

## **Appendix E**

### **Water Data Tables – Upton Plant Site**

**Table 1**  
**Cheyenne River Mean Annual Streamflow**

Parameter	USGS Gaging Stations							
	06386500	06395000	06401500	06402600	06403700	06408650	06423500	06438500
	Near Spencer, WY	At Edgemont, SD	Below Angostura Dam, SD	Near Buffalo Gap, SD	At Red Shirt, SD	Near Scenic, SD	Near Wasta, SD	Near Plainview, SD
<b>Latitude</b>	43°25'15.68"	43°18'20"	43°20'42"	43°30'07.12"	43°40'20.7"	43°53'53"	44°04'52"	44°31'46"
<b>Longitude</b>	-104°07'53.13"	-103°49'14"	-103°26'12"	-103°04'26.17"	-102°53'30"	-102°38'37"	-102°24'03"	-101°55'47"
<b>Elevation (ft)</b>	3626.00	3414.56	3058.02	2811.45	2670	2455	2260.78	1848.76
<b>Drainage Area (sq-mi)</b>	5,350	7,204	9,135	9,833	10,300	11,252	12,725	21,425
<b>Mean Annual Flowrate (cfs)</b>	47.7	74.3	69.1	112.0	121.6	209.8	346.8	777.8
<b>Mean Annual Discharge (ac-ft)</b>	34,557	53,827	50,060	81,140	88,094	151,992	251,243	563,485
<b>Period of Record</b>	1949-2013	1947-2013	1951-1978	1969-2013	1999-2013	2008-2013	1964-2013	1951-2013
<i>Source: USGS, 2014</i>								

**Table 2**  
**Annual Peak Streamflow for the Cheyenne River**

<b>USGS Gage 06395000 near Edgemont, SD</b>		
<b>Water Year</b>	<b>Date</b>	<b>Gage Height (feet)</b>
1905	Jul. 30, 1905	10.50
1922	May 1, 1922	14.00
1929	Jun. 03, 1929	9.86
1930	Aug. 18, 1930	7.00
1931	Oct. 04, 1930	6.80
1932	Jun. 18, 1932	7.70
1947	Jun. 22, 1947	6.70
1948	Jun. 18, 1948	7.15
1949	Jun. 07, 1949	5.82
1950	Jun. 19, 1950	6.00
1951	Jul. 03, 1951	7.44
1952	Jun. 28, 1952	9.29
1953	May 31, 1953	5.75
1954	May 22, 1954	5.57
1955	Aug. 08, 1955	8.02
1956	Jun. 19, 1956	6.12
1957	May 25, 1957	9.05
1958	Jul. 20, 1958	7.71
1959	Jun. 24, 1959	5.47
1960	Jun. 10, 1960	5.35
1961	Jul. 09, 1961	5.50
1962	Jun. 17, 1962	11.46
1963	Jun. 07, 1963	5.83
1964	Jun. 12, 1964	5.61
1965	Jun. 17, 1965	9.30
1966	Jul. 16, 1966	6.02
1967	Jun. 24, 1967	6.86
1968	Jun. 10, 1968	6.24
1969	Jul. 20, 1969	8.19
1970	May 17, 1970	3.98
1971	May 25, 1971	10.57
1972	Jun. 17, 1972	
1973	Sep. 10, 1973	7.31
1974	Mar. 06, 1974	3.50
1975	Jun. 29, 1975	4.27

USGS Gage 06395000 near Edgemont, SD		
Water Year	Date	Gage Height (feet)
1976	Jun. 18, 1976	5.27
1977	Jul. 10, 1977	5.82
1978	May 20, 1978	13.65
1979	Aug. 11, 1979	5.95
1980	Aug. 17, 1980	4.64
1981	Jul. 15, 1981	5.04
1982	Jun. 03, 1982	6.72
1983	Jul. 19, 1983	5.14
1984	May 3, 1984	4.94
1985	Mar. 19, 1985	3.01
1986	Jun. 11, 1986	6.43
1987	Mar. 08, 1987	6.24
1988	Aug. 06, 1988	2.53
1989	Sep. 22, 1989	5.16
1990	Jul. 23, 1990	4.19
1991	Jun. 02, 1991	9.60
1992	Jul. 29, 1992	2.58
1993	Aug. 20, 1993	7.56
1994	Mar. 03, 1994	6.25
1995	May 10, 1995	5.87
1996	May 29, 1996	5.68
1997	Feb. 19, 1997	4.87
1998	Jun. 19, 1998	5.46
1999	Jun. 13, 1999	7.60
2000	Apr. 20, 2000	5.64
2001	Jun. 07, 2001	4.88
2002	Aug. 31, 2002	3.10
2003	Mar. 19, 2003	5.83
2004	Feb. 25, 2004	3.86
2005	Jun. 13, 2005	6.88
2006	Aug. 07, 2006	5.14
2007	May 7, 2007	5.38
2008	May 25, 2008	9.60
2009	Jul. 03, 2009	5.84
2010	May 22, 2010	6.36
2011	Mar. 15, 2011	8.00
2012	Mar. 13, 2012	3.25
2013	Jul. 09, 2013	5.26
Source: USGS, 2014		

