Chang, Richard

From: Lou Miller [redacted]
Sent: Friday, October 02, 2009 6:46 PM
To: Chang, Richard; Cohen, Stephen
Cc: Larry Corte; Brad DeWaard; Harley Shaver
Subject: Split Rock information
Attachments: DOC005.PDF; DOC006.PDF; DOC007.PDF; DOC008.PDF

Richard,

The following e-mail is intended to address questions you asked in regards to our proposed license amendment to change Se groundwater standards to the EPA MCL and to set uranium "trigger" levels at background values.

1. There was a question about whether the mountains to the south of the site are called the Green Mountains or Green Mountain and Crooks Mountain. After a review of published maps of the area the correct terminology is probably Green Mountain and Crooks Mountain.

2. The attached figures show the following:

   - The location of the existing monitoring wells and surface water points (this figure is from the monitoring report)
   - The location of the wells used for background (from the 1999 report)
   - A table indicating the formation (Split Rock or Flood Plain Alluvial aquifer) that each well is completed in.
   - All of the existing monitoring wells are in the Split Rock Formation except for JJ-1R which is in the floodplain alluvial aquifer

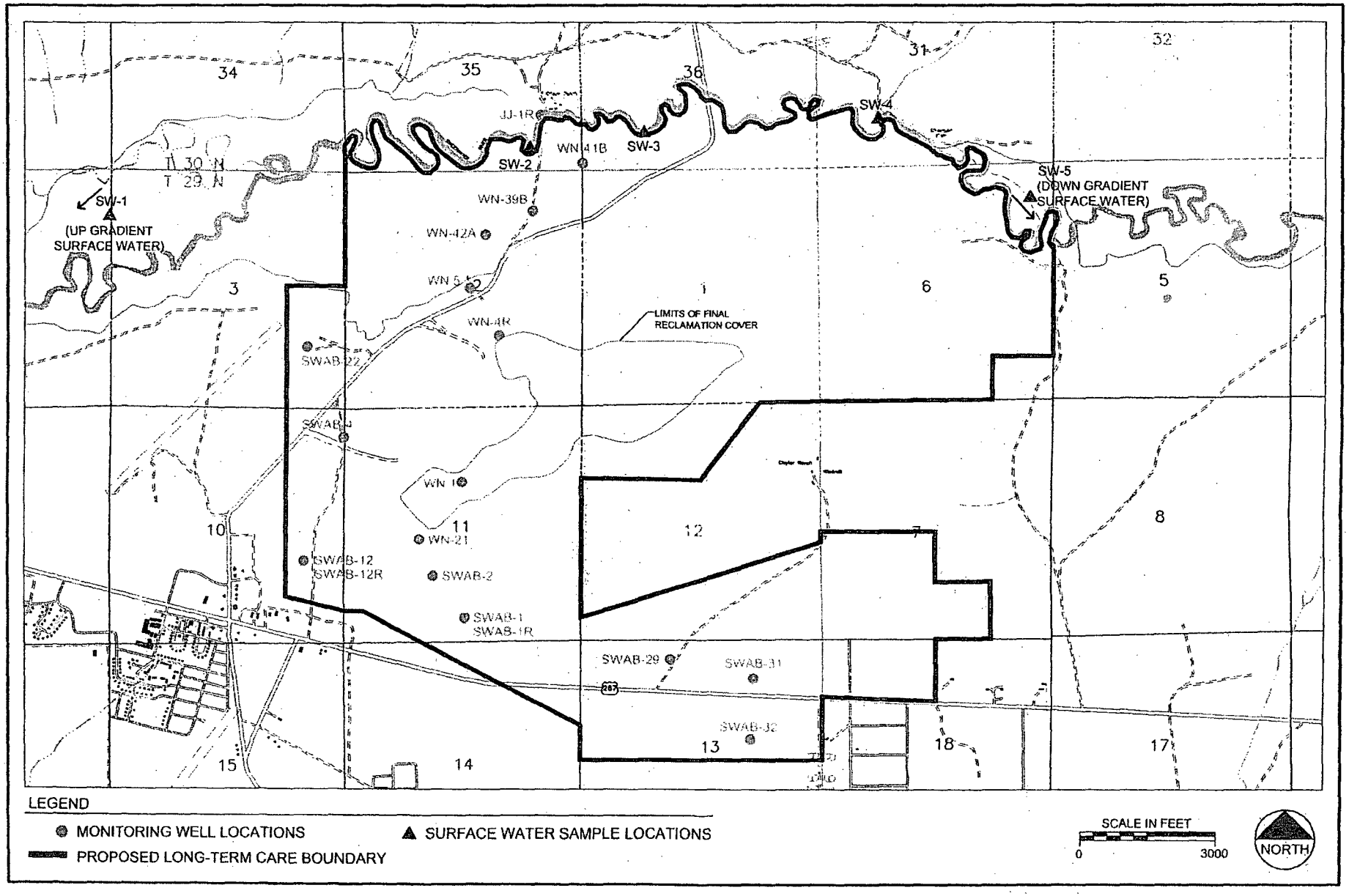
3. You asked about predictions of selenium concentrations in the Sweetwater River. We have predicted the concentrations that might occur at a frequency of once every 10 years by using the 10th percentile flow data from the USGS Sweetwater Station (See attached figure). Flows would be less than the 10th percentile low flow values on average every 10 years and the Wyoming (and EPA standards) indicate that the chronic values should be exceeded only once every 3 years. Using low flow values that represent once every 10 years is therefore conservative.

