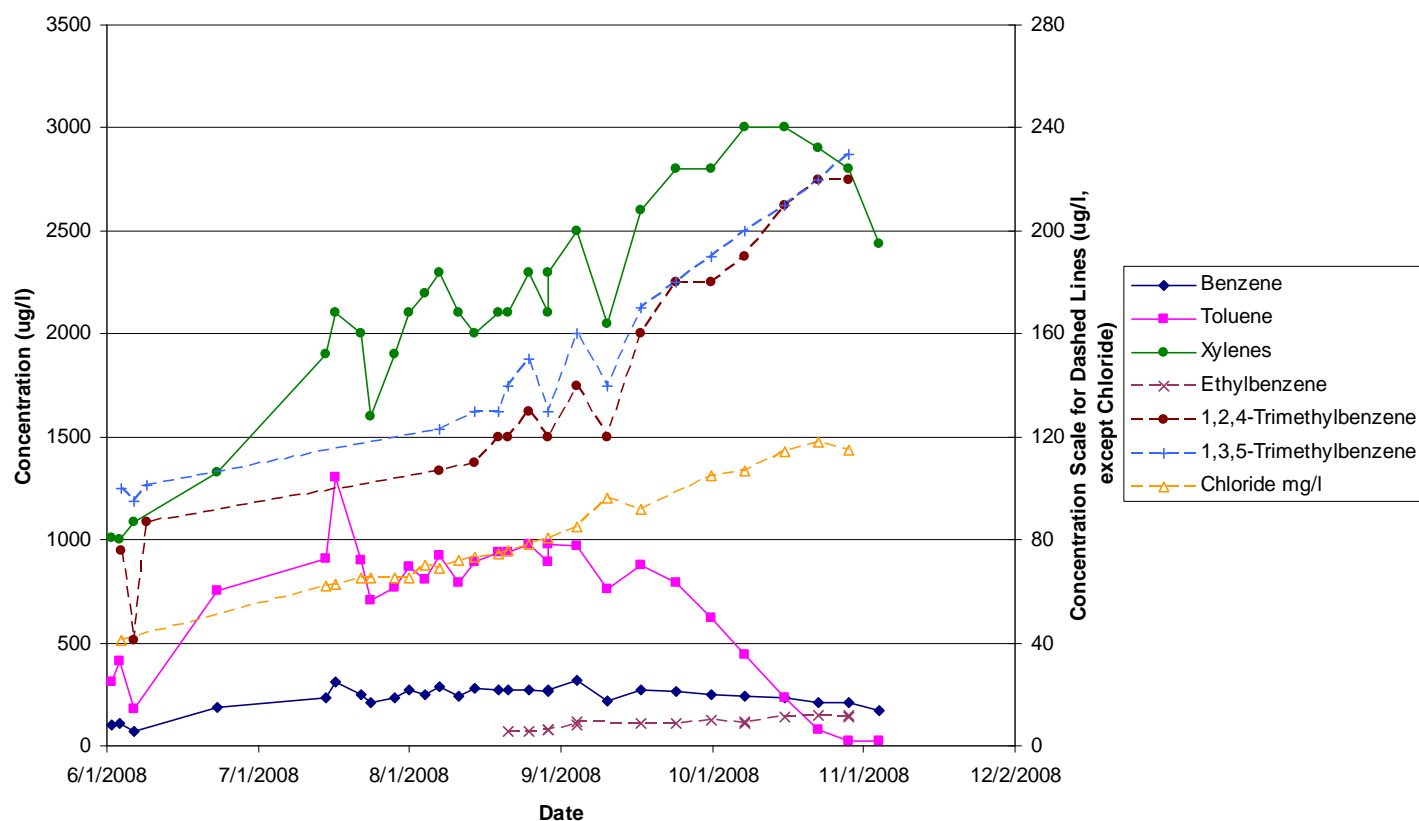
- Surface Water
- Groundwater
- Drinking Water
- Soil
- Soil Gas

Water Quality

- Collection and analysis of surface water and groundwater samples
 - Joint Workplan Addenda #1 - 5
 - Sampling events between May 31 and November 4, 2008
 - URS
 - HRL Compliance
 - LT Environmental
 - Marathon
 - COGCC