**Table 3**  
**Drainage Basin Geomorphology for the Upton Plant Site**

<b>Drainage Basin Designation (Subwatersheds)</b>	<b>Drainage Area (mi<sup>2</sup>)</b>	<b>Basin Length (mi)</b>	<b>Valley Length (mi)</b>	<b>Channel Length (mi)</b>	<b>Basin Relief (ft)</b>	<b>Valley Relief (ft)</b>	<b>Channel Relief (ft)</b>	<b>Total Stream Length (mi)</b>	<b>Basin Relief Ratio (ft/ft)</b>	<b>Valley Slope (ft/ft)</b>	<b>Channel Slope (ft/ft)</b>	<b>Channel Sinuosity (ft/ft)</b>	<b>Drainage Density (mi/mi<sup>2</sup>)</b>
Coyote Creek (total basin to project boundary)	4.48	4.68	4.83	5.12	155	150	150	22.71	0.0063	0.0059	0.0055	1.06	5.07
Entry of Coyote Creek into Permit Boundary	3.34	3.45	3.10	3.43	120	115	115	17.99	0.0066	0.0070	0.0063	1.11	5.39
West of Railroad to Junction 4	1.66	3.43	3.05	3.38	118	113	113	10.95	0.0065	0.0070	0.0063	1.11	6.60
East of Railroad to Junction 4	1.38	3.37	3.49	3.77	155	105	105	4.94	0.0087	0.0057	0.0053	1.08	3.58
CC W Branch 1	0.65	1.53	1.54	1.55	250	100	100	3.98	0.0309	0.0123	0.0122	1.01	6.13
CC W Branch 2	0.54	1.61	1.74	1.76	240	130	130	3.51	0.0282	0.0142	0.0140	1.01	6.50
CC W Branch 3	0.47	1.33	1.33	1.36	215	120	120	3.45	0.0306	0.0171	0.0167	1.02	7.35
CC E Branch 1	0.53	2.64	2.65	2.88	140	95	95	2.88	0.0100	0.0068	0.0062	1.09	5.44
CC E Branch 2	0.64	1.26	0.32	0.35	141	8	8	0.84	0.0212	0.0047	0.0044	1.07	1.32
CC E Branch 3	0.21	1.09	0.84	0.89	20	10	10	1.21	0.0035	0.0023	0.0021	1.07	5.77
CC 1	0.30	1.04	0.97	1.12	190	90	90	2.10	0.0346	0.0175	0.0152	1.15	7.01
CC 2	0.03	0.32	0.16	0.17	15	2	2	0.17	0.0089	0.0023	0.0023	1.01	5.55
CC Sub 1	0.35	0.88	1.05	1.06	150	110	110	1.48	0.0323	0.0198	0.0197	1.01	4.23
CC 3	0.06	0.43	0.46	0.50	22	12	12	0.50	0.0097	0.0049	0.0046	1.08	8.26
CC Sub 2	0.12	0.55	0.53	0.63	12	10	10	0.63	0.0041	0.0035	0.0030	1.18	5.24
CC 4	0.05	0.34	0.27	0.28	7	2	2	0.28	0.0039	0.0014	0.0013	1.05	5.62
CC Sub 3	0.22	0.77	0.89	0.93	185	100	100	0.93	0.0455	0.0213	0.0205	1.04	4.21
CC 5	0.31	0.95	0.55	0.74	145	2	2	0.74	0.0289	0.0007	0.0005	1.35	2.39
UBC Sub 1	0.05	0.47	0.25	0.25	105	40	40	0.25	0.0427	0.0307	0.0306	1.00	4.95
UBC Sub 2	0.15	0.46	0.29	0.29	110	30	30	0.29	0.0449	0.0195	0.0194	1.00	1.95

**Table 4**  
**Precipitation Frequency for the Upton Plant Site**

<b>Storm Event</b>	<b>Precipitation (in)</b>	<b>Storm Event</b>	<b>Precipitation (in)</b>	<b>Storm Event</b>	<b>Precipitation (in)</b>
2yr-24hr	1.62	2yr-6hr	1.20	2yr-1hr	0.82
5yr-24hr	2.15	5yr-6hr	1.65	5yr-1hr	1.21
10yr-24hr	2.51	10yr-6hr	1.95	10yr-1hr	1.46
25yr-24hr	3.02	25yr-6hr	2.37	25yr-1hr	1.81
50yr-24hr	3.41	50yr-6hr	2.69	50yr-1hr	2.08
100yr-24hr	3.80	100yr-6hr	3.01	100yr-1hr	2.35

**Table 5**  
**Curve Numbers at the Upton Plant Site by Drainage Subbasin**

<b>Drainage Basin<sup>1</sup></b>	<b>Area (mi<sup>2</sup>)</b>	<b>Weighted Curve Number</b>
CC W Branch 1	0.65	88
CC W Branch 2	0.54	88
CC W Branch 3	0.47	88
CC E Branch 1	0.53	88
CC E Branch 2	0.64	88
CC E Branch 3	0.21	88
CC 1	0.30	88
CC 2	0.03	88
CC Sub 1	0.35	88
CC 3	0.06	88
CC Sub 2	0.12	88
CC 4	0.05	88
CC Sub 3	0.22	88
CC 5	0.31	88
<b>Coyote Creek Subtotal:</b>	<b>4.48</b>	
UBC Sub 1	0.05	88
UBC Sub 2	0.15	88
<b>Beaver Creek Subtotal:</b>	<b>0.20</b>	
<i>NOTE 1: See Figure 3.5-2 for drainage basin nomenclature.</i>		

**Table 6**  
**HEC-HMS 24-Hour Peak Flow and Runoff Volumes for the Upton Plant Site**

Stream Designation/ Hydrologic Element	Precipitation Distribution	Parameter (Units)	Recurrence Interval (Yr)					
			2	5	10	25	50	100
Coyote Creek at Project Boundary (J9)	SCS Type II, 24-Hr General Storm	Peak (cfs)	568.3	998.8	1318.3	1797.1	2178.3	2568.6
		Vol. (ac-ft)	159.5	259.1	331.3	437.7	521.4	606.4
Entry of Coyote Creek into Project Boundary (J5)	SCS Type II, 24-Hr General Storm	Peak (cfs)	502.5	867.9	1136.6	1530.5	1842.1	2151.8
		Vol. (ac-ft)	119.0	193.3	247.1	326.5	389.0	452.4
Confluence of Tributaries East and West of Railroad (J4)	SCS Type II, 24-Hr General Storm	Peak (cfs)	477.2	819.5	1073.4	1436.9	1731.0	2021.7
		Vol. (ac-ft)	108.3	175.9	224.9	297.1	354.0	411.7
NOTE 1: See Addendum 3.5-A for HEC-HMS input parameters and results.								
NOTE 2: See Figure 3.5-2 for HEC-HMS drainage basins.								



