6/2/11 J. Maws Overcast Rain/Snow/hail

0715 LV office

0915 Arrive at dewatering wells and met up w/ RO start up staff. Onsite to collect groundwater and leach pad samples prior to RO start. Teamed up with Max underwood.

1020 Sample LPPZ-3 after purge w/ Rediflow ~13 gal DTW = 3.2'

1146 Sample SBB-94-31 after purge 167 gal w/ rediflow DTW = 63.62'

- short lunch break @ RO plant

1315 Sample SBB-88-25 after purge 60 gal DTW = 0.56'

Dup #1 collected here as well

Above wells sampled for table 7 of 2010 SAP; TDS, Cu, Se, CN, CN WAD, CN free, N+N as N, Ammonia.

Could not access SBB-91-29 due to snow drifts. Will sample during surface water event when sample waste rock wells.

1345 Sample Sump-3A - grab sample with bailer.

DTW - top casing = 56.01'

Download transducer Ducer reads 13.94

Batteries OK

1425 Sample Sump-1 w/ grab sample with Bailer Dup-2 here also

DTW top casing = 50.34

Download transducer, Ducer reads 24.68

Batteries ok

- Sumps sampled for Table 11 2010 SAP
- Measured DTW and checked ducer/Battery status IN monitoring wells.

	Ducer Reads	DTW
SBB-88-25	9.91	0.56
LPMW-2	37.34	12.62 *
LPMW-3	36.33	5.38
LAPZ-1	26.02	1.91
LPPZ-3	19.04	3.2 *
LPMW-5	27.51	16.28

* Batteries below 15 V and replaced

1600 LV Site

6-15-2011 J. Maus overcast 40°
calm

0800 on site for site wide spring runoff monitoring event.
Calibrate pH/sc meter

0815 sample SPR-Roadfill
snow drift covering SPR source

0900 Sample SPR-3

0930 Arrive BCD/BCD-Barren.
snow drift on N. side BDC pond
≈ 6-8 ft deep and extends into pond. BCD under ~ 5ft SNOW. BCD-Barren exposed but underwater ~ 2ft. Siphon lines at NE corner of pond under ~ ~~5ft~~ 5-6 ft SNOW
∴ cannot start siphon lines to drain pond. will sample at a latter date.

1045 Siphon running at BCD-A
1055 Sample SPR-D4
1130 Sample SPR-18
1215 Sample SPR-D2
1310 Sample SPR-2

1345 Sample SPR-19
1445 Sample SPR-5 valve closed
1500 Sample STA-4
1545 Sample SPR-10A left hose out of box
1610 Sample MB-Drain
1715 Sample SPR-T
1740 Sample STA-3A
1825 Off site.

6-16-11 T. Maus/C. Richardson
0900 on site to finish SW sampling
GW sampling and RO parameters
1025 Sample MINN DN
1215 Sample SBB-91-29
1350 SAMPLE WRMW-1
1430 Sample STA-2 (DUP-1 also)
1635 Sample SBB-87-02
1650 Sample Toe Drain
1805 Sample BCD-A
1900 Sample STA-1
Hi flow unsafe to wade + gage
Restore valves + plumbing
1945 sample BS-D
2030 Leaving site

7/13/2011 J. Maus

0945 Arrive onsite to collect samples from BCD, BCD-Barren, check levels in Leach Pad, check groundwater Levels and download dwcers.

Check in w/ D. Wiegand (TT) doing Detox pond construction oversight. → minimal H2S concerns for construction activities. Proceed to sample BCD. Notice direct discharge coupling still not connected crack in adjacent road still present approx. same width as before.

1000 BCD-Barren still under ~ 2" water after 48 hrs siphon @ ~100gpm retrived supplies and set up 2 more siphons ~~[illegible]~~ and left pump running on one of them. → 300gpm discharge @ 1200. Left to measure water levels and down load dwcers

	DTW	Dwcer Reads	Download	Replace Batteries
Sump-1	49.85 top stem case	25.11	Y	N 17.7 V
LPMW-1	17.13	31.95	Y	Y
LPMW-2	15.71	34.02	Y	N 16.5 V
SBB-91-29	10.18	NA	—	—
SBB-91-30	8.75	NA	—	—
SBB-88-25	6.40	* See Note		
SBB-88-26	6.15	45.28	Y	Y
SUMP-3A	41.66	18.9	Y	N 16.9 V
LPMW-3	7.48	34.08	Y	N 17.61 V
LPMW-4	5.19	NA	—	—
LPPZ-1	4.78	23.97	Y	N 16.84 V
LPPZ-2	7.29	NA	—	—
LPPZ-3	9.21	13.64	Y	N 16.64
LPMW-5	16.69	27.04	Y	N 17.5
LPMW-6	8.67	36.61	Y	N 17.45 V

TD on Exterior Riser @ detox pond could No access w/out additional tools

* Dwcer in SBB-88-25 malfunctioning since it was submerged in artesian Well. Downloaded data but quality unknown. Removed dwcer for factory Service.

1445 Sample BCD - Barren
1505 Sample BCD
1530 LV site

8/1/11 J. Mans overcast 65°

0835 Arrive Main Gate to Meet Parsons drilling.

0910 LV to check if Parsons stuck at Lower Smiths gate

0930 Parsons not at Lower gate, gate open Called Parsons - no cell - No answer Left message

950 ~~Arrive~~ Arrive back at Main Gate

1020 ~~Left~~ Parsons No show / No call Leaving site

8/17/11 office Entry by J. Mans w/data from R. English
DTW Sump-1 = 53.33 Top sound Tube
DTW Sump-3A = 54.63 Top sound Tube
RO down for > 24 hrs.

9/12/11 J. Mans clear calm 80°

1100 Arrive onsite to begin semi annual site wide Monitoring event

1130 Sample STA-1
1250 Sample BS-D
pH readings seem high for previous 2 stations. Check calibration (Bump test) and meter is calibrated. Previous 2 measurements are valid
1400 Sample STA-2
1445 Sample STA-3A
Dup-1 here also
1545 Sample SPR-T
1600 Sample SPR-Road Fill
1630 Sample SPR-3
1710 Sample SPR-D4
1750 Sample MINN-DN
1900 Start Siphons on BCD-A
2000 LV Site

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-D2

Site Name: Beal MtN

Date 6-15-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 179.5 gpm Type of Meter MM

Width _____ Method wade

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1215

Bottle List 1 500 ml common Ions

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) Riffle

Cross Section (describe) rectangle gravel

Weather Overcast 45°

Remarks _____

Field Parameters

pH (s.u.) 6.02

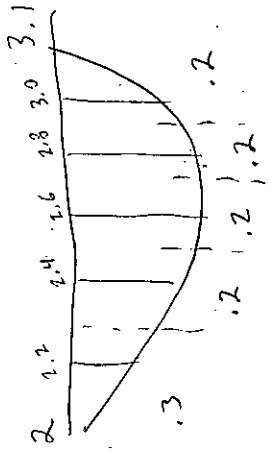
Specific Conductivity (µmhos/cm) 114

Temperature (C°) 2.3

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0		0		Lew							
	2.2	.3	0.18					1.34		0.054	0.072	.85
	2.4	.2	0.23					2.55		.046	0.117	
	2.6	.2	0.23					2.42		.046	0.111	.90
	2.8	.2	0.20					2.20		0.04	0.088	
	~~2.8~~	3.0 .2	0.18					0.32		0.036	0.012	.92
	3.1	~~.2~~	0		Rew							.94
											0.4 cfs	.96
												.97
											179.5	.98
											gpm	
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-D4

Site Name: Beal MTN

Date 6-15-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 30.3 gpm Type of Meter MM

Width _____ Method wade

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1055

Bottle List 1 500ml Common Ions

1 500ml CN

1 250ml TRC Metals

1 250ml

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair X Poor ____

Flow (describe) Laminar

Cross Section (describe) Moss Rectangular

Weather overcast 45°

Remarks _____

Field Parameters

pH (s.u.) 6.55

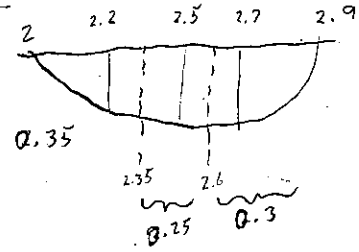
Specific Conductivity (µmhos/cm) 190

Temperature (C°) 5.0

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0		0			Rev						
	2.2	.35	0.30					0.04		0.105	0.0042	.85
	2.5	.25	0.35					0.36		0.86	0.031	
	2.7	.30	0.30					0.36		0.09	0.0324	.90
	2.9		0			Rev						
											0.0676	.92
											cfs	.94
											30.3 gpm	.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR - Roadfill

Site Name: Beal Mnt

Date 6-15-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 783.6gpm Type of Meter MM

Width _____ Method Wade

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 0815

Bottle List 1 500ml poly Cyanide

1 500ml poly CN

1 250 ml poly Tot metals

1 250ml poly _____

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor X

Flow (describe) Turbulent

Cross Section (describe) Trapezoid gravel cobble

Weather overcast, mist 40°

Remarks Spring source remains under snow drift multiple side channels and seeps on adjacent hillside Not included in discharge