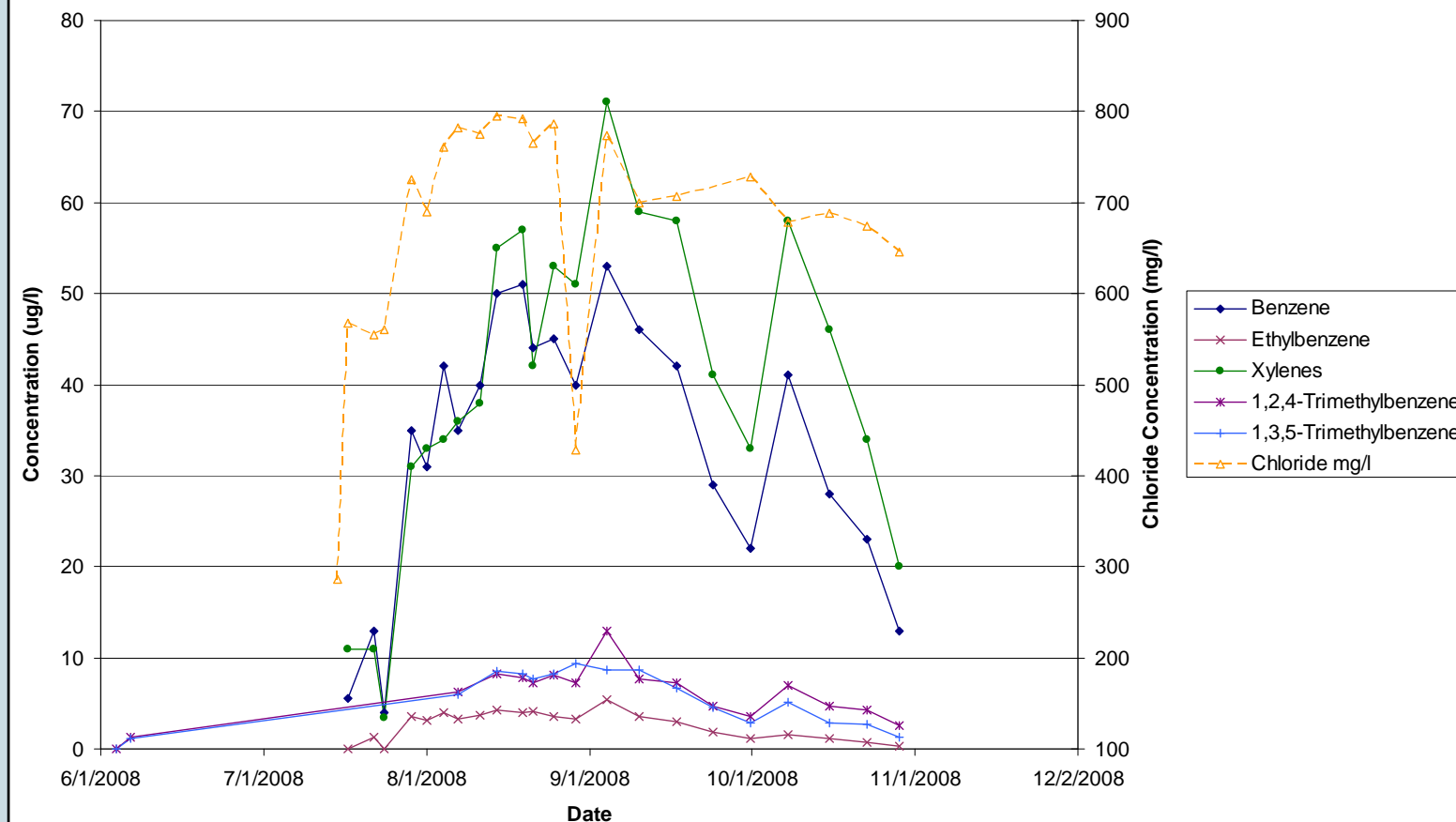
Prather Spring

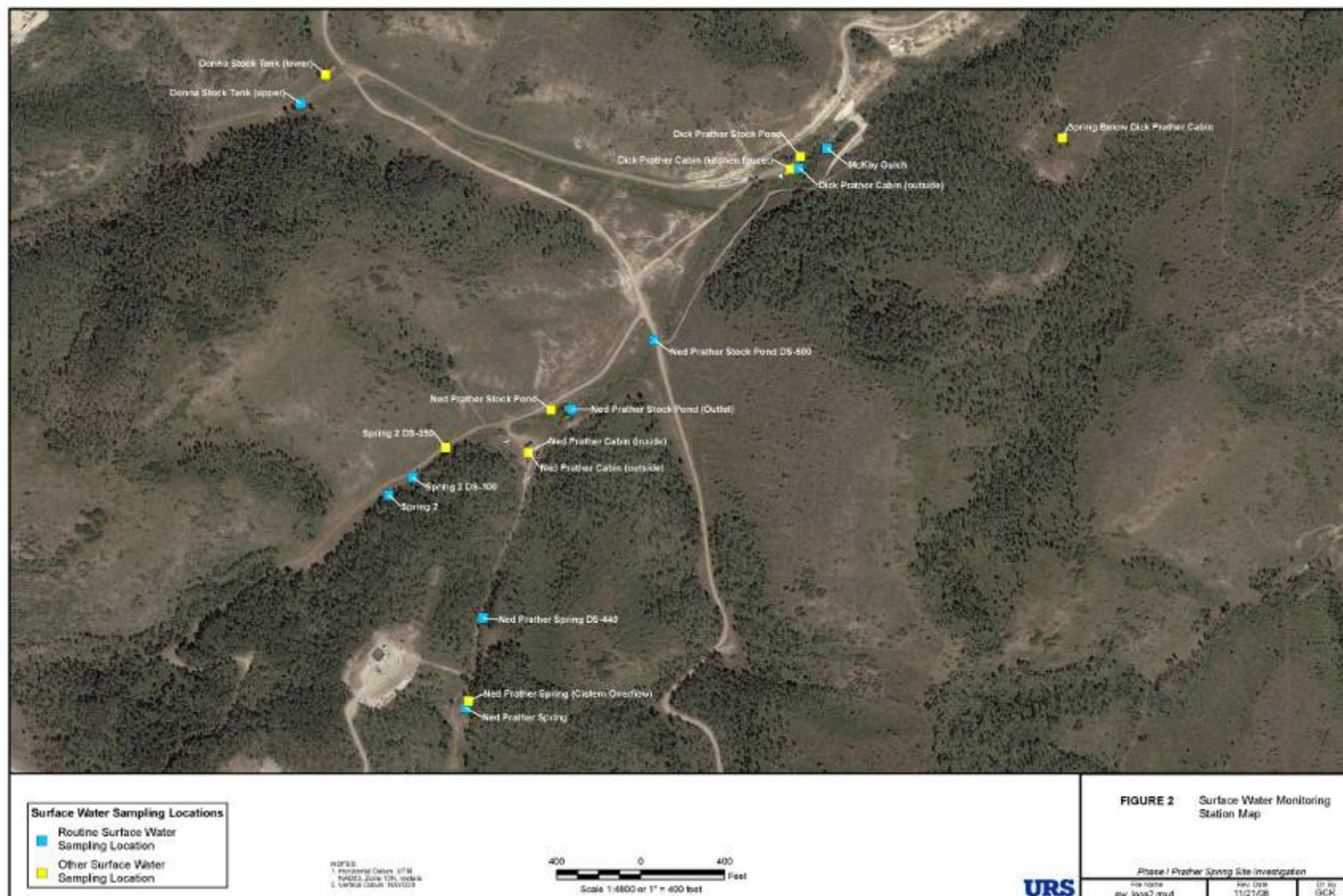
Figure 17
BTEX, TMB, and Chloride Concentrations at Prather Spring