**Table 7**  
**HEC-HMS 6-Hour Peak Flow and Runoff Volumes for the Upton Plant Site**

Stream Designation/ Hydrologic Element	Precipitation Distribution	Parameter (Units)	Recurrence Interval (Yr)					
			2	5	10	25	50	100
Coyote Creek at Project Boundary (J9)	SCS Type II, 6-Hr General Storm	Peak (cfs)	278.8	600.3	836.8	1146.7	1383.6	1621.5
		Vol. (ac-ft)	68.1	153.0	216.5	302.6	368.0	435.1
Entry of Coyote Creek into Project Boundary (J5)	SCS Type II, 6-Hr General Storm	Peak (cfs)	241.2	515.9	713.8	971.2	1165.5	1360.7
		Vol. (ac-ft)	50.7	114.1	161.5	225.6	274.4	324.5
Confluence of Tributaries East and West of Railroad (J4)	SCS Type II, 6-Hr General Storm	Peak (cfs)	228.4	487.5	672.5	915.2	1094.1	1277.0
		Vol. (ac-ft)	46.2	103.8	146.9	205.3	249.7	295.3
NOTE 1: See Addendum 3.5-A for HEC-HMS input parameters and results.								
NOTE 2: See Figure 3.5-2 for HEC-HMS drainage basins.								

Table 8  
Surface Water Rights within and 3 Miles Adjacent to the Upton Plant Project Boundary

WR Number	Priority Date	Summary WR Status	Appropriator	Facility Name	Uses	Sec	Qtr-Qtr	Stream Source	Size of Reservoir (AF)	Latitude	Longitude
Township 47 North, Range 65 West											
P1700.0R	01/24/1910		J.H. PERRY	J.H. Perry Reservoir	IRR_SW	01	SENE	West Fork Turner Creek	0	44.0862810	-104.6014530
P9590.0D	01/24/1910		J.H. PERRY	J. H. Perry Ditch	IRR_SW	01	SENE	West Fork Turner Creek	0	44.0865210	-104.6035610
P16477.0D	11/27/1922	Fully Adjudicated	F.L. HUFF	Huff Ditch	IRR_SW; STO	15	NESE	Beaver Creek	0	44.0536300	-104.6412330
CR CR01/007	11/27/1922		F.L. HUFF	Huff Reservoir	IRR_SW; STO	15	NESE	Beaver Creek	224.25	44.0537300	-104.6417500
CR CR02/443	08/30/1940		USDA - NATIONAL FOREST SERVICE	SCS - Beaver Creek Reservoir	STO	04	SWNW	Beaver Creek	69.67	44.0860400	-104.6768500
P20620.0D	02/12/1951	Unadjudicated	JOHN MATERl	Materi No. 1 Pipeline	IRR_SW	05	NENW	Beaver Creek	0	44.0896440	-104.6919050
P500.0S	11/12/1953	Complete	RAYMOND NORRIS	NORRIS NO. 1 STOCK RESERVOIR	STO	07	SESE	Thompson Draw	1.77	44.0638920	-104.7032060
P1216.0S	08/30/1955	Complete	JAMES NORRIS	BOXELDER STOCK RESERVOIR	STO	07	NWNE	Boxelder Draw	1.29	44.0751080	-104.7070330
P1215.0S	08/30/1955	Complete	FRED J & EDITH NORRIS TRUST	SKINNER STOCK RESERVOIR	STO	17	SESW	Skinner Draw	0.34	44.0498140	-104.6920720
P2079.0S	09/11/1957	Complete	RANKIN RANCH, LLC	LONE TREE STOCK RESERVOIR	STO	15	SWSE	East Lone Tree Creek	4.69	44.0503610	-104.6454440
P2637.0S	01/27/1959	Complete	JAMES NORRIS ESTATE	NORRIS STOCK RESERVOIR	STO	08	SWNW	Norris Draw	3.7	44.0718940	-104.6958640
P2646.0S	01/27/1959	Complete	CHARLES RANKIN	STATE STOCK RESERVOIR	STO	16	NWSW	Box Elder Draw	4.8	44.0535030	-104.6766310
P2648.0S	02/02/1959	Complete	CHARLES R. & DEE L. RANKIN	RANKIN PIT STOCK RESERVOIR	STO	09	SWSW	Road Draw	1.11	44.0645640	-104.6760690
P3713.0S	03/31/1961	Complete	CHARLES RANKIN	BEAVER CREEK STOCK RESERVOIR	STO	14	SWSW	Beaver Creek	1.11	44.0518560	-104.6386470
P4114.0S	02/19/1962	Complete	FRED AND EDNA NORRIS	FRED STOCK RESERVOIR	STO	06	SESW	Fred Draw	2.8	44.0793140	-104.7097610
P4113.0S	02/19/1962	Complete	FRED AND EDNA NORRIS	EDITH STOCK RESERVOIR	STO	07	SESW	Lone Tree Creek	13.02	44.0642170	-104.7121250
P4543.0S	05/07/1962	Complete	MATERI BROTHERS	MATERI STOCK RESERVOIR	STO	06	SENW	Materi Draw	1.94	44.0869140	-104.7100220
CR CR04/186	08/08/1962		USDA - NATIONAL FOREST SERVICE	Brown Community #497-4 Stock Reservoir	STO	04	SWSW	Gumbo Draw	1.7	44.0788200	-104.6769000
CR CR03/191	08/08/1962		USDA - NATIONAL FOREST SERVICE	Brown Community #497-3 Stock Reservoir	STO	05	SESW	East Lone Tree Creek	4.7	44.0787800	-104.6919500
CR CR03/192	08/08/1962		USDA - NATIONAL FOREST SERVICE	Brown Community #497-5 Stock Reservoir	STO	08	SENE	East Lone Tree Creek	4.88	44.0715800	-104.6819500
CR CR03/161	08/08/1962		USDA - NATIONAL FOREST SERVICE	Brown Community #497-1 Stock Reservoir	STO	09	SENE	Beaver Creek	3.3	44.0716800	-104.6618600
CR CR03/160	08/08/1962		USDA - NATIONAL FOREST SERVICE	Rankin #388-2 Stock Reservoir	STO	10	SESW	Beaver Creek	0.8	44.0645100	-104.6518100
CR CR03/162	08/08/1962		USDA - NATIONAL FOREST SERVICE	Rankin #388-1 Stock Reservoir	STO	10	NWSW	Beaver Creek	0.8	44.0681000	-104.6568400
CR CR03/189	08/08/1962		USDA - NATIONAL FOREST SERVICE	W. Foltz #497-6 Stock Reservoir	STO	11	SESE	Windy Draw	0.42	44.0646200	-104.6216200
CR CR03/190	03/18/1963		USDA - NATIONAL FOREST SERVICE	Rankin #9-388-3 Stock Reservoir	STO	10	SENE	Rankin Draw	1.35	44.0717600	-104.6417300