- The concentration selenium in the Sweetwater was calculated using the 4-day low flow values (Sept 3-6 - 5.15 cfs (2300 gpm)).
- The background concentration in the Sweetwater was measured at less than 0.001 mg/l so it was conservatively assumed that the concentration was 0.001 mg/l.
- The current flow out the NW valley is at the long-term steady state conditions of 100 gpm.
- It is conservatively assumed that the concentration of Se at the mouth of the NW valley is at the proposed ACL of 0.05 mg/l.
- Using simple mixing calculation the Se value in the Sweetwater River during the lowest flow expected once every 10 years is calculated as ((2300 gpm x 0.001 mg/l) + (100 gpm x 0.05 mg/l)) / (2300 gpm + 100 gpm) = 0.003 mg/l
- The chronic Se aquatic standard is 0.005 mg/l.
- Therefore, even under worse case conditions, the aquatic standard will be achieved.

Please let me know if you have any questions or need additional information to assist you in your report.

Thanks

Lou Miller



TETRA TECH

FIGURE 1
SURFACE WATER AND GROUND WATER MONITORING LOCATIONS

Date:	AUGUST 2009
Project:	180888
File:	SW-GW-MON-09-1

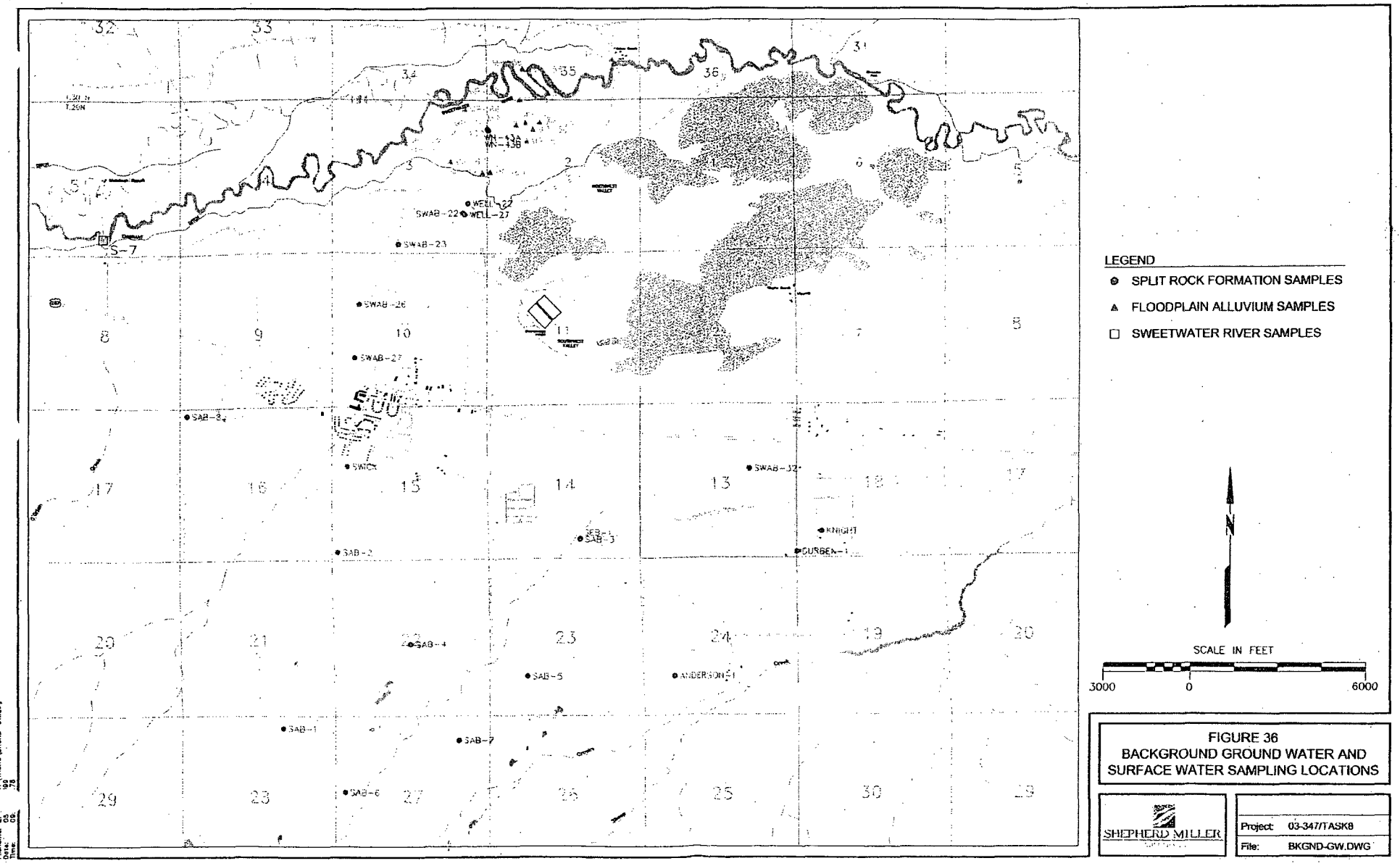


FIGURE 36
BACKGROUND GROUND WATER AND
SURFACE WATER SAMPLING LOCATIONS

SHEPHERD MILLER

Project: 03-347/TASK8
File: BKGND-GW.DWG

Table 11 Background Ground Water Sampling Locations

Split Rock Formation	Floodplain Alluvium
SAB-1	JJ-1R
SAB-2	MP-11
SAB-3	MP-26
SAB-4	MP-26R
SAB-5	MP-27
SAB-6	MP-36
SAB-7	MP-50
SAB-8	MP-51
SEB-1	MP-52
SWAB-22	MP-53
SWAB-23	MP-54
SWAB-26	MP-55
SWAB-27	MP-56
SWAB-32	MP-57
Anderson-1	MP-66
Durben-1	MP-67
Knight	MP-68
Swick	MP-69
Well #22	MP-70
Well #27	WN-43C
WN-43A	
WN-43B	

News New Mapper and Experimental Real-Time Web Service - updated August 2009

USGS Surface-Water Daily Statistics for the Nation

The statistics generated from this site are based on approved daily-mean data and may not match those published by the USGS in official publications. The user is responsible for assessment and use of statistics from this site. For more details on why the statistics may not match, click here.