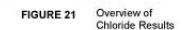
Spring 2

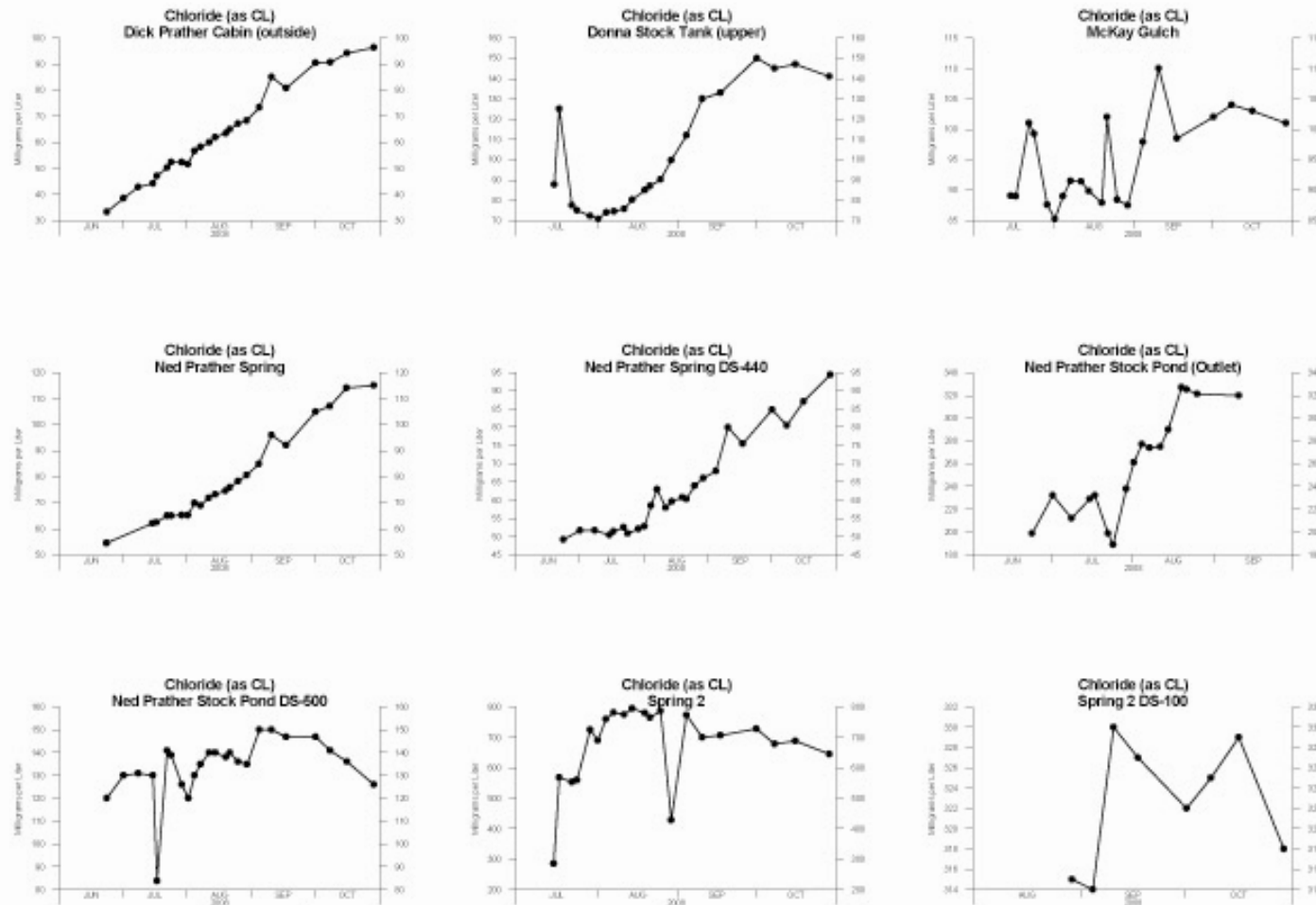
Figure 18
BTEX, TMB, and Chloride Concentrations at Spring 2





- Surface water and groundwater





EXPLANATION

- - Measured Value
- - Undetected (Displayed at RL)