WR Number	Priority Date	Summary WR Status	Appropriator	Facility Name	Uses	Sec	Qtr-Qtr	Stream Source	Size of Reservoir (AF)	Latitude	Longitude
P5361.0S	08/26/1963	Complete	DON AND BRUCE GOSE	MCCONNAHEY STOCK RESERVOIR	STO	17	SENE	Box Elder Draw	4.8	44.0577470	-104.6819610
CR CR04/182	09/30/1965		USDA - NATIONAL FOREST SERVICE	Foltz #F.S.9-497-8 Stock Reservoir	STO	11	SENW	Coyote Creek	4.05	44.0717900	-104.6316700
CR CR04/183	03/20/1967		USDA - NATIONAL FOREST SERVICE	Brown #F.S.9-497-9 Stock Reservoir	STO	04	SENE	Puppy Draw	1.05	44.0861300	-104.6617900
CR CR06/300	04/29/1969		USDA - NATIONAL FOREST SERVICE	Martens No. F.S.9-369-4 Stock Reservoir	STO	15	NWNW	Nora Draw	1.01	44.0608800	-104.6568600
CR CR06/301	04/07/1971		USDA - NATIONAL FOREST SERVICE	Brown #F.S. 9-497-11 Stock Reservoir	STO	08	NWSE	Dinky Draw	1.46	44.0679400	-104.6869800
CR CR06/302	05/24/1971	Fully Adjudicated	USDA - NATIONAL FOREST SERVICE	Brown #F.S. 9-497-13 Stock Reservoir	STO	08	NESE	Kahler Draw	0.84	44.0693530	-104.6818750
CR CR09/319	04/26/1973		USDA - NATIONAL FOREST SERVICE	Brown #F.S. 9-497-12 Stock Reservoir	STO	08	NWNW	Ripple Draw	0.97	44.0751400	-104.6969800
CR CC75/038	09/26/1974		USDA - NATIONAL FOREST SERVICE	Coyote Creek Diversion Pipe Arch Canal	FIS; RES	11	NWNW	Coyote Creek	0	44.0753800	-104.6367000
CR CR09/317	09/26/1974		USDA - NATIONAL FOREST SERVICE	Upton Outdoor Lab Site No. 4 Reservoir	FIS	11	NENW	Coyote Creek	111.72	44.0754000	-104.6316700
P8972.0S	11/30/1981	Complete		WILMOT STOCK RESERVOIR	STO	12	SENW	Wilmot Draw	18.5	44.0720610	-104.6103420
CR CR11/279	11/13/1985		TOWN OF UPTON	Upton Wastewater Treatment Reservoir	IND_SW	02	NESE	Iron Creek	61.93	44.0826400	-104.6215900
CR CR11/272	01/14/1986		USDA - NATIONAL FOREST SERVICE	Brown #9-497-14 Stock Reservoir	STO	03	SWSW	Tucker Draw	1.19	44.0789200	-104.6568100
CR CR11/258	01/14/1986		USDI BLM	Brown #9-497-10 Stock Reservoir	STO	05	SWNW	Dipper Draw	1.29	44.0860200	-104.6969400
CR CR11/273	09/03/1986		USDA - NATIONAL FOREST SERVICE	Foltz #9-497-15 Stock Reservoir	STO	14	NWNW	Brooks Draw	2.36	44.0609600	-104.6367000
P10273.0S	08/31/1987	Complete		SITE 64-1 STOCK RESERVOIR	STO	13	SWNE	D64-2 Draw	17.8	44.0579360	-104.6068470
P10274.0S	08/31/1987	Complete		SITE 64-2 STOCK RESERVOIR	STO	13	NESE	D64-6 Draw	4	44.0539250	-104.6014420
P10275.0S	08/31/1987	Complete		SITE 64-3 STOCK RESERVOIR	STO	13	NWNE	D64-1 Draw	7.3	44.0610890	-104.6064920
P10276.0S	08/31/1987	Complete		SITE 64-8 STOCK RESERVOIR	STO	13	NESE	D64-12 Draw	5.9	44.0539250	-104.6014420
P11877.0R	11/13/2001	Unadjudicated		Lake Owyhee Reservoir	STO; WIL; COMBBU	02	SESE	Iron Creek	0		
P11878.0R	11/13/2001	Unadjudicated		Turk Pond Reservoir	STO; WIL; COMBBU	12	NESW	Iron Creek	0	44.0691670	-104.6120280
Township 47 North, Range 66 West											
P5593.0S	05/23/1963	Complete	MATERI BROTHERS	DEAN STOCK RESERVOIR	STO	13	SENW	North Fork Little Soda Creek	3.95	44.0568890	-104.7321310
P6219.0S	07/22/1968	Complete	KEITH E AND DORMIE G MATERI	WAGON #2 STOCK RESERVOIR	STO	02	SWNE	Lone Tree Creek	4.12	44.0858560	-104.7462140
Township 48 North, Range 65 West											
CR CC18/005	01/11/1904		CLARA M. MCKENZIE	Lone Tree Ditch	IRR_SW	32	NENW	Lone Tree Creek	0	44.1042900	-104.6918000
CR CC29/399	09/15/1906		CLARA M. MCKENZIE	Lone Tree Reservoir	IRR_SW	32	NENW	Lone Tree Creek	49	44.1042900	-104.6918000