Field Parameters

pH (s.u.) 6.87

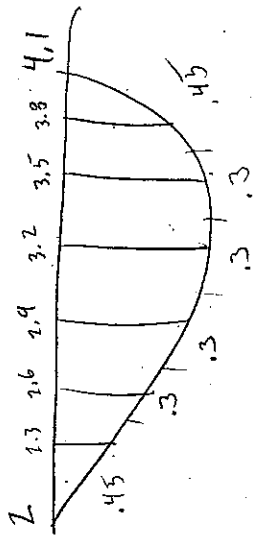
Specific Conductivity (µmhos/cm) 468

Temperature (C°) 3.5

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

2-4.2 = 2.2' W

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0		0		Rev			~~0.30~~				
	2.3	.45	0.30					0.30		.135	0.041	.85
	2.6	.3	0.40					2.21		.12	0.265	
	2.9	.3	0.40					3.05		.12	0.366	
	3.2	.3	0.35					3.65		.105	0.383	.90
	3.5	.3	0.35					2.64		.105	0.277	.92
	3.8	.45	0.40					2.30		.18	0.414	.94
	4.1		0		Rev							
											1.746	.96
												.97
											783.6	.98
											gpm	.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-5

Site Name: Beal Mtn

Date 6-15-11 Time _____

Field Crew J. Mauns

Discharge Summary

Total Disch. (cfs) 178.2 gpm Type of Meter MM

Width _____ Method _____

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1445

Bottle List 1 500 ml Common Ions

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) Laminar

Cross Section (describe) Rectangle through wier of Spring Box

Weather _____

Remarks _____

Field Parameters

pH (s.u.) 1285

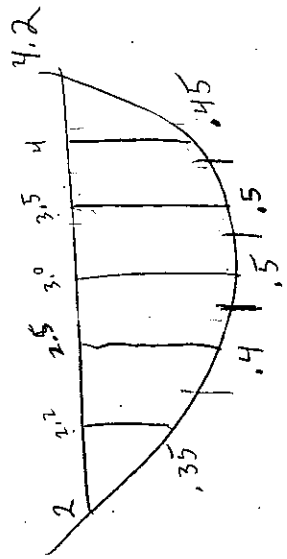
Specific Conductivity (µmhos/cm) 7.19

Temperature (C°) 8.1

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0		0.1		LEW			—	—			
	2.2	.35	0.12					1.2	~~1.20~~	.042	0.05	.85
	2.5	.4	0.15					1.31	~~1.31~~	0.06	0.079	
	3.0	.5	0.15					1.26	~~1.26~~	0.075	0.095	.90
	3.5	.5	0.15					1.23	~~1.23~~	0.075	0.092	
	4.0	.45	0.15					1.20	~~1.20~~	0.068	0.081	.92
	4.2		0.10		REW							.94
											0.397	.96
												.97
					Rectangular				Weir			.98
											= 178.2 gpm	.99
												1.00

2-4.2

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-3

Site Name: Beal Mt

Date 6-15-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 144.5 gpm Type of Meter MM

Width _____ Method Wade

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 0900

Bottle List 1 500 ml poly Common Ions

1 500 ml Poly CN

1 250 ml poly TRC Metals

1 250 ml poly _____

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair X Poor ____

Flow (describe) Turbulent

Cross Section (describe) gravel sand trapazoid

Weather overcast mist 40°

Remarks _____

Field Parameters

pH (s.u.) 7.77

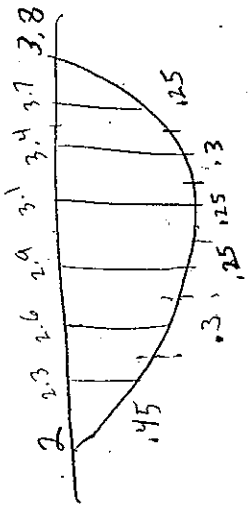
Specific Conductivity (µmhos/cm) 373

Temperature (C°) 5.1

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0		0		Lev							
	2.3	.45	0.25					0.38		0.1125	0.043	.85
	2.6	.3	0.20					0.83		0.06	0.05	
	2.9	.25	0.20					1.72		0.05	0.086	.90
	3.1	.25	0.20					1.97		0.05	0.099	
	3.4	.3	0.15					0.94		0.045	0.042	.92
	3.7	.25	0.05					0.15		0.0125	0.002	.94
	3.8		0	Rev								
											0.322	.96
												.97
											144.5	.98
											gpm	.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-T

Site Name: Beal Mtn

Date 6-15-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 329.64 gpm Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI EDI Grab X

Sample Time: 1715

Bottle List 1 500 ml Common Ions

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ft. above/below gage

Measurement Rating: Excellent Good Fair X Poor

Flow (describe) Turbulent

Cross Section (describe) Rectangle

Weather overcast 45°

Remarks

Field Parameters

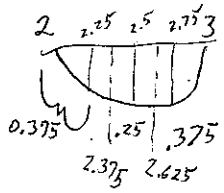
pH (s.u.) 6.95

Specific Conductivity (µmhos/cm) 301

Temperature (C°) 5.3

Dissolved Oxygen (mg/l) _____

ORP _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0		0		Lew							
	2.25	0.375	0.40					2.49		0.15	0.3735	.85
	2.50	0.25	0.40					2.17		0.1	0.217	
	2.75	0.375	0.30					1.28		0.113	0.145	.90
	3.0		0		Rew							
											0.736	.92
											329.64 gpm	.95
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-2

Site Name: Beal Mtn

Date 6-15-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) ≈2gpm est Type of Meter estimate

Width Method

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI EDI Grab X

Sample Time: 1310

Bottle List 1 500 ml COMMON IONS

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading ft. above/below gage

Measurement Rating: Excellent Good Fair Poor X

Flow (describe) No defined channel

Cross Section (describe)

Weather Overcast 50°

Remarks dip samples collected from pool in spring box. est 2gpm seep flow

Field Parameters

pH (s.u.) 7.25

Specific Conductivity (µmhos/cm) 283

Temperature (C°) 6.6

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft^2)	Discharge (ft^3/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-19

Site Name: Beal Mtn

Date 6-15-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 51.11 gpm Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: 1

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1345

Bottle List 1 500 ml common Ions

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) from pipe

Cross Section (describe)

Weather overcast 50°

Remarks

Field Parameters

pH (s.u.) 7.3

Specific Conductivity (µmhos/cm) 451

Temperature (C°) 3.3

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

5gal in 15.8sec

15.8 sec

16.0 sec

15.87 sec

51.11 gpm

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-10A

Site Name: Beal MTN

Date 6-15-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 113.21 gpm Type of Meter Bucket

Width _____ Method _____

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1545

Bottle List 1 500 ml Common Ions

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) pipe flow

Cross Section (describe) _____

Weather overcast 45

Remarks _____

Field Parameters

pH (s.u.) 7.02

Specific Conductivity (µmhos/cm) 373

Temperature (C°) 4.4

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

5 gal in 2.65 sec
2.7 sec
2.6 sec
~~2.65~~ sec

113.21 gpm

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-18

Site Name: Beal MTN

Date 6-15-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 11.5 gpm Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 11:30

Bottle List 1 500ml common Ions

1 500ml CN

1 250 ml TRC metals

1 250 ml

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair X Poor X

Flow (describe) Riffle several seep/shallow flows

Cross Section (describe) gravel silt

Weather overcast 45

Remarks

Field Parameters

pH (s.u.) 6.85

Specific Conductivity (µmhos/cm) 80

Temperature (C°) 4.7

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

0.4' W
0.1' Deep
0.64 V ft/s

0.0256 ft³/s

11.5 gpm

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. BCD-A

Site Name: BEAR

Date 6-16-10 Time 1805

Field Crew J. MAUS, C. RICHARDSON

Discharge Summary

Total Disch. (cfs) 24.56 gpm

Type of Meter Bucket/time

Width

Method

Area

Spin Test

Average Velocity

Sample Summary

Samples Collected:

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1805

Bottle List 1 500 ML COMMON IONS

1 500 ML CN

1 250 ML TRC METALS

1 250 ML NUTRIENTS

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) PIPE flow

Cross Section (describe)

Weather SNOW 40°

Remarks

Field Parameters

pH (s.u.) 6.73

SC = 789

Temperature (C°) 6.3°C

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

7 sec = 3 gal
8 sec. = 3 gal
7 sec. = 3 gal

7.33 sec / 3 gal = 24.56 gpm

Angle (deg)	Dist. from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.93
												.92
												.95
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. ~~1900~~ STA-1

Site Name: Beal MTN

Date 6-16-11 Time

Field Crew J. Mans C. Richardson

Discharge Summary

Total Disch. (cfs) >400 cfs Type of Meter estimate

Width Method

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1900

Bottle List 1 500 ml COMMON IONS

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor X

Flow (describe)

Cross Section (describe)

Weather Pcloudy

Remarks No discharge measurements. Stream is at flood stage. High very fast bed load movement. Attempted to wade but could not stand up. Not safe

Field Parameters

pH (s.u.) 7.57

SC 111 uS

Temperature (C°) 6.3

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft^2)	Discharge (ft^3/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. STA-3A

Site Name: Real MTN

Date 6-15-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 16.32 cfs Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1740