URS

Project Name: Prather Spring

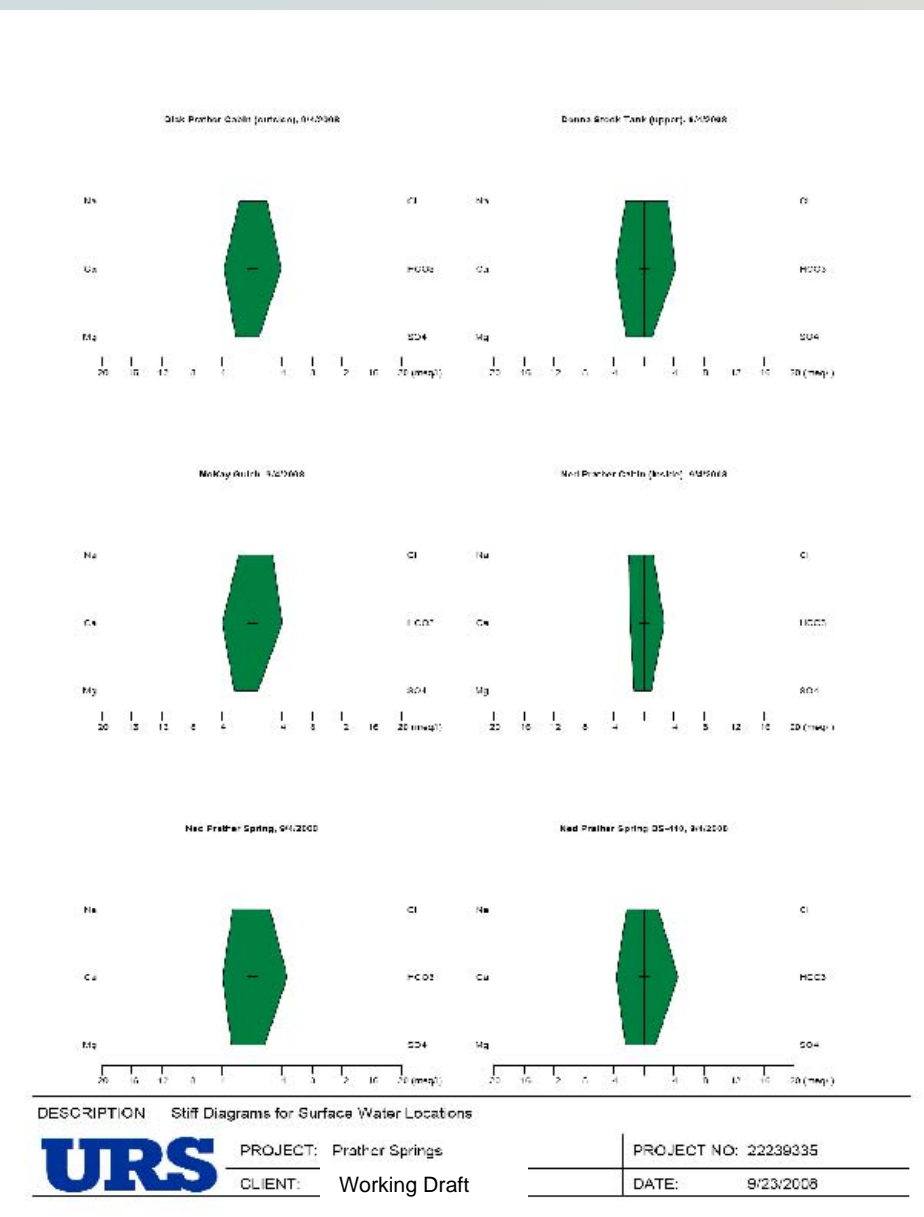
Job No: 22239335

Date: November 2008

**Figure 22. Time-Series Graphs
Chloride (as CL)
Phase I Site Investigation
Parachute, Colorado**

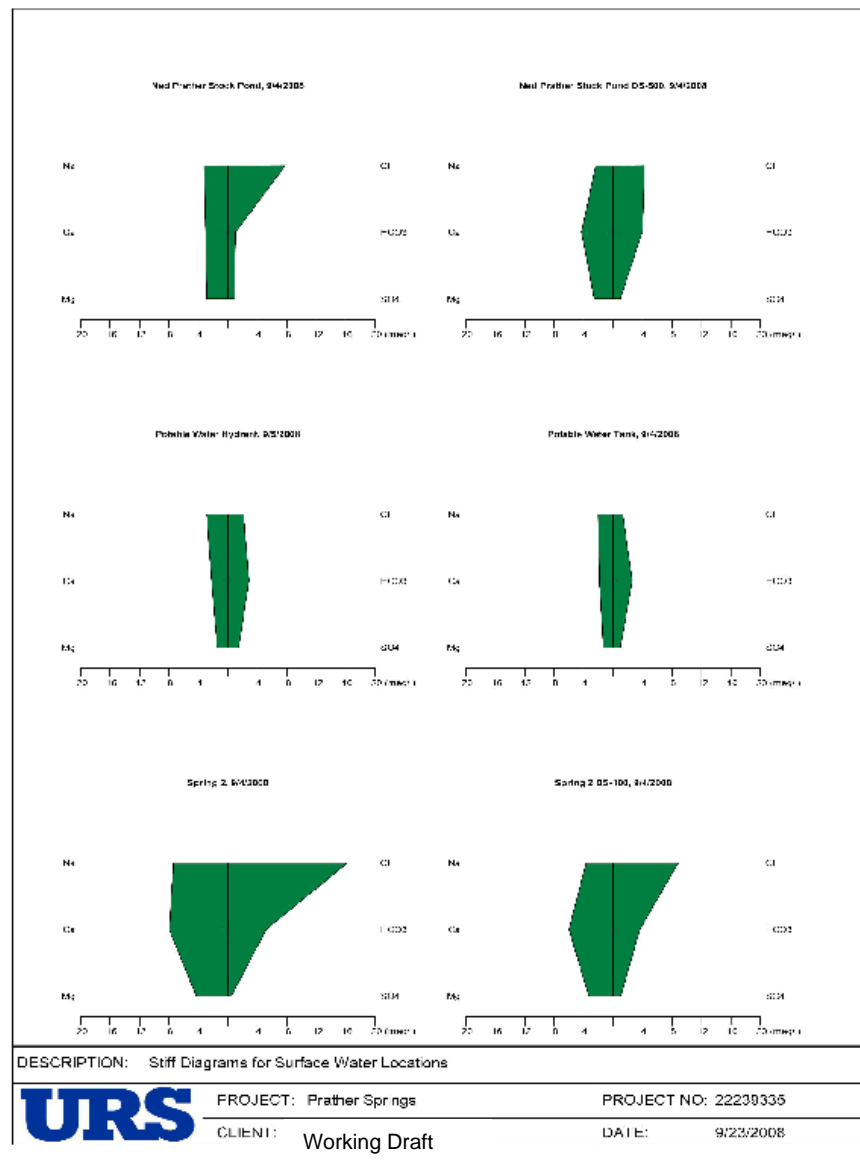
Major Ions

- Surface water samples
- Similar to background groundwater samples with increase in chloride



Major Ions

- Surface water samples
- Increase in chloride ion percentage begins at Spring 2

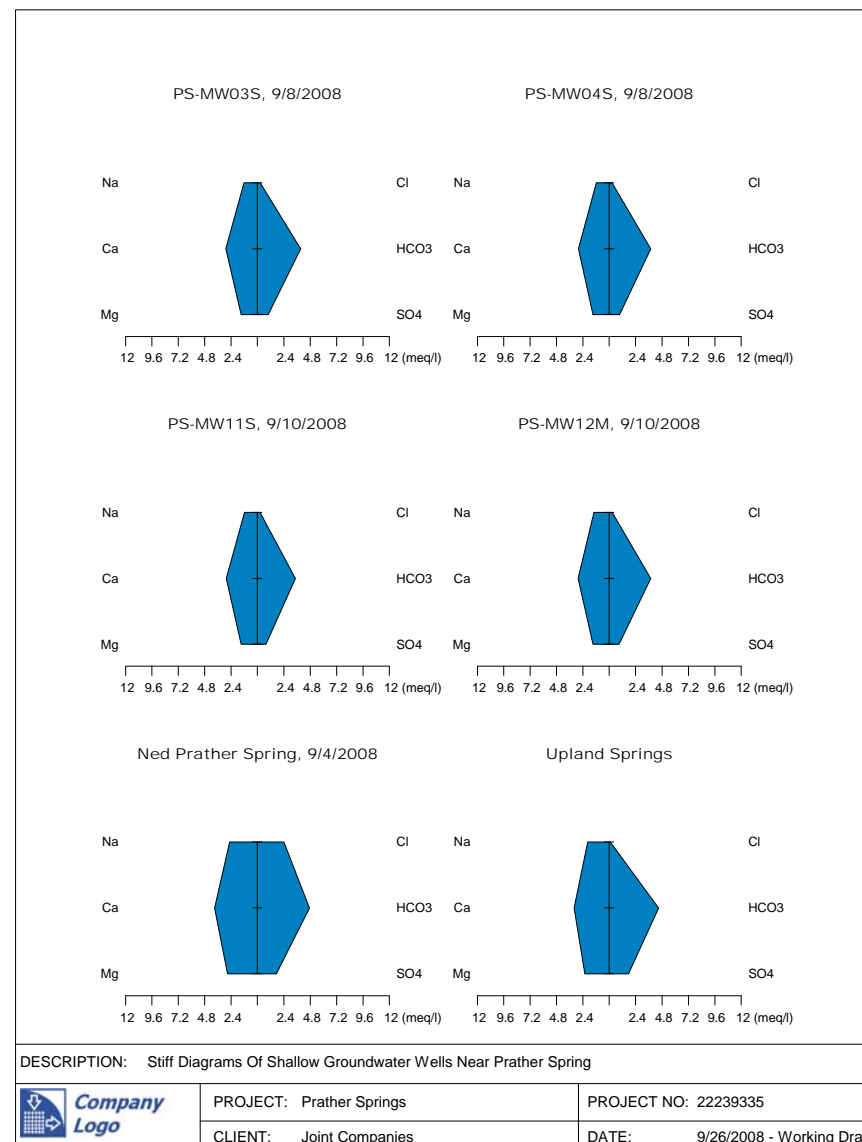


Background or Baseline Water Quality

- Major ion chemistry
 - Utilized to distinguish between and evaluate characteristics of groundwater flow zones
 - Interaction between groundwater and surface water
 - Evaluate source of impacts to surface water and groundwater
- Hydrocarbon constituent detections
 - Evaluate source of impacts to surface water and groundwater