WR Number	Priority Date	Summary WR Status	Appropriator	Facility Name	Uses	Sec	Qtr-Qtr	Stream Source	Size of Reservoir (AF)	Latitude	Longitude
P1909.0E	03/17/1908	Fully Adjudicated	JOHN C. MINTER	Lone Tree Ditch {Enl. of}	IRR_SW	32	NENW	Lone Tree Creek	0	44.1048780	-104.6906000
CR CC34/120	09/30/1908		THOMAS P. WILSON	Wilson Ditch	IRR_SW	15	NWSE	Dry Draw	0	44.1416500	-104.6458100
CR CC34/121	10/06/1908		THOMAS P. WILSON	Wilson Reservoir	IRR_SW	15	NWSE	Dry Draw	11.5	44.1416500	-104.6458100
P1569.0R	06/25/1909	Unadjudicated	JOHN E. BLAKELY	Brainerd Reservoir	IRR_SW	33	SENE	Coyote Creek	0	44.1010010	-104.6598890
P9159.0D	06/25/1909		JOHN E. BLAKELY	Brainerd Ditch	IRR_SW	33	SENE	Coyote Creek	0	44.1006330	-104.6608430
P9589.0D	01/08/1910		JOHN E. BLAKELY	Brainierd Ditch	IRR_SW	33	SENE	Coyote Creek	0	44.1020490	-104.6605980
P20621.0D	02/12/1951	Unadjudicated	JOHN MATERI	Materi No. 2 Pipeline	IRR_SW	32	SWNE	Beaver Creek	0	44.1006400	-104.6867910
P5806.0R	02/12/1951	Unadjudicated	JOHN MATERI	Materi No. 1 Reservoir	IRR_SW; STO; COMBBU	32	SESW	Beaver Creek	42.88	44.0928290	-104.6895930
P5807.0R	02/12/1951	Unadjudicated	JOHN MATERI	Materi No. 2 Reservoir	IRR_SW; STO; COMBBU	32	SWNE	Beaver Creek	69.25	44.1006400	-104.6867910
P460.0S	10/28/1953	Complete	DONALD AND JUDY BARTELS	COYOTE DRAW STOCK RESERVOIR	STO	33	NENW	Coyote Draw	17.11	44.1045580	-104.6726390
P618.0S	12/21/1953	Complete	DUANE K AND VELVA G ENGEL	HOPPER FLAT STOCK RESERVOIR	STO	25	SENW	Pine Creek	12.14	44.1175250	-104.6129920
P914.0S	09/24/1954	Complete	CHARLES HAGERMAN	PINE RIDGE STOCK RESERVOIR	STO	24	SESW	Pine Creek	4.77	44.1233890	-104.6108190
P2207.0S	01/29/1958	Complete	NORMALEE MATERI	STEVENS STOCK RESERVOIR	STO	29	SWSW	Stevens Creek	0.71	44.1079330	-104.6968080
P6513.0R	06/18/1959	Unadjudicated		Bowl Reservoir	STO	32	NESW	Beaver Creek	65.2	44.0977510	-104.6935120
CR CR03/184	08/08/1962		USDA - NATIONAL FOREST SERVICE	Barton Govt. #166 Stock Reservoir	STO	17	SWSE	Iron Creek	8.5	44.1373700	-104.6864500
P3845.0S	08/08/1962	Complete	USDA - NATIONAL FOREST SERVICE	BARTON GOVT. #166 STOCK RESERVOIR	STO	17	SWSE	Iron Creek	8.5	44.1389170	-104.6851750
CR CR10/028	06/27/1963		BARTONS LAND & LIVESTOCK	Wooley No. 2 Reservoir	STO	29	NWSW	Lone Tree Creek	24.7	44.1115900	-104.6967800
P5112.0S	02/18/1965	Complete	ALBERT NEIMAN	NORTH WEST PASTURE STOCK RESERVOIR	STO	30	NWSE	North West Pasture	0.66	44.1115170	-104.7068940
P5113.0S	02/18/1965	Complete	NORMALEE MATERI	SOUTH WEST PASTURE STOCK RESERVOIR	STO	30	SWSE	Beaver Creek	2.44	44.1070190	-104.7071750
CR CR04/184	03/20/1967		USDA - NATIONAL FOREST SERVICE	Barton #F.S.9-307-2 Stock Reservoir	STO	15	NWNE	Henderson Draw	1.01	44.1489400	-104.6458000
CR CR06/296	02/02/1971		USDA - NATIONAL FOREST SERVICE	Barton #F.S. 9-307-4 Stock Reservoir	STO	14	SENW	Anderson Draw	5.92	44.1455800	-104.6305100
CR CR06/297	09/20/1971		USDA - NATIONAL FOREST SERVICE	Barton #F.S. 9-307-4A Stock Reservoir	STO	14	SENW	Anderson Draw	3.57	44.1455800	-104.6305100
P8009.0S	09/18/1975	Complete	DELMER ELLIS	INDIAN SPRINGS STOCK RESERVOIR	STO	15	SESW	Indian Springs Draw	0.53	44.1377030	-104.6521640
P9608.0S	07/10/1984	Complete		MATERI #9-370-2 STOCK RESERVOIR	STO	31	NESW	Goldfinch Draw	7.98	44.0960000	-104.7110390
CR CR11/271	02/09/1987		USDA - NATIONAL FOREST SERVICE	Barton #9-307-7 Stock Reservoir	STO	20	SWNW	Hyde Draw	4.32	44.1299100	-104.6966500
CR CR11/278	02/09/1987		USDA - NATIONAL FOREST SERVICE	Materi #9-370-5 Stock Reservoir	STO	32	NWNE	Kurt Draw	1.05	44.1043100	-104.6867600