Bottle List 1 500 ml common ions

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair X Poor ____

Flow (describe) turbulent

Cross Section (describe) Trabazoid gravel cobble

Weather P. Cloudy 55°

Remarks

Field Parameters

pH (s.u.) 6.95

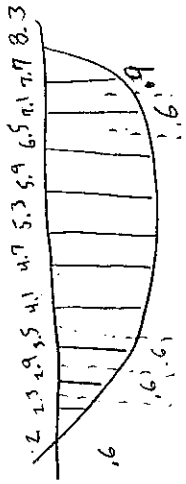
Specific Conductivity (µmhos/cm) 335

Temperature (C°) 4.3

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0	~~0~~	0		Raw			—				
	2.3	0.6	0.30					1.71		0.18	0.308	.85
	2.9	0.6	0.90					3.48		0.54	1.879	
	3.5	0.6	0.85					1.87		0.51	0.954	.90
	4.1	0.6	0.90					6.90		0.54	3.726	
	4.7	0.6	0.55					7.52		0.33	2.482	.92
	5.3	0.6	0.75					4.80		0.45	2.16	.94
	5.9	0.6	0.70					4.75		0.42	1.995	
	6.5	0.6	0.65					4.88		0.39	1.903	.96
	7.1	0.6	0.55					2.54		0.33	0.838	.97
	7.7	0.9	0.70					0.18		0.42	0.076	.98
	8.3		0		Low			—				.99
											16.32	1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. MINN DN

Site Name: Beal MtN

Date 6-16-11 Time

Field Crew J. Mans C. Richardson

Discharge Summary

Total Disch. (cfs) 35.61 cfs Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: 7

Sample Method: EWI EDI Grab X

Sample Time: 1025

Bottle List 1 500 ml Common Ions

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ft. above/below gage

Measurement Rating: Excellent Good X Fair Poor

Flow (describe) Turbulent

Cross Section (describe) Cobble gravel Rectangle

Weather P. cloudy 45°

Remarks

Field Parameters

pH (s.u.) 8.04

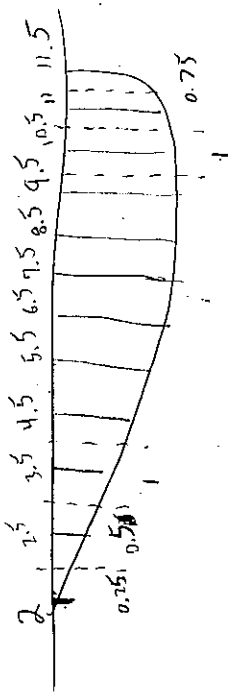
Specific Conductivity (µmhos/cm) 135

Temperature (C°) 2.4

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coef	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0	0.25	0.7		Lew				0.4	0.18	0.072	
	2.25	0.5	0.7						1.88	0.35	0.658	.85
	3.5	1.0	0.45		on Rock				4.03	0.45	1.814	
	4.5	1.0	1.0						5.50	1.0	5.50	.90
	5.5	1.0	1.25						4.20	1.25	5.25	
	6.5	1.0	1.30						5.08	1.30	6.60	.92
	7.5	1.0	1.0						4.81	1.0	4.81	.94
	8.5	1.0	1.30						4.78	1.3	6.214	.96
	9.5	1.0	0.90						5.87	0.9	0.528	.97
	10.5	0.75	0.80						5.01	0.6	3.006	.98
	11.0	0.25	1.15						3.98	0.29	1.154	
	11.5		0						—			.99
											35.61	
												1.00

2 - 11.5

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. STA-2

Site Name: Beal Mtn

Date 6-16-11 Time

Field Crew J. Mauns C. Richardson

Discharge Summary

Total Disch. (cfs) 37.57 cfs Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI EDI Grab X

Sample Time: 1430

Bottle List 1 500 ml Common Ions

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ft. above/below gage

Measurement Rating: Excellent Good X Fair X Poor

Flow (describe) Turbulent

Cross Section (describe) Trapezoid cobble

Weather P cloudy 65°

Remarks

Dup-1 also here

Field Parameters

pH (s.u.) 7.48

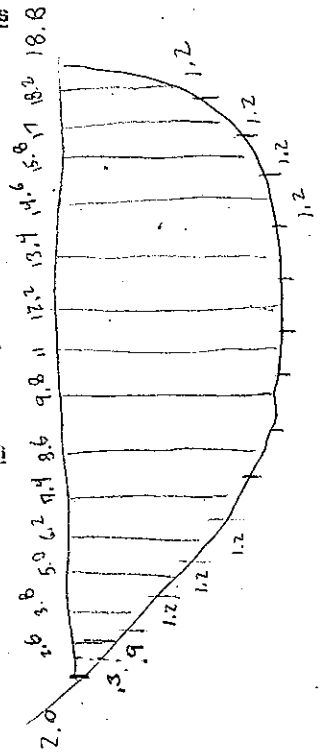
Specific Conductivity (umhos/cm) 113

Temperature (C°) 5.1

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

2-18.6

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0	.3	0.3		Lew			1.1		.09	0.099	
	2.6	.9	0.25					0.97		.225	0.218	.85
	3.8	1.2	0.1					0.24		0.12	0.029	
	5.0	1.2	0.35					1.21		0.42	0.508	.93
	6.2	1.2	0.35					2.75		0.42	1.155	
	7.4	1.2	0.70					3.31		0.84	0.588	.92
	8.6	1.2	0.80					4.41		0.96	4.234	.94
	9.8	1.2	0.70					4.0		0.84	3.36	
	11.0	1.2	1.1					5.15		1.32	6.80	.96
	12.2	1.2	0.8					4.34		0.96	4.166	.97
	13.4	1.2	1.1					4.03		1.32	5.32	.98
	14.6	1.2	0.70					4.14		0.84	3.48	.99
	15.8	1.2	1.1					3.53		1.32	4.66	
	17.0	1.2	0.9					2.71		1.08	2.937	
	18.2	1.2	0.4					0.04		0.48	0.019	1.00
	18.8	~~1.2~~	0		Rew			—				
											37.57	

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. BS-D

Site Name: Beal Mtn

Date 6-16-11 Time

Field Crew J. Mams / C. Richardson

Discharge Summary

Total Disch. (cfs) 67.35 cfs Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1945

Bottle List 1 500 ml COMMON IONS

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor ____

Flow (describe) Turbulent

Cross Section (describe) gravel cobble Trapezoid

Weather P cloudy 50°

Remarks

Field Parameters

pH (s.u.) 7.68

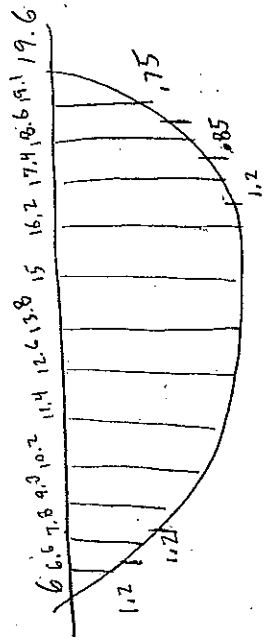
Specific Conductivity (µmhos/cm) 121

Temperature (C°) 5.1

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____



Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Cutaway Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	5.0		0.1		Lem			0				
	6.6	1.2	0.4					-0.8		0.48	-0.384	.85
	7.8	1.2	1.0					-0.65		1.2	-0.78	
	9.0	1.2	2.0					3.51		2.4	8.424	.90
	10.2	1.2	1.9					6.46		2.28	14.729	
	11.4	1.2	1.2					7.67		1.44	11.045	.92
	12.6	1.2	1.3					12.8	?	1.56	19.97	.94
	13.8	1.2	0.7					5.64		0.84	4.738	
	15.0	1.2	1.0					4.32		1.2	5.184	.96
	16.2	1.2	0.5					3.02		0.6	1.812	.97
	17.4	1.2	0.4					4.45		0.48	2.136	.98
	18.6	0.85	0.3					1.60		0.255	0.408	.99
	19.1	0.75	0.1					0.89		0.075	0.067	
	19.6	—	0			Rem		0				
												1.00
											67.35	

2-14.6
6-19.6

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. STA-4

Site Name: Beal Mtn

Date 6-15-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 7.61 cfs Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: 4

Sample Method: EWI EDI Grab X

Sample Time: 1500

Bottle List 1 500 ml Common Ions

1 250 ml TRC Metals

1 250 ml Nutrients

1 500 ml CN

Site Information

Wading ft. above/below gage

Measurement Rating: Excellent Good Fair X Poor

Flow (describe) Turbulent

Cross Section (describe) gravel cobble Trapezoid

Weather overcast 45°

Remarks

Field Parameters

pH (s.u.) 7.18

Specific Conductivity (µmhos/cm) 82

Temperature (C°) 1.7

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

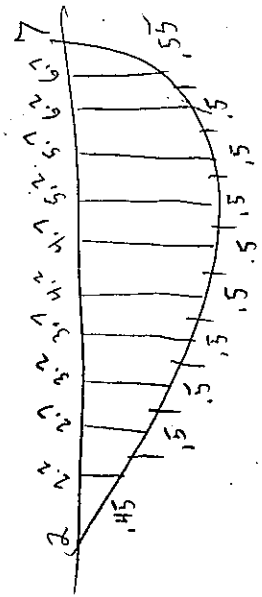
Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes



Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0		0		Rew			0				
	2.2	.45	0.65					0.61		.293	.178	.85
	2.7	.5	0.60					2.21		.3	.663	
	3.2	.5	0.55					2.49		.275	.685	
	3.7	.5	0.60					3.60		.3	1.08	.90
	4.2	.5	0.55					1.31		.275	0.36	.92
	4.7	.5	0.65					2.33		.325	0.757	.94
	5.2	.5	0.50					5.15		.25	1.288	.96
	5.7	.5	0.55					4.50		.275	1.238	.97
	6.2	.5	0.55					4.12		.275	1.133	.98
	6.7	.55	0.60					0.69		.33	0.228	
	7.0		0.50		Rew			0				.99
											7.61	
												1.00

2-7.0

5

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. Toe Drain

Site Name: _____

Date 6-16-11 Time _____

Field Crew J. Maus / C. Richardson

Discharge Summary

Total Disch. (cfs) 225 gpm Type of Meter Bucket

Width _____ Method _____

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: 7

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1650

Bottle List 1 500 ml COMMON IONS

1 500 ml CN

1 250 ml TRC Metals

1 250 Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor X

Flow (describe) _____

Cross Section (describe) _____

Weather _____

Remarks 4 gal 1 sec / 1.07 sec 225 gpm

4 gal 1.2 sec

4 gal 1 sec

Field Parameters

pH (s.u.) 6.73

Specific Conductivity (µmhos/cm) 1322

Temperature (C°) 7.9

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. MB-Drain

Site Name: Beal Mtn

Date 6-15-11 Time

Field Crew J. Mauss

Discharge Summary

Total Disch. (cfs) 1.95 cfs

Type of Meter MM

Width

Method Wade

Area

Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1610

Bottle List 1 500 ml Common Ions

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair X Poor ____

Flow (describe) Laminar

Cross Section (describe) Silt grass cobbles Trapezoid

Weather overcast 45°

Remarks

Field Parameters

pH (s.u.) 6.95

SC 1100 uS

Temperature (C°) 6.2

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

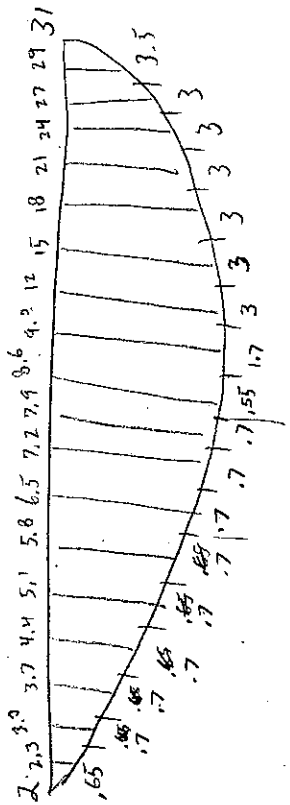
Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes



Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Correspond Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0		0		Left							2-9
	2.3	.65	0.20		Grass			-0.03		0.13	-0.004	.85
	3.0	.7	0.30					1.05		.21	0.221	9-31
	3.7	.7	0.30					0.91		.21	0.191	.90
	4.4	.7	0.30		grass			0.37		.21	0.078	
	5.1	.7	0.35					0.79		.245	0.194	.92
	5.8	.7	0.35					1.43		.245	0.35	.94
	6.5	.7	0.30					1.31		.21	0.275	.96
	7.2	.7	0.30					0.20		.21	0.042	.97
	7.9	.7	0.30					0.0		.21	0	.98
	8.6	.55	0.05					0.03		.028	0.001	
	9.0	1.7	0.15					1.06		.255	0.27	.99
	12.0	3	0.05		overbank			0.0		0.15	0	
	15.0	3	0.05		flow through			0.0		0.15	0	
	18.0	3	0.10		grass			0.04		0.3	0.012	1.00
	21.0	3	0.10					0.31		0.3	0.093	
	24.0	3	0.30					0.11		0.9	0.099	
	27.0	3	0.15					0.09		0.45	0.041	
	29.0	3.5	0.10					0.22		0.35	0.077	
	31.0		0		Rem							
											1.95 cfs	

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. BCD

Site Name: Beal Mnt

Date 7-13-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) _____ Type of Meter Bucket/Time

Width _____ Method _____

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1505

Bottle List 1 500 ML COMMON

1 500 ML CN

1 250 ML Nutrient

1 250 ML TRC metals

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor ____

Flow (describe) _____

Cross Section (describe) _____

Weather _____

Remarks _____

Field Parameters

pH (s.u.) 7.60

Specific Conductivity (µmhos/cm) 1836

Temperature (C°) 14.1

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

13.3 sec 150 ml

12.4

13.3

13 sec / 150 ml

692 ml / 1 min

0.18 gal / min

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft^2)	Discharge (ft^3/sec)

.85

.90

.92

.94

.96

.97

.98

.99

1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. BCD-Barren

Site Name: Beal Mnt Mine

Date 7-13-11 Time _____

Field Crew J. Mauns

Discharge Summary

Total Disch. (cfs) _____ Type of Meter Bucket/Time

Width _____ Method _____

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1445

Bottle List 1 500 ml common Ions

1 500 ml CN

1 250 ml Nutrients

1 250 ml TRC metals

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor ____

Flow (describe) _____

Cross Section (describe) _____

Weather Overcast

Remarks _____

Field Parameters

pH (s.u.) 6.79

Specific Conductivity (µmhos/cm) 394

Temperature (C°) 9.6

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

2.9 5.7 sec = 21 gpm
2.5 7 21.4 gpm
3 6.3 28.57 gpm
2.5 6 25 gpm

24 gpm

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)

.85
.90
.92
.94
.96
.97
.98
.99
1.00

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal Mnt Sample Date 6/2/11 Sample Time: 1315 Well ID: SBB-88-25

Personnel: J. Mans Weather: Overcast snowing windy 20 40°

Casing Diameter/Type: 4" PVC Measuring Point Description: top of casing, north side

Well Depth: 31.37 Depth to Water: 56' Depth to Product:

Screen: Well Condition: good

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:

Dedicated: Y (N)

30.81 ft. water x __ gal./ft * = one casing volume 20.1 gals. x 3 = purge volume 60.4 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]
Start Time: 1258 Purge Rate (mls/pc) 5gal/min Pump Depth: 25'

Comments: 202 HZ

EVACUATION DATA

TTH TTH

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW	gal
1303	7.0		6.2		330			20
1308	7.06		5.5		289			40
1315	7.13		5.8		298			60

Amount Purged: 60 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:

Dedicated: Y (N)

Sample Type: [X] Natural, [X] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[X]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[X]	Tot ~~Dissolved~~ Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes [X] No
[X]	Common Anions	(1) 250 ml poly plastic	None	
[X]	CN			

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	6-1-11
SC	↓	↓
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments: Dup-1 also

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal Mnt Sample Date: 6.7.11 Sample Time: 1146 Well ID: SBB-94-31

Personnel: J. Mams Weather: overcast SNOW 40°

Casing Diameter/Type: Measuring Point Description: top of casing, north side

Well Depth: 148.5' Depth to Water: 63.62' Depth to Product:

Screen: Well Condition:

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:
Dedicated: Y N

84.9' ft. water x __ gal./ft * = one casing volume 55.3 gals. x 3 = purge volume 166.3 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]
Start Time: 11:02 Purge Rate (mls/pc) ~5gpm Pump Depth: 98'

Comments: 283 Hz

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW
1118	7.28		8.1		301		
11:31	7.15		5.9°		256		
11:44	7.21		5.4°		252		

55 gal
105 gal

Amount Purged: 167 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:
Dedicated: Y N

Sample Type: [X] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[ ]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[X]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes [X] No
[ ]	Common Anions	(1) 250 ml poly plastic	None	
[X]	CN			

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	6-1-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal MNT Sample Date 6/2/11 Sample Time: 1020 Well ID: LPPZ-3

Personnel: J. Marks Max Weather: Overcast Snowing 35° SW Wind 20mph

Casing Diameter/Type: 2" PVC Measuring Point Description: top of casing, north side

Well Depth: 29' Depth to Water: 3.2' Depth to Product:

Screen: Well Condition:

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:

Dedicated: Y (N)

25.8 ft. water x __ gal./ft * = one casing volume 4.2 gals. x 3 = purge volume 13 gals.

(* 2" well = 0.163 gal./ft.) 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]

Start Time: 1013 Purge Rate (mls/pc) 4 gal/5 min Pump Depth: 25'

Comments: 75 HZ

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW
1015	7.56		3.3		390		
1018	7.15		2.5		232		
1020	7.05		2.1		226		

6 gal
10 gal
13 gal

Amount Purged: 13 gal.