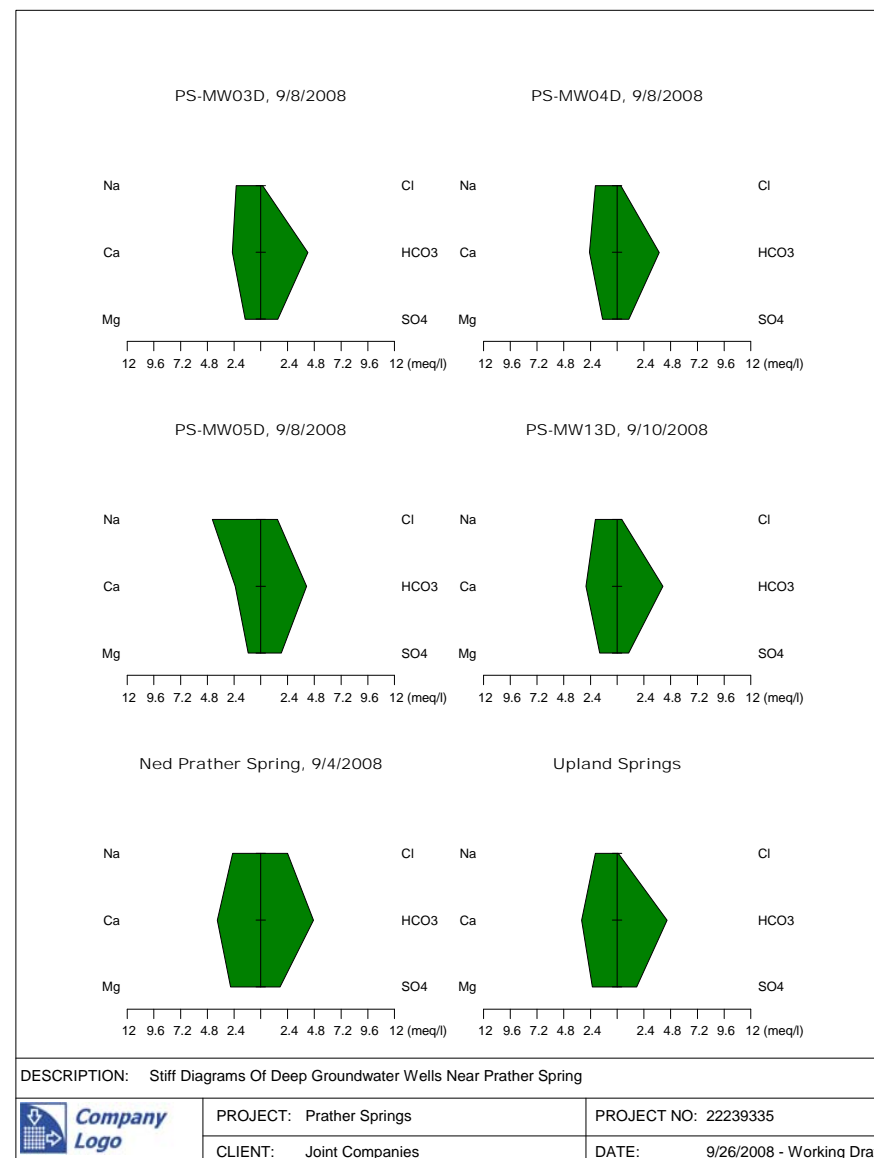
Major Ions

- Shallow wells in Prather Drainage
- Ca-HCO₃ water type
- Similar to USGS “Upland Springs” in the area
- Groundwater has low dissolved ion content and appears to be relatively young



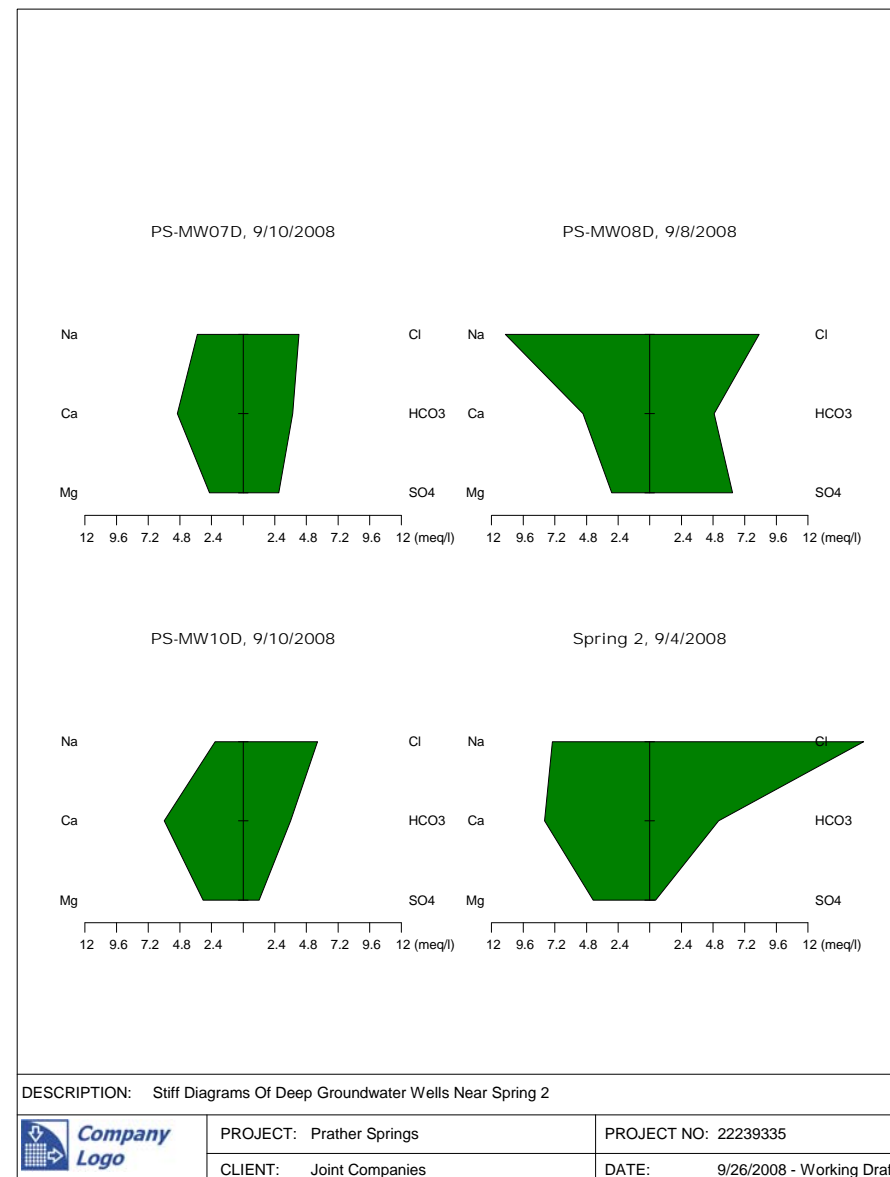
Major Ions

- Deep wells in Prather Drainage
- Ca-Na-HCO₃ water type
- Very similar to shallow well water type
- Deep wells may show relative increase in sodium, potassium, sulfate, arsenic, boron, and selenium concentrations compared to shallow wells
- Well 5D is different