WR Number	Priority Date	Summary WR Status	Appropriator	Facility Name	Uses	Sec	Qtr-Qtr	Stream Source	Size of Reservoir (AF)	Latitude	Longitude
P10263.0S	09/21/1987	Complete		SITE 30-9 STOCK RESERVOIR	STO	24	SWSE	Rug Draw	7.02	44.1232970	-104.6059030
P10299.0S	01/04/1988	Complete		#22-2 STOCK RESERVOIR	STO	16	NESW	Puff Draw	4.3	44.1412390	-104.6711970
P10300.0S	01/04/1988	Complete		#22-3 STOCK RESERVOIR	STO	16	SENW	Dragon Draw (drainage of)	3.2	44.1449080	-104.6711610
P10301.0S	01/04/1988	Complete		#22-7 STOCK RESERVOIR	STO	16	NWSE	Dragon Draw (drainage of)	12.4	44.1413080	-104.6661280
P10302.0S	01/04/1988	Complete		#22-15 STOCK RESERVOIR	STO	16	NESW	Puff Draw	3.7	44.1412390	-104.6711970
P10303.0S	01/04/1988	Complete		#22-24 STOCK RESERVOIR	STO	16	SENW	Spot Draw	3.8	44.1449080	-104.6711610
P10390.0S	05/18/1988	Complete		SR NO. 23-1 STOCK RESERVOIR	STO	11	SESE	Anderson Draw	3.55	44.1545170	-104.6199390
P10425.0S	07/15/1988	Complete		SR NO. 26-6 STOCK RESERVOIR	STO	21	NWNE	D26-3 Draw	2.81	44.1339670	-104.6661970
P10426.0S	07/15/1988	Complete		SR NO 26-1 STOCK RESERVOIR	STO	21	NENW	D-26-1 Draw	3.31	44.1338940	-104.6712720
P10427.0S	07/15/1988	Complete		SR NO. 29-5 STOCK RESERVOIR	STO	21	NWSW	D29-6 Draw	2.9	44.1264720	-104.6757860
CR CR13/165	01/16/1989		BARTONS LAND & LIVESTOCK	SR No. 22-14A Reservoir	REC; STO	09	SWSW	D22-1 Draw	177.12	44.1521900	-104.6761500
CR CR13/166	01/16/1989		BARTONS LAND & LIVESTOCK	SR No. 22-14B Reservoir	REC; STO	09	SESW	D22-1 Draw	33.77	44.1522500	-104.6711000
P11582.0S	04/20/1992	Complete		HUCKINS STOCK RESERVOIR	STO	28	SWNE	Huckins Draw	18.7	44.1159560	-104.6657390
P13140.0S	09/04/1998	Complete	ROBERT GOSE	BOW TIE STOCK RESERVOIR	STO	36	NENE	Gose Draw	9.69	44.1059060	-104.6006580
Township 48 North, Range 66 West											
P2464.0R	02/24/1913		H.P. KINNAMAN	H.P. Kinnaman Reservoir	IRR_SW	23	NWNE	Draw	0	44.1324200	-104.7477590
P11721.0D	02/24/1913		H.P. KINNAMAN	Kinnaman Ditch	IRR_SW	23	NWNE	Draw	0	44.1347790	-104.7451910
P2193.0S	01/20/1958	Complete	VIRGINIA JESPERSON	WOOLEY STOCK RESERVOIR	STO	23	NESE	Needle Creek	2.08	44.1259470	-104.7415500
P2294.0S	05/20/1958	Complete	CHARLES BELTCH	MCCRADY STOCK RESERVOIR	STO	25	SENW	McCrary Draw	3.26	44.1147920	-104.7296560
P3119.0S	03/08/1960	Complete	GENE CRANSTON	CRANSTON STOCK RESERVOIR	STO	35	SENE	East Lone Tree Creek	0.91	44.1005110	-104.7417420
P3811.0S	03/18/1963	Complete	VERNE BARTON	WOOLEY #1 STOCK RESERVOIR	STO	13	SWNW	Muhly Creek	14.2	44.1431640	-104.7358220
CR CR04/335	03/20/1967		USDA - NATIONAL FOREST SERVICE	Mirich #F.S.9-372-2 Stock Reservoir	STO	12	SWSW	Patrick Draw	1.34	44.1514700	-104.7369500
CR CR06/387	02/09/1968		USDA - NATIONAL FOREST SERVICE	Mirich #F.S.9-372-3 Stock Reservoir	STO	13	SENW	Hill Draw	0.66	44.1441800	-104.7319100
CR CR10/114	01/20/1971		BARTONS LAND & LIVESTOCK	Jim Stock Reservoir	STO	25	SWSE	McCrary Draw	1.71	44.1077800	-104.7267700
CR CR10/142	01/20/1971		BARTONS LAND & LIVESTOCK	Upper Muhly Stock Reservoir	STO	24	SENW	Upper Muhly Creek	2.08	44.1296200	-104.7318500
CR CR06/386	02/02/1971		USDA - NATIONAL FOREST SERVICE	Mirich #F.S. 9-372-5 Stock Reservoir	STO	13	NENE	Railroad Draw	3.88	44.1478000	-104.7219100
Source: WYSEO, 2013											

**Table 9**  
**Surface Water Gaging Stations at the Upton Plant Site**

<b>Surface Water Gaging Station</b>	<b>Gage Type</b>	<b>Monitored Feature</b>	<b>Township</b>	<b>Range</b>	<b>Section</b>	<b>Qtr-Qtr</b>	<b>Latitude (°N)</b>	<b>Longitude (°W)</b>
UCC-01	Grab	Coyote Creek	48N	65W	28	SW-SE	44°06' 37.76"	104° 39' 58.56"
UCC-02	Grab	Coyote Creek	48N	65W	28	SW-SE	44° 06' 38.09"	104° 39' 58.07"
UCC-03	Grab	Coyote Creek	48N	65W	33	SE-SE	44° 05' 39.09"	104° 39' 35.15"
USP-01	Grab	USP-01	48N	65W	33	NE-NW	44° 06' 20.34"	104° 40' 24.52"
USP-02	Grab	USP-02	48N	65W	28	SW-SE	44° 06' 35.83"	104° 39' 50.39"
USP-03	Grab	USP-03	48N	65W	28	SE-SE	44° 06' 37.11"	104° 39' 45.39"