4 day low flow
Sept 3-6
Avg = 5.15 cfs

USGS 06638090 SWEETWATER RIVER NEAR SWEETWATER STATION, WY

Available data for this site | Time-series: Daily statistics | GO

Fremont County, Wyoming
Hydrologic Unit Code 10180006
Latitude 42°30'17", Longitude 108°14'59" NAD27
Drainage area 849.00 square miles
Gage datum 6,590 feet above sea level NGVD29

Output formats: HTML table of all data | Tab-separated data | Reselect output format

00060, Discharge, cubic feet per second,												
Day of month	10th percentile of daily mean values for each day for 19 - 19 years of record in, cfs (Calculation Period 1973-10-01 -> 1992-09-30)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	7.2	7.8	11	37	103	115	56	15	6.4	14	18	10
2	7.4	7.2	11	41	106	118	48	16	6.1	14	17	9.7
3	7.4	6.0	11	45	110	101	42	17	5.6	15	18	9.7
4	7.6	6.6	11	47	105	96	39	16	5.0	15	18	9.4
5	7.5	7.0	11	52	100	96	41	16	5.1	15	18	9.8
6	7.5	7.6	12	52	100	81	39	16	4.9	15	17	11
7	7.2	8.0	12	48	105	73	35	15	5.9	16	17	11
8	6.6	8.5	13	58	100	87	32	12	7.0	17	17	10
9	5.6	9.2	14	62	94	94	29	11	6.7	17	17	9.8
10	6.0	9.0	15	64	94	81	27	11	6.0	18	12	9.6
11	6.4	9.4	14	62	104	75	27	9.6	6.7	21	11	9.0
12	6.6	9.5	14	68	90	64	25	10	8.0	22	13	9.4
13	6.6	10	14	64	77	56	21	9.0	8.1	20	14	9.6
14	6.6	10	14	73	76	56	20	8.9	9.4	18	14	10
15	6.8	10	15	76	83	55	19	8.0	10	18	13	10
16	7.0	9.2	17	85	83	60	18	9.7	11	19	14	9.8
17	7.2	8.8	19	89	81	69	17	9.2	11	18	13	9.6
18	7.4	8.6	19	103	71	62	16	6.8	12	19	12	9.2
19	7.2	8.7	20	114	69	60	15	6.9	12	18	12	8.6
20	7.2	9.0	24	102	69	58	14	7.4	12	18	12	8.2
21	7.0	9.2	30	96	69	55	14	7.5	11	19	13	8.4
22	7.0	9.2	32	105	93	53	14	7.9	10	19	13	8.2
23	7.0	9.0	33	120	89	50	16	7.3	10	19	14	8.0
24	6.8	9.7	33	113	90	49	20	8.8	10	18	14	7.8
25	6.8	9.9	35	120	85	45	26	8.5	10	19	14	7.6
26	7.0	10	35	118	83	42	24	7.9	11	18	13	7.0
27	7.4	10	34	120	104	42	20	7.3	12	18	12	6.6
28	7.8	11	30	136	113	45	16	7.4	13	19	12	6.4
29	7.8		37	118	109	51	14	7.9	13	18	12	6.6
30	7.6		37	113	124	58	13	7.5	15	17	11	6.8
31	8.0		35		114		14	6.9		16		7.0

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