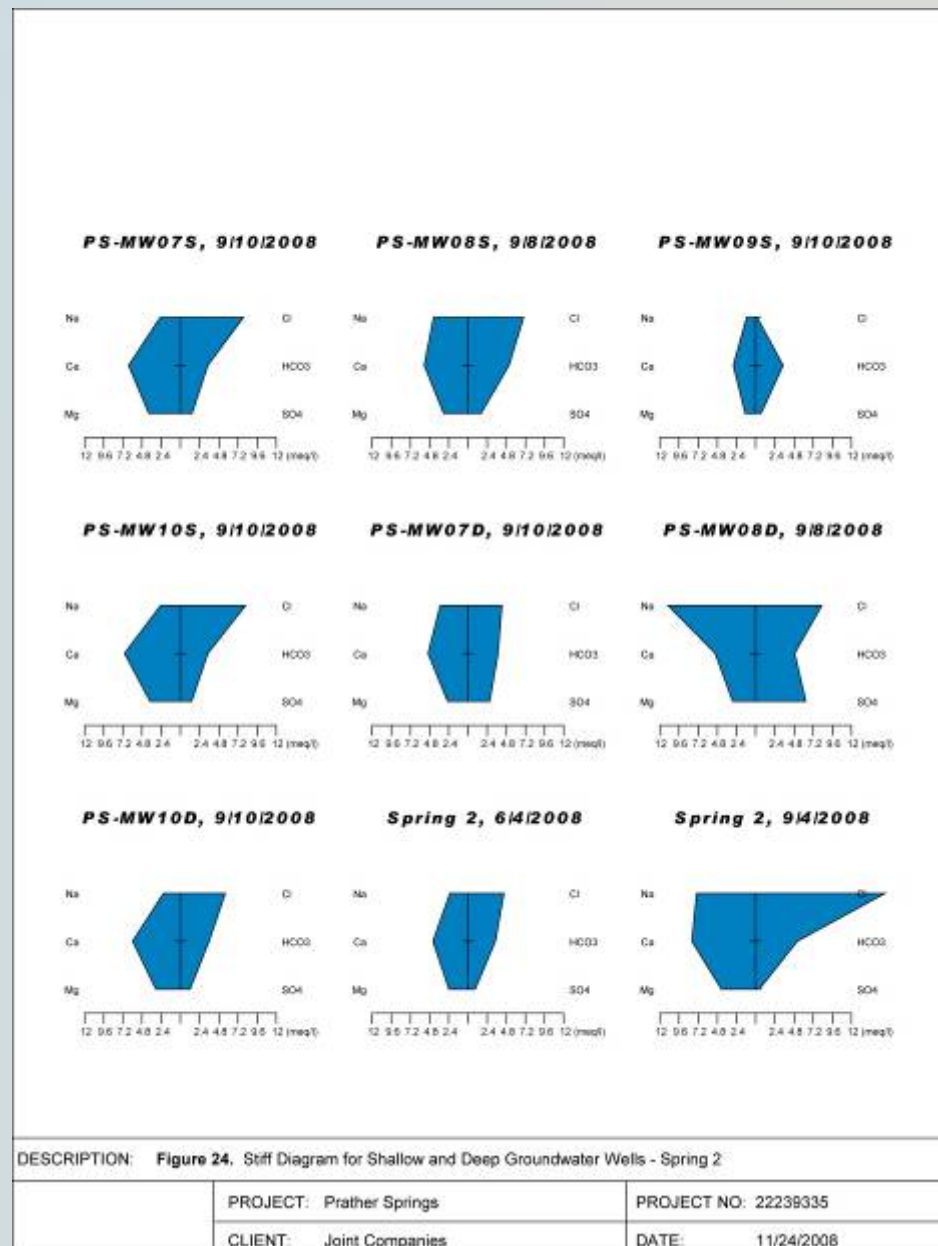
Major Ions

- Deep wells in Spring 2 Drainage
- Ca-Cl and Na-Cl water types
- All locations appear to be impacted from saline source



Major Ions

- Shallow wells in Spring 2 Drainage
- Ca-HCO₃ water type at MW-09S
 - Similar to USGS “Upland Springs” in the area
- Higher chloride content in other three well locations (Ca-Cl type)
- Samples from MW-07S and MW-10S are similar, ditto for BTEX