Table 10  
Upton Plant Site Surface Water Monitoring Results

Site ID		UCC-01			UCC-02			UCC-03			USP-01			USP-02			USP-03		
Parameters	Units	n	Mean	Range	n	Mean	Range	n	Mean	Range	n	Mean	Range	n	Mean	Range	n	Mean	Range
In Situ Parameters																			
Conductivity	µS/cm	5	651	292 - 1240	1	1210	1210	3	912	708 - 1109	3	1166	4.76 - 1894	3	865	115.1 - 1320	3	978	160.9 - 1833
Flow Velocity	s.u.	2	0.65	0.5 - 0.8	0	NM	NM	2	0.65	0.4 - 0.9	0	NM	NM	0	NM	NM	0	NM	NM
pH	ppm	5	7.3	6.7 - 8.4	2	7.95	7.8 - 8.18	3	6.71	6.48 - 8	3	8.4	8.1 - 8.85	3	8.35	7.9 - 9.9	3	8.37	8.2 - 8.6
Temperature	°C	5	15.6	0 - 32.7	2	8.1	2.8 - 13.3	2	13.7	12.7 - 14.7	3	17.9	11.1 - 22.8	3	20.5	11 - 27.2	3	18.8	9.9 - 24.6
Total Dissolved Solids	mg/L	1	245	245	0	NM	NM	1	462	462	0	NM	NM	0	NM	NM	0	NM	NM
General																			
Alkalinity (Total as CaCO3)	mg/L	7	62	44 - 80	5	58	44 - 87	4	63	37 - 76	5	113	58 - 161	5	254	175 - 346	5	243	163 - 362
Ammonia (Total)	mg/L	7	0.11	<0.05 - 0.36	5	0.18	<0.05 - 0.45	4	0.07	<0.05 - 0.12	5	0.06	<0.05 - 0.12	5	0.23	<0.05 - 0.64	5	0.07	<0.05 - 0.16
Bicarbonate Alkalinity	mg/L	7	75	54 - 98	5	71	53 - 107	4	77	45 - 93	5	131	70 - 190	5	256	146 - 394	5	287	198 - 414
Carbonate Alkalinity	mg/L	7	5	<5	5	5	<5	4	5	<5	5	7	<5 - 15	5	27.6	<5 - 99	5	7.8	<5 - 14
Cyanide (Total)	mg/L	7	0.005	<0.005	5	0.005	<0.005	4	0.005	<0.005	5	0.005	<0.005	5	0.005	<0.005	5	0.005	<0.005
Hardness as CaCO3 (Dissolved)	mg/L	7	110	30 - 210	5	110	30 - 210	4	119	35 - 180	5	856	340 - 2400	5	113	85 - 130	5	71	50 - 90
Laboratory Conductivity	µS/cm	7	662	272 - 1230	5	642	226 - 1210	4	707	202 - 1080	5	2302	1010 - 5590	5	1280	1160 - 1530	5	1319	886 - 1840
Laboratoy pH	s.u.	7	7.33	6.96 - 7.89	5	7.41	7.13 - 7.96	4	7.33	7.17 - 7.91	5	7.69	7.27 - 8.77	5	8.24	7.75 - 9.89	5	8.21	7.94 - 8.5
Nitrate (as N)	mg/L	7	0.79	<0.1 - 3.5	5	0.84	<0.1 - 2.3	4	0.25	<0.1 - 0.7	5	0.1	<0.1	5	0.1	<0.1	5	0.1	<0.1 - 0.1
Nitrate+Nitrite (Dissolved)	mg/L	7	0.83	<0.1 - 3.6	5	0.86	<0.1 - 2.3	4	0.25	<0.1 - 0.7	5	0.1	<0.1	5	0.1	<0.1 - 0.1	5	0.12	<0.1 - 0.2
Nitrite (as N)	mg/L	7	0.1	<0.1 - 0.1	5	0.1	<0.1 - 0.1	4	0.1	<0.1	5	0.1	<0.1	5	0.1	<0.1	5	0.1	<0.1
Oil & Grease	mg/L	7	5.1	<5 - 6	5	5	<5	4	5	<5	5	5	<5	5	5	<5	5	5.2	<5 - 6
Sodium Adsorption Ratio	unitless	7	4.0	3.5 - 5.2	5	4	2.7 - 5.1	4	4	2.1 - 5	5	3.5	1.9 - 5.9	5	10.2	8.6 - 12.7	5	13.4	10.1 - 17
Sulfide (Dissolved)	mg/L	7	0.2	<0.04 - 0.9	5	0.3	0.04 - 1	4	0.3	<0.04 - 0.7	5	0.04	<0.04	5	0.096	0.06 - 0.09	5	0.4	0.1 - 0.8
Total Dissolved Solids	mg/L	7	790	482 - 1250	5	849	462 - 1790	4	840	629 - 1330	5	1962	732 - 5410	5	890	807 - 1110	5	1784	832 - 2850
Total Suspended Solids	mg/L	7	49	<7 - 120	5	169	6 - 470	4	58	19 - 170	5	27	<5 - 96	5	23	7 - 37	5	29	<5 - 62
Organics																			
Coliform (Fecal)	CFU/100mL	7	22	<2 - 100	5	22	<2 - 27	4	11	<2 - <20	5	595	<5 - 2800	5	16	<0 - 33	5	166	<0 - 560
Major Ions																			
Bromide (Dissolved)	mg/L	7	0.1	<0.1	5	0.1	<0.1	4	0.1	<0.1	5	0.1	<0.1	5	0.1	<0.1	5	0.1	<0.1
Calcium (Dissolved)	mg/L	7	26	7 - 49	5	24.6	6 - 46	4	26.5	8 - 39	5	154	62 - 437	5	22.2	14 - 27	5	16	12 - 21
Chloride (Dissolved)	mg/L	7	5.9	3 - 8	5	5.4	4 - 8	4	5.5	4 - 7	5	16.6	4 - 46	5	19.6	18 - 22	5	15.6	8 - 21
Fluoride (Dissolved)	mg/L	7	0.37	0.3 - 0.5	5	0.38	0.3 - 0.5	4	0.4	0.4	5	1.1	0.6 - 2.3	5	0.88	0.8 - 1	5	1.14	0.7 - 1.6
Magnesium (Dissolved)	mg/L	7	11	3 - 21	5	12	3 - 23	4	13	4 - 20	5	116.2	44 - 324	5	13.8	12 - 19	5	7.6	5 - 9
Orthophosphate (Dissolved)	mg/L	7	0.1	<0.1	5	0.1	<0.1	4	0.13	<0.1 - 0.2	5	0.1	<0.1	5	0.18	<0.1 - 0.4	5	0.1	<0.1 - 0.1
Potassium (Dissolved)	mg/L	7	5.4	4 - 8	5	7	5 - 10	4	7	5 - 10	5	15.6	7 - 44	5	8.8	7 - 10	5	8.6	5 - 11
Sodium (Dissolved)	mg/L	7	95	53 - 175	5	92	40 - 170	4	102	29 - 154	5	251	81 - 663	5	245	206 - 321	5	263	181 - 371
Sulfate (Dissolved)	mg/L	7	236	43 - 512	5	235.8	46 - 507	4	266	48 - 448	5	1263	456 - 3700	5	335	294 - 393	5	365	172 - 527
Total Metals																			
Aluminum (Total)	mg/L	7	13.5	1.07 - 41.3	5	33.1	2.08 - 83	4	18.6	1.38 - 61.9	5	1.1	0.08 - 3.78	5	3.5	1.96 - 4.47	5	39.3	15.6 - 72.5
Antimony (Total)	mg/L	7	0.001	<0.001	5	0.001	<0.001	4	0.001	<0.001	5	0.001	<0.001	5	0.001	<0.001	5	0.001	<0.001
Arsenic (Total)	mg/L	7	0.003	<0.001 - 0.008	5	0.007	0.001 - 0.019	4	0.0035	<0.001 - 0.01	5	0.003	0.001 - 0.007	5	0.006	0.004 - 0.008	5	0.009	0.004 - 0.016
Barium (Total)	mg/L	7	0.1	<0.05 - 0.23	5	0.23	<0.05 - 0.53	4	0.13	0.05 - 0.33	5	0.06	<0.05 - 0.08	5	0.06	<0.05 - 0.07	5	0.23	0.1 - 0.43
Beryllium (Total)	mg/L	7	0.001	<0.001 - 0.003	5	0.002	<0.001 - 0.005	4	0.002	<0.001 - 0.003	5	0.001	<0.001	5	0.001	<0.001	5	0.002	<0.001 - 0.004
Boron (Total)	mg/L	7	0.13	<0.1 - 0.2	5	0.14	<0.1 - 0.2	4	0.15	0.1 - 0.2	5	0.52	0.2 - 1.3	5	0.14	0.1 - 0.2	5	0.16	<0.1 - 0.3