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:

Dedicated: Y (N)

Sample Type: [X] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[X]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[X]	Total ~~Dissolved~~ Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [X] No
[ ]	Common Anions	(1) 250 ml poly plastic	None	
[X]	CN			

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	6-1-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal Mtn Sample Date 6/16/11 Sample Time: 1635 Well ID: SBB-87-02

Personnel: J. Mauss / C. Richardson Weather: P. Cloudy 55°

Casing Diameter/Type: 4" PVC Measuring Point Description: top of casing, north side

Well Depth: 105.2 Depth to Water: 3.24 Depth to Product:

Screen: Well Condition:

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:

Dedicated: Y (N)

101.96 ft. water x __ gal./ft * = one casing volume 66.6 gals. x 3 = purge volume 200 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]
Start Time: 1555 Purge Rate (mls/pc) 5gpm Pump Depth: 60

Comments: 3.4 A 248 HZ

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW	
1608	7.69		6.2		985			65 gal
1622	7.49		4.9		965			135
1635	7.36		4.8		974			200 gal

Amount Purged: 200 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:

Dedicated: Y N

Sample Type: [ ] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[X]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[X]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[X]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [X] Yes, [ ] No
[X]	Common Anions	(1) 250 ml poly plastic	None	
[ ]				

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	6-15-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [X]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal Mtn Sample Date 6/16/11 Sample Time: 1350 Well ID: WRMW-1

Personnel: J. Mans Weather: P. Cloudy

Casing Diameter/Type: 2" Measuring Point Description: top of casing, north side

Well Depth: 140' Depth to Water: 119.84 Depth to Product:

Screen: ? Well Condition: GOOD

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [X] Other:
Dedicated: Y N

20.16 ft. water x __ gal./ft * = one casing volume 3.3 gals. x 3 = purge volume 9.8 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ] Start Time: 1250 Purge Rate (mls/pc) Pump Depth:

Comments:

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW
1307	6.32		9.5°C		1252		
1325	6.52		10.9		1252		
1345	6.45		10.8°C		1312		

3 gal
6 gal
10 gal

Amount Purged: 10 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [X] QED Low Flow [ ] Other:
Dedicated: Y N

Sample Type: [X] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[X]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[X]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[X]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [X] Yes, [ ] No
[X]	Common Anions	(1) 250 ml poly plastic	None	
[ ]				

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	6-15-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal Mtn Sample Date 6/16/11 Sample Time: 1215 Well ID: SBB-91-29

Personnel: J. Mans C. Richardson Weather: p. Cloudy 50°

Casing Diameter/Type: 4" Measuring Point Description: top of casing, north side

Well Depth: 37.8 Depth to Water: 9.55 Depth to Product:

Screen: Well Condition:

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:

Dedicated: Y (N)

28.25 ft. water x __ gal./ft * = one casing volume 18.45 gals. x 3 = purge volume 55 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]
Start Time: 1151 Purge Rate (mls/pc) 3gpm Pump Depth: 25

Comments: 1gal 25sec 2.8 Amps 470 Hz

Rusty purgewater

1144
1121

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW
1158	6.50		6.1		860		
1205	6.48		5.1		808		
1214	6.47		4.4		786		

18gal
36gal

Amount Purged: gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:

Dedicated: Y (N)

Sample Type: [X] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[X]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[X]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[X]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[X]	~~Dissolved~~ Metals Total	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [X] No
[X]	Common Anions	(1) 250 ml poly plastic	None	
[ ]				

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	6-15-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

9/14/11 J. Maus p. Cloudy Calm 45°

~~0845~~ 0630 Arrive office to load

0845 Arrive onsite

0900 close valve SPR-5

0915 Sample STA-4

1005 Sample MB Drain

1035 Sample BCD-Barren

1105 Sample BCD-pond

Stow siphons for Winter

1220 Sample SPR-18

1300 ~~SPR~~ Sample SPR-~~[illegible]~~ R2

1345 Sample SPR-2

1400 Sample BCD-A

1450 Sample SPR-19

1540 Sample WRMW-1

1700 Sump 1 DTW = 56.66 (sounding tube)

Ducer Reads 19.65

Download ducer

1720 Sample Sump-1 / DTW = 56.66 Sound Tube RO = ON

1800 Sump-3A DTW = ? 30.05?

unable to get reliable DTW - due to cascading water/foam

Ducer Reads 17.39

Download ducer

1810 Sample Sump 3A

Dup-2 also

2030 Arrive office to Load GW pump + generator

9/15/11 J. Maus clear calm 45°

0615 LV HLN

0800 Arrive site to finish SW/GW MON.

begin set up on SBB-87-02

0935 Sample SPR-5

0950 Sample SPR-10A

1005 Sample SBB-87-02

1130 Sample Toe Drain

Reset control Tower + BCiv

Reset SPR-10A and open SPR-5 valve

1445 Sample SBB-94-31

1545 Sample LPPZ-3

1620 Sample SBB-88-25 (Dup-3)

1708 Sample SBB-91-29

2000 finish unloading @ office

1445 Sample BCD - Barren
1505 Sample BCD
1530 LV Site

8/1/11 J. Mauns overcast 65°

0855 Arrive Main Gate to Meet Parsons drilling.

0910 LV to check if Parsons stuck at Lower Smiths gate

0930 Parsons not at Lower gate, gate open Called Parsons - ~~no~~ cell - No answer Left message

950 ~~Arr~~ Arrive back at Main Gate

1020 ~~Sa~~ Parsons no show / no call Leaving site

8/17/11 office Entry by J. Mauns w/data from R. English
DTW Sump-1 = 53.33 Top sound Tube
DTW Sump-3A = 54.63 Top sound tube
RO down for > 24 hrs.

9/12/11 J. Mauns clear Calm 80°

1100 Arrive onsite to begin semi annual site wide Monitoring event

1130 Sample STA-1
1250 Sample BS-D
pH readings seem high for previous 2 stations. Check calibration (Bump test) and meter is calibrated. Previous 2 measurements are valid.
1400 Sample STA-2
1445 Sample STA-3A
Dup-1 here also
1545 Sample SPR-T
1600 Sample SPR-Roadfill
1630 Sample SPR-3
1710 Sample SPR-D4
1750 Sample MINN-DN
1900 Start Siphons on BCD-A
2000 LV Site

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. STA-3A

Site Name: Beal MTN

Date 9-12-11 Time

Field Crew J. Maus

Discharge Summary

Total Disch. (cfs) 1.153 Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Dup-1 collected Here

Sample Time: 1445

Bottle List 1 500 ml COMMON

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) Riffle

Cross Section (describe) cobble sand

Weather clear calm 75°

Remarks

Field Parameters

pH 7.61

S. C. (Conductivity) 353 µs

Temperature (C°) 10.1

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)
	2.0	Rew	0.25					0.0			
	2.2	0.4	0.20					1.10		0.08	0.088
	2.6	0.4	0.20					1.53		0.08	0.122
	3.0	0.4	0.30					2.12		0.12	0.254
	3.4	0.4	0.30					0.05	Rock	0.12	0.006
	3.8	0.4	0.25					2.15		0.1	0.215
	4.2	0.4	0.30					-0.01	Rock	edy 0.12	-0.0012
	4.6	0.4	0.20					2.31		0.08	0.185
	5.0	0.4	0.25					1.03		0.1	0.103
	5.4	0.4	0.30					1.33		0.12	0.16
	5.8	0.4	0.15					0.35		0.06	0.021
	6.2	0.5	0.05					--		0.025	—
	6.5	Lew	0					0			
											1.153

2-6.5
4.5

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. STA - 4

Site Name: Beal MTN

Date 9/14/11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 0.104 Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI EDI Grab X

Sample Time: 0915

Bottle List 1 500ml COMMON

1 500ml CN

1 250ml Nutrients

1 250 ml TRC metals

Site Information

Wading ft. above/below gage

Measurement Rating: Excellent Good Fair X Poor

Flow (describe) Laminar

Cross Section (describe) cobble gravel

Weather P. cloudy calm 45°

Remarks

Field Parameters

pH (s.u.) 7.33

Specific Conductivity (µmhos/cm) 114

Temperature (C°) 6.1

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0	Lead	0					—				
	2.2	.3	0.1					0.88		.03	0.026	.85
	2.4	.2	0.1					1.62		.02	0.032	
	2.6	.2	0.1					1.59		.02	0.032	
	2.8	.3	0.05					0.95		.015	0.014	.90
	3.0	Rear	0					—				.92
											0.104	.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR- Roadfill

Site Name: Beal MTN

Date 9-12-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 0.119 Type of Meter MM

Width _____ Method Wade

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: 1

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1600

Bottle List 1 500 ml COMMON

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) _____

Cross Section (describe) _____

Weather P cloudy 75°

Remarks _____

Field Parameters

pH (s.u.) 6.92

Specific Conductivity (µmhos/cm) 536

Temperature (C°) 8.1

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

2-2.9

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0	Rew	0					—				
	2.2	0.3	0.1					0.76		0.03	0.023	.85
	2.4	0.2	0.15					0.66		0.03	0.02	
	2.6	0.2	0.15					1.60		0.03	0.048	.90
	2.8	0.2	0.15					0.93		0.03	0.028	
	2.9	Lew	0					—				.92
												.94
											0.119	.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. STA-1

Site Name: Beal MtN

Date 9/12/11 Time 1130

Field Crew

Discharge Summary

Total Disch. (cfs) 13.96 Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1130