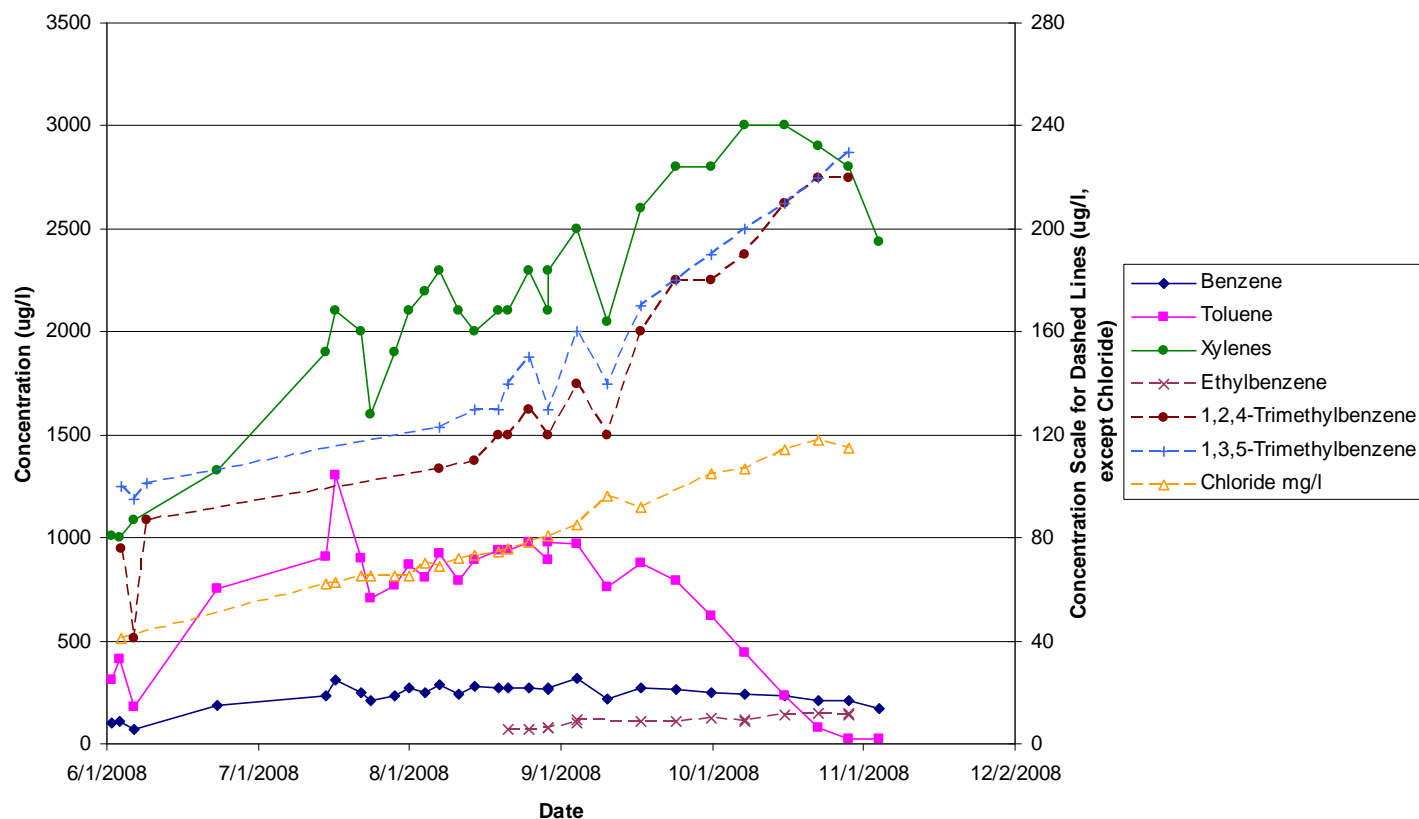


Potential Indicator Analytes

- Potential Indicator Analytes
 - BTEX
 - 1,3,5-TMB and 1,2,4-TMB
 - Naphthalene
 - PHC as gasoline
 - Chloride
- Results posted to maps

Prather Spring

Figure 17
BTEX, TMB, and Chloride Concentrations at Prather Spring



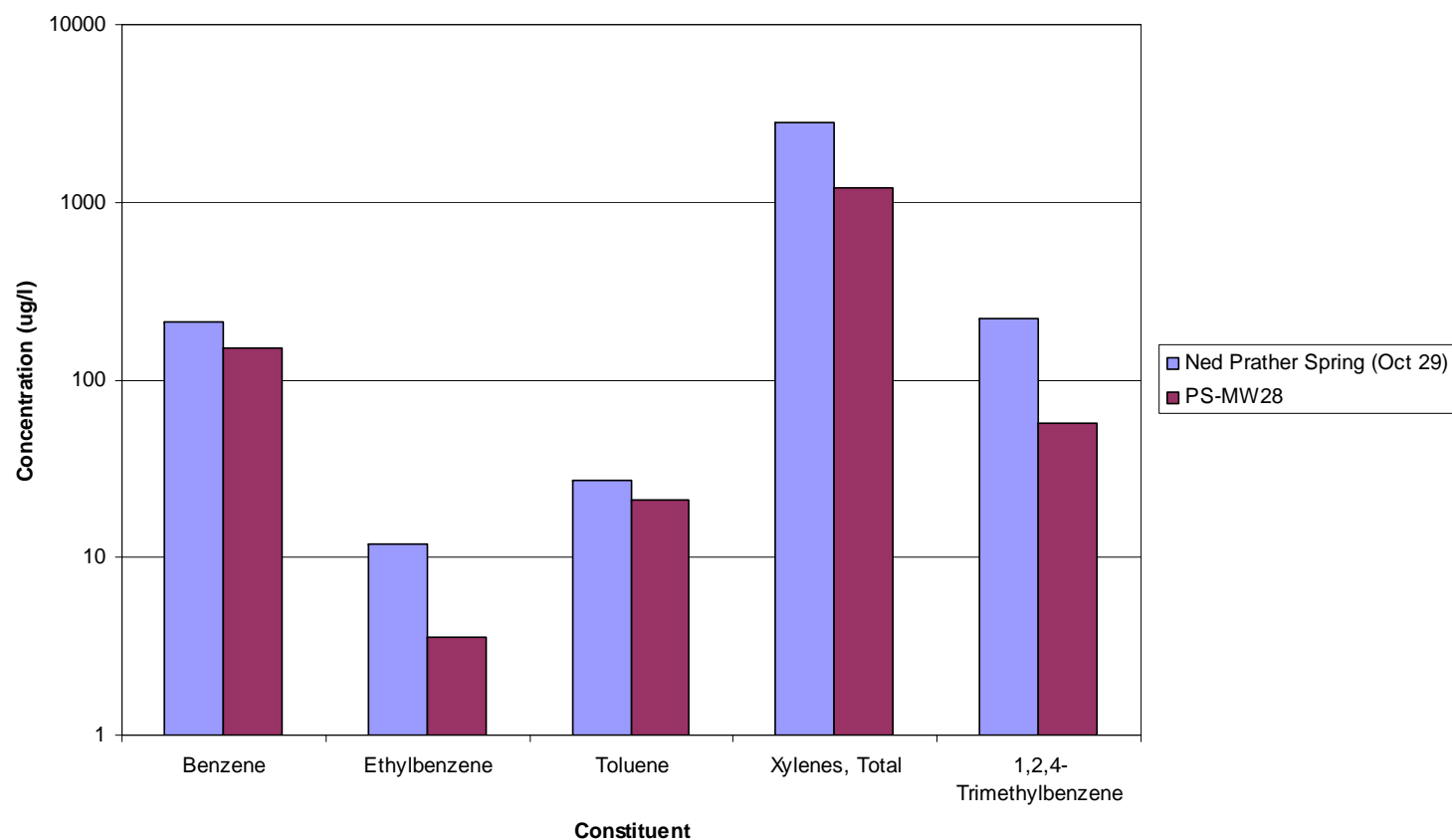
Location of Potential Hydrocarbon Indicator Analytes