Bottle List 1 500 ml COMMONS

1 500 ml CN

1 250 ml nutrients

1 250 ml TRC Metals

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) Laminar

Cross Section (describe) gravel/sands ~ 75 lbs of flagging

Weather Clear calm 75°

Remarks

Field Parameters

pH (s.u.) 8.02

Specific Conductivity (µmhos/cm) 173 µS

Temperature (C°) 9.2

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0	Rem	0									
	3.0	2.0	0.1					0.00		0.2	—	.85
	5.0	2.0	0.3					0.64		0.6	0.384	
	7.0	2.0	0.5					1.80		0.1	0.18	.90
	9.0	2.0	0.7					2.15		1.4	3.01	
	11.0	2.0	0.9					2.50		1.8	4.5	.92
	13.0	2.0	0.8					2.09		1.6	3.34	
	15.0	2.0	0.6					1.75		1.2	2.1	.95
	17.0	2.0	0.2					1.06		0.4	0.424	.97
	19.0	2.0	0.1					0.10		0.2	0.02	.99
	21.0	2.0	0.05					0.00		0.1	—	
	22.0	Rem	0									.99
											13.96	
												1.00

2-22
=20

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. BS-D

Site Name: Beal MTN

Date 9-12-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 8.56 Type of Meter MM

Width _____ Method Wade

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1250

Bottle List 1 500 ml common

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) Riffle

Cross Section (describe) cobble

Weather clear calm 80°

Remarks _____

Field Parameters

pH (s.u.) 8.25

Specific Conductivity (µmhos/cm) 176 uS

Temperature (C°) 7.9

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

2-10
8

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0	LEW	0									
	2.4	0.8	0.25					0.96		1.05	1.008	.85
	3.2	0.8	0.4					2.27		0.32	0.726	
	4.0	0.8	0.8					2.63		0.64	1.683	.90
	4.8	0.8	0.55					2.89		0.44	1.272	
	5.6	0.8	0.55					2.63		0.44	1.157	.92
	6.4	0.8	0.70					2.64		0.56	1.478	
	7.2	0.8	0.62					1.75		0.5	0.875	
	8.0	0.8	0.70					0.0	Behind Rock	—		.85
	8.8	0.8	0.45					0.51		0.36	0.184	
	9.6	0.8	0.30					0.73		0.24	0.175	.33
	10.0		0.10					0.31				.99
											8.56	
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. STA-2

Site Name: Beal Mtn

Date 9-12-11 Time

Field Crew J. Maus

Discharge Summary

Total Disch. (cfs) 3.61 Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI ___ EDI ___ Grab X

Sample Time: 1400

Bottle List 1 500 ml COMMON

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ___ ft. above/below gage

Measurement Rating: Excellent ___ Good X Fair ___ Poor ___

Flow (describe) Riffle

Cross Section (describe) cobbles

Weather Clear Calm 75

Remarks

Field Parameters

pH (s.u.) 7.92

Specific Conductivity (µmhos/cm) 218

Temperature (C°) 10.2

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Conservation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0	Low	0									
	2.5	1.0	0.10					0.07		.1	0.007	.85
	3.5	1.0	0.15					0.03		.15	0.0045	
	4.5	1.0	~~0.19~~	Rock				0		—	—	.91
	5.5	1.0	0.30					1.06		.3	0.318	
	6.5	1.0	0.30					1.21		.3	0.363	.92
	7.5	1.0	0.40					2.37		.4	0.948	
	8.5	1.0	0.40					2.12		.4	0.848	
	9.5	1.0	0.45					1.61		.45	0.725	.95
	10.5	1.0	0.30					0.70		.3	0.21	.97
	11.5	1.0	0.10					0.29		.1	0.029	.93
	12.5	1.0	0.20					0.81		.2	0.162	.80
	13.0	Rem	0.0					0.0				
											3.614	1.00

2-13
11

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. BCD-A

Site Name: Beal MTN

Date 9-14-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 0.02 cfs

Width _____

Area _____

Average Velocity _____

Type of Meter _____

Method Bucket Time

Spin Test _____

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1400

Bottle List 1 500 ml Common

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) _____

Cross Section (describe) _____

Weather _____

Remarks _____

Field Parameters

pH (s.u.) 7.00

SC 690 uS

Temperature (C°) ~~7.0~~ 7.5

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

2.25 gal 48 sec = 2.81 gpm

2.75 gal 58 sec 2.84 gpm

2.75 gal 58 sec 2.84

8.49 gpm

0.02 cfs

	Angle Cent	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjustment for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
													.85
													.90
													.92
													.96
													.97
													.92
													.93
													1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. BCD

Site Name: Beal MTN

Date 9-14-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 0.09 gpm 0.0002 cfs

Type of Meter Bucket

Width

Method Bucket/TIME

Area

Spin Test

Average Velocity

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1105

Bottle List 1 500 ml COMMON

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair X Poor ____

Flow (describe) Pipe flow

Cross Section (describe)

Weather

Remarks

Field Parameters

pH (s.u.) 8.21

Specific Conductivity (µmhos/cm) ~~20~~ 1979

Temperature (C°) 17.3

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

300 ml	1 min 26 sec	348.8 ml/min
300 ml	1 min 28 sec	340.9 ml/min
250 ml	43 sec	348.8 ml/min
250 ml	41 sec	365.8 ml/min

351.1 ml/min

= 0.09 gpm

= ~~.007~~ cfs

= 0.0002 cfs

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. BCD - Barrer

Site Name: Beal MTN

Date 9-14-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 0.01 4.44 gpm

Width

Area

Average Velocity

Type of Meter

Method Bucket/Time

Spin Test

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1035

Bottle List 1 500 ml COMMO

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) Pipe flow

Cross Section (describe)

Weather Clear calm 55°

Remarks

Field Parameters

pH (s.u.) 7.22

Specific Conductivity (µmhos/cm) 451 us

Temperature (°C) 9.5

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

2.75 gal in 36 sec = 4.58 gpm
2.5 gal in 35 sec = 4.29 gpm
2.75 gal in 37 sec = 4.46 gpm

4.44 gpm

= 0.01 cfs

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. MINN-DN

Site Name: Beal MTN

Date 9-12-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 2.90 Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: 4

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1750

Bottle List 1 500 ml COMMON

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe) Riffle

Cross Section (describe) Cobble gravel / Rectangular

Weather Clear Calm 70°

Remarks

Field Parameters

pH (s.u.) 8.29

SC 215 ms

Temperature (C°) 8.3

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU)

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	3.0	Lew	0					—			—	
	3.25		0.05					—			—	.25
	3.75	0.5	0.20					1.50		0.1	0.15	
	4.25	0.5	0.15					1.78		0.075	0.134	.91
	4.75	0.5	0.10					1.76		0.05	0.088	
	5.25	0.5	0.25					1.44		0.125	0.18	.92
	5.75	0.5	0.35					0.26		0.175	0.046	.94
	6.25	0.5	0.25					0.91		0.125	0.114	
	6.75	0.5	0.40					0.74		0.2	0.148	.96
	7.25	0.5	0.50					2.58		0.25	0.65	.97
	7.75	0.5	0.50					2.70		0.25	0.675	.99
	8.25	0.5	0.40					1.37		0.2	0.274	.99
	8.75	0.5	0.40					1.25		0.2	0.25	
	9.25	0.375	0.20					1.47		0.075	0.11	
	9.5	0.375	0.15					1.37		0.056	0.077	1.00
	9.75	Raw	0					—				
											2.896	
											2.90	

3-9.7
=6.7

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. MB-Drain

Site Name: Beal MTN

Date 9/14/11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs)

Width

Area

Average Velocity

Type of Meter MM

Method Wade

Spin Test

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1005

Bottle List 1 500 ml common

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor —

Flow (describe)

Cross Section (describe)

Weather

Remarks No flow stagnant water in culvert only

Field Parameters

pH (s.u.) ~~6.99~~ 7.00

S.C. 923 us

Temperature (C°) 8.1

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU)

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Cord	Dist from Initial point (ft)	Width (ft)	Depth (ft)	Open Canal Depth (ft)	Revolutions	Revolutions Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean In Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. Toe Drain

Site Name: Beal MTN

Date 9-15-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 0.044 cfs 20gpm

Width _____

Area _____

Average Velocity _____

Type of Meter _____

Method Bucket time

Spin Test _____

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1130

Bottle List 1 500 ml Common

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor ____

Flow (describe) _____

Cross Section (describe) _____

Weather _____

Remarks _____

Field Parameters

pH (s.u.) 7.48

Specific Conductivity (µmhos/cm) 1390

Temperature (C°) 12.3

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

5 gal 15 sec = 20 gpm
5 g 15 s
5 g 15 s

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-3

Site Name: Beal MTN

Date 9-12-11 Time

Field Crew J. Mans

Discharge Summary

107.72 gpm

Total Disch. (cfs) 0.24 cfs

Type of Meter MM

Width

Method Wade

Area

Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1630

Bottle List 1 500 ml common

1 500 ml CN

1 250 ml TRC metals

1 250 ml nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good X Fair ____ Poor ____

Flow (describe)

Cross Section (describe)

Weather

Remarks

Field Parameters

pH (s.u.) 7.56

SC 171 uS

Temperature (C°) 12.9

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
	2.0	Lew	0					0				
	2.2	0.4	0.05					0.54		0.02	0.011	.90
	2.6	0.4	0.1					1.70		0.04	0.068	
	3.0	0.4	0.15					1.80		0.06	0.108	.92
	3.4	0.4	0.1					1.33		0.04	0.053	
	3.6		0.1					0.66				.95
											0.24 cfs	.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-19

Site Name: Beal MTN

Date 9-14-11 Time _____

Field Crew J. Maus

Discharge Summary

Total Disch. (cfs) 2.4 gpm 0.005 cfs

Type of Meter _____

Width _____

Method Bucket Time

Area _____

Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1450

Bottle List 1 500 ml Common

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent X Good ____ Fair ____ Poor ____

Flow (describe) Pipe flow

Cross Section (describe) _____

Weather _____

Remarks _____

Field Parameters

pH (s.u.) 7.23

Specific Conductivity (µmhos/cm) 720

Temperature (C°) 7.9

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

2 gal 50 sec 2.4 gpm
2 gal 50 sec
2 gal 50 sec

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

SPR 19 @ 1450

2 gal 50 sec
2 50
2 50

PH 7.23
SC 720
T 7.9

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-18

Site Name: Beal MTN

Date 9/14/11 Time

Field Crew J. Mauss

0.00425 cfs

Discharge Summary

Total Disch. (cfs) 1.91 gpm Type of Meter MM

Width Method Wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI EDI Grab X

Sample Time: 1220

Bottle List 1 500 ml COMMON

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ft. above/below gage

Measurement Rating: Excellent Good X Fair X Poor

Flow (describe)

Cross Section (describe)

Weather

Remarks

Field Parameters

pH (s.u.) 7.75

Specific Conductivity (µmhos/cm) 190 µs

Temperature (C°) 10.3

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

0.25 ft W
0.05 ft D
0.34 ft/s

= 0.00425 cfs

= 1.91 gpm

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.95
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-D2

Site Name: Beal MTN

Date 9-14-11 Time

Field Crew J. Mans

4.15 gpm

Discharge Summary

Total Disch. (cfs) .00925 cfs

Type of Meter MM

Width

Method Wade

Area

Spin Test

Average Velocity

Sample Summary

Samples Collected: ✓

Sample Method: EWI ____ EDI ____ Grab ✓

Sample Time: 1300

Bottle List 1 500 ml Common

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good ✓ Fair ✓ Poor ____

Flow (describe)

Cross Section (describe)

Weather

Remarks

Field Parameters

pH (s.u.) 7.08

SC 297 µs

Temperature (C°) 12.1

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

0.25 ft W
0.05 ft D
0.74 ft/s

= 0.00925 cfs
= 4.15 gpm

	Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
													.85
													.80
													.92
													.85
													.95
													.98
													.90
													1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-10A

Site Name: Bear MTN

Date 9-15-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) 1.5 gpm 0.003 cfs

Type of Meter _____

Width _____

Method Bucket Time

Area _____

Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 0950

Bottle List 1 500 ml COMMON

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor ____

Flow (describe) _____

Cross Section (describe) Pipe flow

Weather Clear calm 45°

Remarks _____

Field Parameters

pH (s.u.) 6.93

Specific Conductivity (µmhos/cm) 677

Temperature (C°) 10.1

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

3 gal in 2 min = 1.5 gpm
3 gal in 2 min

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)

.85
.90
.92
.94
.96
.97
.98
.99
1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-T

Site Name: Beal MTN

Date 9-12-11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. ~~(cfs)~~ 0.022 cfs 10.1 gpm Type of Meter MM

Width Method wade

Area Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI EDI Grab X

Sample Time: 1545

Bottle List 1 500 ml CN

1 500 ml COMMON

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading ft. above/below gage

Measurement Rating: Excellent Good Fair X Poor

Flow (describe)

Cross Section (describe)

Weather

Remarks

Field Parameters

pH (s.u.) 7.98

Specific Conductivity (µmhos/cm) 480 µS

Temperature (C°) 10.0

Dissolved Oxygen (mg/l) _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

0.5 W

0.15 D

0.30 ft/sec

= 0.0225 ft^2/sec

=10.1 gpm

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft^2)	Discharge (ft^3/sec)	
												.85
												.90
												.94
												.96
												.97
												.95
	2.0	Lew										.60
	2.2		0.05									
	2.6											
	3.0		0.15					1.15				
	3.4		0.1					1.33				1.00
	3.6		0.1					0.15				

9m 9/12/11

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-D4

Site Name: Beal MTN

Date 9/12/11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. ~~(cfs)~~ 3.5 gpm

Type of Meter MM

Width

Method Wade

Area

Spin Test

Average Velocity

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1710

Bottle List 1 500 ml COMMO

1 500 ml CN

1 250 ml TRC metals

1 250 ml NUTRIENS

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair X Poor X

Flow (describe)

Cross Section (describe)

Weather

Remarks

Field Parameters

pH (s.u.) 6.86

Specific Conductivity (µmhos/cm) 453

Temperature (C°) 6.0

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

0.3 W ft
0.2 D ft
0.13 ft/s
= 0.0078 cFS
= 3.5 gpm

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.95
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-5

Site Name: Beal MTN

Date 9-15-11 Time _____

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) _____ Type of Meter _____

Width _____ Method _____

Area _____ Spin Test _____

Average Velocity _____

Sample Summary

Samples Collected: XY

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 0935

Bottle List 1 500 ml COMMON

1 500 ml CN

1 250 ml TRC Metals

1 250 ml Nutrients

Site Information

Wading _____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor ____

Flow (describe) _____

Cross Section (describe) _____

Weather clear calm 50°

Remarks Insufficient flow to measure
full Pool but leaking through tips in Liner

Field Parameters

pH (s.u.) 7.33

Specific Conductivity (µmhos/cm) 1259

Temperature (C°) 6.4

Dissolved Oxygen (mg/l) _____

ORP _____

Turbidity (NTU) _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH, INC.

Surface Water Discharge Measurement/Sample Notes

Sta. No. SPR-2

Site Name: Beal MTN

Date 9/14/11 Time

Field Crew J. Mans

Discharge Summary

Total Disch. (cfs) NO FLOW

Width

Area

Average Velocity

Type of Meter

Method

Spin Test

Sample Summary

Samples Collected: Y

Sample Method: EWI ____ EDI ____ Grab X

Sample Time: 1345

Bottle List 1 500 ml COMMO

1 500 ml CN

1 250 ml TRC metals

1 250 ml Nutrients

Site Information

Wading ____ ft. above/below gage

Measurement Rating: Excellent ____ Good ____ Fair ____ Poor ____

Flow (describe)

Cross Section (describe)

Weather

Remarks No flow sample and field parameters taken from spring box

Field Parameters

pH (s.u.) 7.00

Specific Conductivity (µmhos/cm) 371 us

Temperature (C°) 8.4

Dissolved Oxygen (mg/l) _____

ORP _____

Gage Information

Staff Gage Reading _____

Inside Gage Reading _____

Intake Flushed _____

Record Removed/Replaced _____

Notes

Angle Coeff	Dist from initial point (ft)	Width (ft)	Depth (ft)	Observation Depth (ft)	Revolutions	Time in Seconds	Velocity (ft/sec) At point	Velocity (ft/sec) Mean in Vertical	Adjusted for horizontal angle	Area (ft²)	Discharge (ft³/sec)	
												.85
												.90
												.92
												.94
												.96
												.97
												.98
												.99
												1.00

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Boal MTN Sample Date 9/15/11 Sample Time: 1620 Well ID: SBB-88-25

Personnel: J. Mans Weather: P cloudy 70°

Casing Diameter/Type: 4" PVC Measuring Point Description: top of casing, north side

Well Depth: 31.37 Depth to Water: 12.76 Depth to Product:

Screen: 8 Well Condition:

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:

Dedicated: Y (N)

18.61 ft. water x __ gal./ft * = one casing volume 12.75 gals. x 3 = purge volume 36 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]
Start Time: 1610 Purge Rate (mls/pc) Pump Depth: 25

Comments: 2 gal 40 sec 158 Hz 2.7 A

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW	
1612	7.00		8.5		273			5 gal
1613	6.95		6.6		254			10 gal
1615	6.96		6.5		254			20 gal

Amount Purged: 35 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:

Dedicated: Y (N)

Sample Type: [X] Natural [X] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[ ]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[ ]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	Common Anions	(1) 250 ml poly plastic	None	
[ ]				

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	9-15-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal MTN Sample Date: 9/15/11 Sample Time: 1545 Well ID: LPPZ-3

Personnel: J. Mans Weather: P cloudy 75°

Casing Diameter/Type: 2" PVC Measuring Point Description: top of casing, north side

Well Depth: 29 Depth to Water: 13.15 Depth to Product: _____

Screen: 9-29 Well Condition: good

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other: _____

Dedicated: Y (N)

15.85 ft. water x __ gal./ft * = one casing volume 2.6 gals. x 3 = purge volume 7.75 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]
Start Time: 1515 Purge Rate (mls/pc) _____ Pump Depth: _____

Comments: 2.4 A 100 HZ 2 gal in 1 min 30 sec

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW	
1518	7.22		11.7		423			3 gal
1522	7.33		9.2		408			5 gal
1545	7.33		8.9		403			8 gal

Amount Purged: 8.0 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other: _____

Dedicated: (N)

Sample Type: [X] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[X]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[X]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[X]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[ ]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [X] No
[X]	Common Anions	(1) 250 ml poly plastic	None	
[ ]	Total metals			

Laboratory: Energy Airbill#: _____ Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	9-15-11
SC	/	/
DO	/	/
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments: _____

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal MTN Sample Date 9/15/11 Sample Time: 1445 Well ID: SBB-94-31

Personnel: ' Weather: P cloudy calm 75°

Casing Diameter/Type: 4" PVC Measuring Point Description: top of casing, north side

Well Depth: 148.5 Depth to Water: 60.84 Depth to Product:

Screen: ? Well Condition: good

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:

Dedicated: Y (N)

87.66 ft. water x __ gal./ft * = one casing volume 57.25 gals. x 3 = purge volume 172 gals.