■ Prather Spring



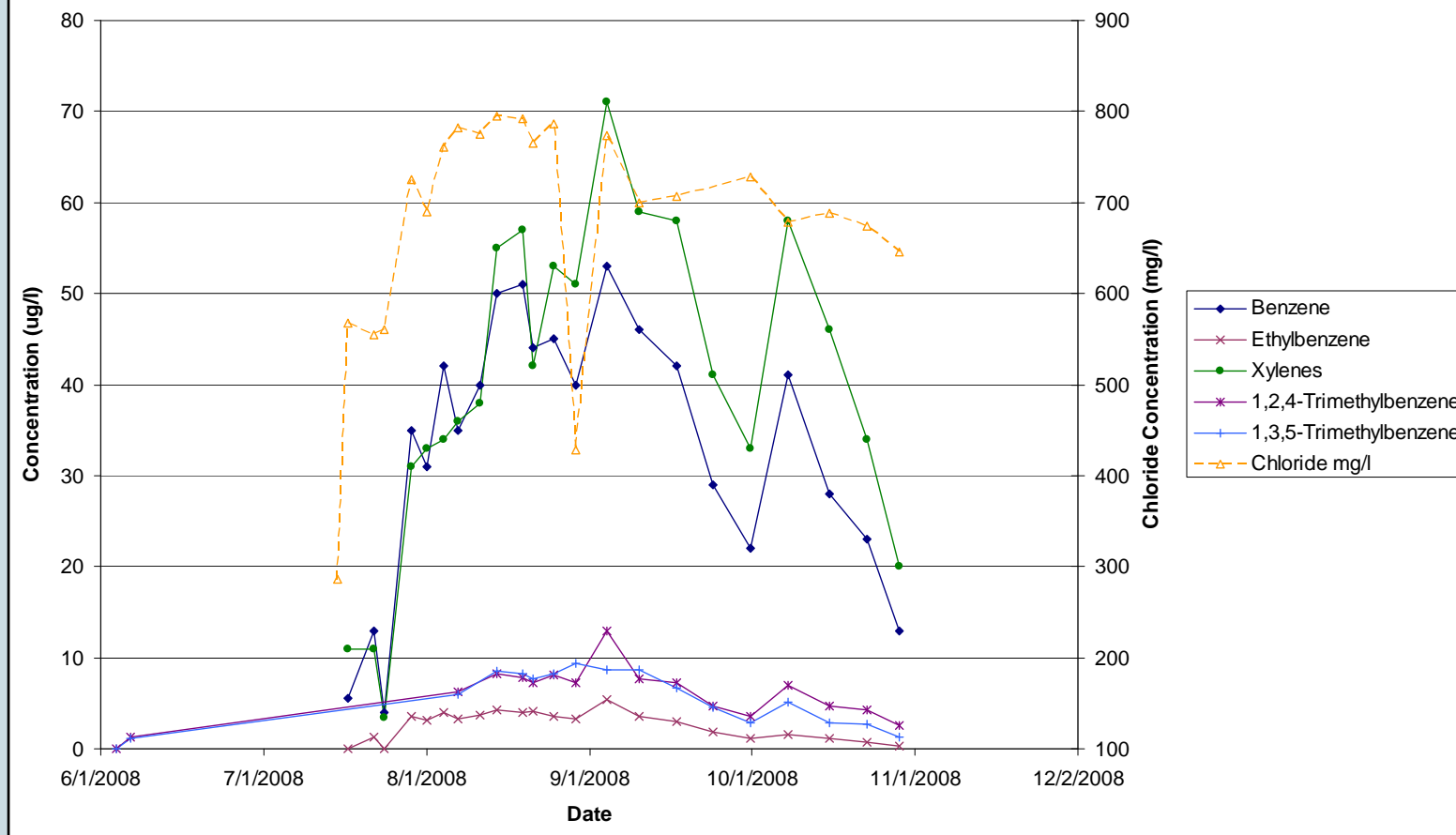
MW-28 vs Prather Spring

Figure 20
Concentration Comparison - Ned Prather Spring and PSMW-28



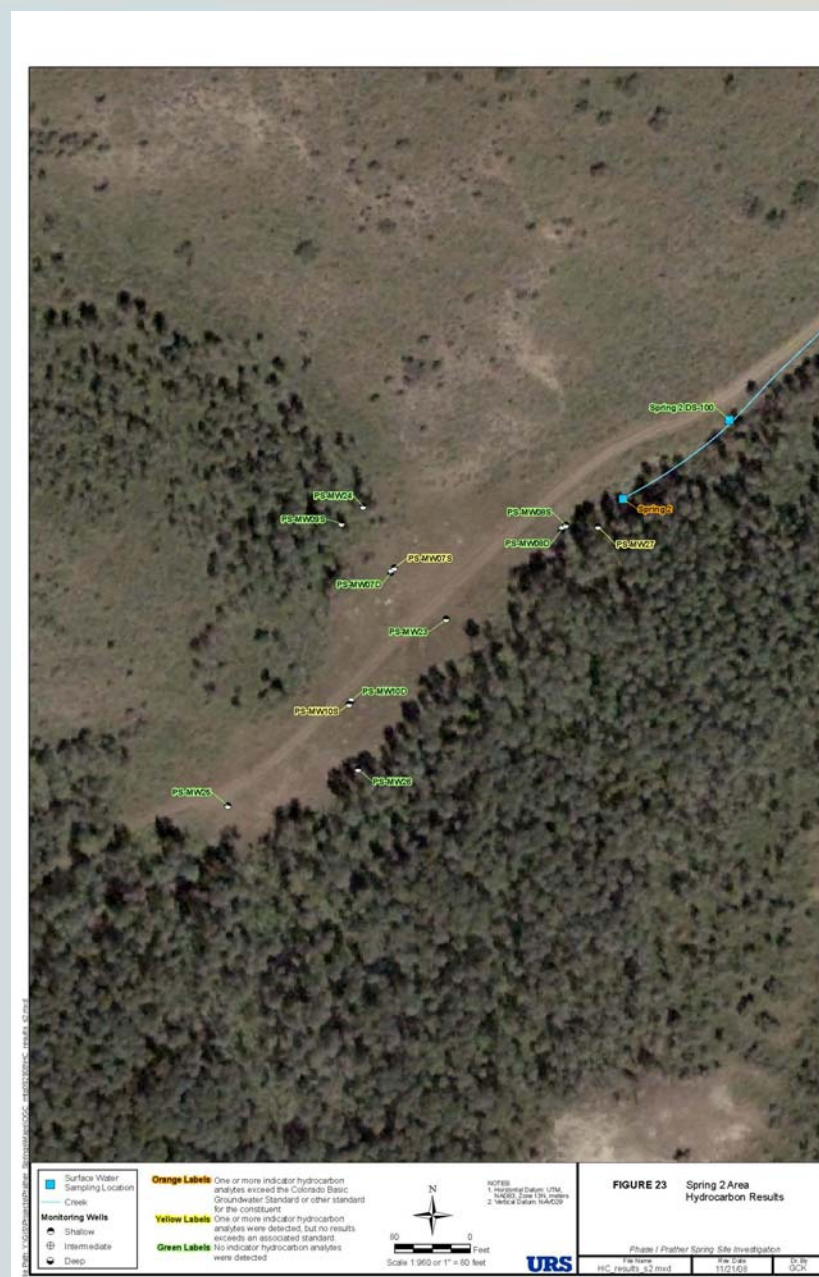
Spring 2

Figure 18
BTEX, TMB, and Chloride Concentrations at Spring 2



Location of Potential Hydrocarbon Indicator Analytes

■ Spring 2



Other Matrices

- Drinking Water (Tables 17-19)
 - Potable water tank
 - Supply hydrant
- Soil (Table 20)
- Soil Gas (PID in Table 6)
 - No detections

Cistern Sampling











Questions and Discussion