* 2" well = 0.163 gal./ft. 4" well = (0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ] Start Time: 1400 Purge Rate (mls/pc) Pump Depth: 85'

Comments: 285 HZ 3.8 Amps ≈ 4 gpm

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW	
1415	7.21		8.2		264			60 gal
1430	7.22		6.4		263		61.76	120 gal
1445	7.30		6.6		266			180 gal

Amount Purged: 180 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:

Dedicated: Y (N)

Sample Type: [X] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[ ]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[ ]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [X] No
[ ]	Common Anions	(1) 250 ml poly plastic	None	
[X]	Total metals			

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	9-15-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal MTN Sample Date 9/15/11 Sample Time: 1005 Well ID: SBB-87-02

Personnel: J. Mans Weather: clear calm 45°

Casing Diameter/Type: 4" PVC Measuring Point Description: top of casing, north side

Well Depth: 105.2 Depth to Water: 6.81 Depth to Product:

Screen: ? Well Condition:

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:
Dedicated: Y N

98.39 ft. water x __ gal./ft * = one casing volume 64.2 gals. x 3 = purge volume 192 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C²

QED Low Flow [ ]
Start Time: 0915 Purge Rate (mls/pc) 4.5 gpm Pump Depth: 60'

Comments: 250 HZ 3.4 A

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW
0930	7.08		~~6.8~~ 5.7		987		
0945	7.57		5.6		990		
1005	7.58		5.9		948		

67 gal
135 gal
222 gal

Amount Purged: 222 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:
Dedicated: Y (N)

Sample Type: [X] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[ ]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[X]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[X]	Common Anions	(1) 250 ml poly plastic	None	
[ ]				

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	9-15-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal MTN Sample Date 9/14/11 Sample Time: 1640 Well ID: WRMW-1

Personnel: J. Mans Weather: Clear calm 70°

Casing Diameter/Type: 2" pvc Measuring Point Description: top of casing, north side

Well Depth: 142 Depth to Water: 124.85 Depth to Product:

Screen: Well Condition:

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [X] Other:
Dedicated: Y N

17.15 ft. water x __ gal./ft * = one casing volume 2.8 gals. x 3 = purge volume 8.4 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]
Start Time: Purge Rate (mls/pc) Pump Depth:

Comments:

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW	
1545								
1600	6.39		10.6		1130			3 gal
1623	6.44		9.3		1158			6
1640	6.35		9.7		1186			9

Amount Purged: 9 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [X] QED Low Flow [ ] Other:
Dedicated: Y N

Sample Type: [X] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[ ]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[X]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [X] Yes, [ ] No
[X]	Common Anions	(1) 250 ml poly plastic	None	
[ ]				

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	HANNA	9-14-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal MTN Sample Date: 9/15/11 Sample Time: 1708 Well ID: SBB-91-29

Personnel: J. Mans Weather: P.cloudy 75°

Casing Diameter/Type: 4" PVC Measuring Point Description: top of casing, north side

Well Depth: 37.8 Depth to Water: 11.56 Depth to Product:

Screen: Well Condition:

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:

Dedicated: Y (N)

26.24 ft. water x __ gal./ft * = one casing volume 17.1 gals. x 3 = purge volume 51 gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ] Start Time: 1645 Purge Rate (mls/pc) Pump Depth: 25

Comments: ~~3.0~~ 3.0gpm 161 HZ 2.7A

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW
1651	6.39		9.7		869		
1700	6.40		8.4		860		
1708	6.40		7.8		863		

18 gal
38 gal
52

Amount Purged: 53 gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [X] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:

Dedicated: Y (N)

Sample Type: [X] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[ ]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[ ]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	Common Anions	(1) 250 ml poly plastic	None	
[ ]				

Laboratory: Energy Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Horiba	9-15-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [X]	No [ ]
Liquinox:	Yes [X]	No [ ]	DI Water:	Yes [X]	No [ ]
10% Methanol:	Yes [ ]	No [X]	Steam	Yes [ ]	No [X]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal MTN Sample Date 9/14/11 Sample Time: 1740 Well ID: Sump-1

Personnel: J. Mars Weather:

Casing Diameter/Type: 18" Steel Measuring Point Description: top of casing, north side

Well Depth: Depth to Water: 56.66 (Top Sounding tube) Depth to Product:

Screen: Well Condition:

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [ ] Other:
Dedicated: Y N

ft. water x gal./ft * = one casing volume gals. x 3 = purge volume gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]
Start Time: Purge Rate (mls/pc) Pump Depth:

Comments: Grab Sample RO System Running

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW
	7.62		13.6		3311		

Amount Purged: gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [ ] QED Low Flow [ ] Other:
Dedicated: Y N
Sample Type: [ ] Natural, [ ] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[X]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[ ]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[X]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [X] Yes, [ ] No
[X]	Common Anions	(1) 250 ml poly plastic	None	
[ ]				

Laboratory: Airbill#: Chain-of-Custody: [X] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	9-14-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [ ]	No [ ]	10% Nitric Acid:	Yes [ ]	No [ ]
Liquinox:	Yes [ ]	No [ ]	DI Water:	Yes [ ]	No [ ]
10% Methanol:	Yes [ ]	No [ ]	Steam	Yes [ ]	No [ ]

Comments:

TETRA TECH GROUNDWATER SAMPLING LOG

Project: Beal MTN Sample Date 9/14/11 Sample Time: 1810 Well ID: Sump-3A

Personnel: J. Mans Weather: clear calm 70°

Casing Diameter/Type: 18" steel Measuring Point Description: top of casing, north side

Well Depth: _____ Depth to Water: 30.05? Depth to Product: _____

Screen: _____ Well Condition: _____

WELL EVACUATION

Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [X] Other: _____
Dedicated: Y N

_____ ft. water x __ gal./ft * = one casing volume _____ gals. x 3 = purge volume _____ gals.

* 2" well = 0.163 gal./ft. 4" well = 0.653 gal./ft. 6" well = 1.469 gal./ft. 8" well = 2.611 gal./ft. Well C feet in diameter = 5.875 x C^2

QED Low Flow [ ]
Start Time: _____ Purge Rate (mls/pc) _____ Pump Depth: _____

Comments: Grab sample NO purge RO system running cascading water producing foam unable to get reliable DTW

EVACUATION DATA

Time	pH	DO	Temp.	ORP	SC	Turbidity	DTW
	8.48		14.1		>3999		

Amount Purged: _____ gal

WELL SAMPLING

Sampling Method: Spigot [ ] Hand-Lift Pump [ ] Submersible Pump [ ] SST Bailer [ ] Disp. Polyethylene Bailer [X] QED Low Flow [ ] Other: _____
Dedicated: Y N

Sample Type: [X] Natural, [X] Duplicate, [ ] Field Blank

	Parameter	Sample Container	Preservative	
[ ]	**BTEX (EPA 8021)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	**VPH (MT Method)**	**(3) 40 ml VOA**	**Hydrochloric acid**	
[ ]	EPH	(2) 1-liter amber glass	Hydrochloric acid/$Na_2S_2O_3$	
[ ]	MTBE	Extracted from VPH VOA	Hydrochloric acid	
[ ]	Nitrate	(1) 250 poly plastic	Sulfuric acid	
[ ]	HACH	(1) 1-liter poly plastic	None	
[ ]	Lead	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	PAHs	(2) 1-liter amber glass	None	
[ ]	Sulfate, CO2, Alkalinity	(1) 250 ml poly plastic	None	
[ ]	Total Ferrous Iron	(1) 125 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	VOC	(3) 40 ml VOA	Hydrochloric acid	
[ ]	Common Cations	(1) 250 ml poly plastic	Nitric acid	
[ ]	Dissolved Metals	(1) 250 ml poly plastic	Nitric acid	Filtered: [ ] Yes, [ ] No
[ ]	Common Anions	(1) 250 ml poly plastic	None	
[ ]	_____	_____	_____	

Laboratory: _____ Airbill#: _____ Chain-of-Custody: [ ] Yes, [ ] No

Meter	Serial No.	Calibration Date
pH	Hanna	9-14-11
SC		
DO		
ORP		

Decontamination					
Potable Water:	Yes [X]	No [ ]	10% Nitric Acid:	Yes [ ]	No [ ]
Liquinox:	Yes [ ]	No [ ]	DI Water:	Yes [ ]	No [ ]
10% Methanol:	Yes [ ]	No [ ]	Steam	Yes [ ]	No [ ]

Comments: Dup-2 also