Site ID		UCC-01			UCC-02			UCC-03			USP-01			USP-02			USP-03		
Parameters	Units	n	Mean	Range	n	Mean	Range	n	Mean	Range	n	Mean	Range	n	Mean	Range	n	Mean	Range
Cadmium (Total)	mg/L	7	0.001	<0.001	5	0.001	<0.001	4	0.001	<0.001	5	0.001	<0.001	5	0.001	<0.001	5	0.001	<0.001 - 0.001
Cerium (Total)	mg/L	5	0.03	0.004 - 0.059	3	0.09	0.005 - 0.128	2	0.05	0.013 - 0.077	4	0.002	<0.001 - 0.006	4	0.0055	0.004 - 0.007	4	0.054	0.031 - 0.085
Chromium (Total)	mg/L	7	0.01	0.001 - 0.031	5	0.03	0.002 - 0.082	4	0.02	0.001 - 0.054	5	0.003	<0.001 - 0.008	5	0.0032	0.002 - 0.003	5	0.028	0.012 - 0.057
Cobalt (Total)	mg/L	7	0.003	<0.001 - 0.008	5	0.008	<0.001 - 0.018	4	0.004	<0.001 - 0.012	5	0.002	<0.001 - 0.006	5	0.0016	0.001 - 0.002	5	0.0076	0.003 - 0.016
Copper (Total)	mg/L	7	0.013	<0.005 - 0.032	5	0.03	<0.005 - 0.072	4	0.018	<0.005 - 0.052	5	0.006	<0.005 - 0.008	5	0.0052	<0.005 - 0.006	5	0.032	0.015 - 0.061
Iron (Total)	mg/L	7	7.9	0.79 - 24.4	5	19.7	1.4 - 49.6	4	11.4	0.89 - 36.6	5	1.07	0.17 - 3.34	5	2.206	1.41 - 2.83	5	22.4	8.29 - 41.5
Lanthanum (Total)	mg/L	5	0.015	0.002 - 0.031	3	0.04	0.003 - 0.065	2	0.02	0.006 - 0.038	4	0.002	<0.001 - 0.003	4	0.003	0.002 - 0.004	4	0.028	0.017 - 0.043
Lead (Total)	mg/L	7	0.008	<0.001 - 0.022	5	0.02	0.001 - 0.047	4	0.01	<0.001 - 0.031	5	0.002	<0.001 - 0.004	5	0.0024	0.002 - 0.003	5	0.022	0.008 - 0.041
Lithium (Total)	mg/L	7	0.1	<0.1	5	0.1	<0.1 - 0.1	4	0.1	<0.1	5	0.34	0.1 - 0.9	5	0.26	0.2 - 0.4	5	0.2	0.1 - 0.3
Manganese (Total)	mg/L	7	0.15	0.051 - 0.309	5	0.23	0.026 - 0.596	4	0.15	0.03 - 0.394	5	0.11	0.017 - 0.252	5	0.184	0.058 - 0.481	5	0.36	0.145 - 0.883
Mercury (Total)	mg/L	7	0.0001	<0.0001	5	0.0001	<0.0001	4	0.0001	<0.0001	5	0.0001	<0.0001	5	0.0001	<0.0001	5	0.0001	<0.0001 - 0.0001
Molybdenum (Total)	mg/L	7	0.001	<0.001 - 0.001	5	0.001	<0.001 - 0.002	4	0.002	0.001 - 0.002	5	0.002	<0.001 - 0.004	5	0.0028	0.002 - 0.003	5	0.009	0.004 - 0.013
Nickel (Total)	mg/L	7	0.02	0.009 - 0.04	5	0.039	0.008 - 0.089	4	0.023	0.01 - 0.054	5	0.018	<0.005 - 0.054	5	0.0122	0.01 - 0.014	5	0.048	0.024 - 0.091
Selenium (Total)	mg/L	7	0.001	<0.001 - 0.001	5	0.002	<0.001 - 0.003	4	0.001	<0.001 - 0.002	5	0.002	<0.001 - 0.005	5	0.0012	<0.001 - 0.002	5	0.0024	0.002 - 0.004
Silver (Total)	mg/L	7	0.001	<0.001	5	0.001	<0.001	4	0.001	<0.001	5	0.001	<0.001	5	0.001	<0.001	5	0.001	<0.001
Thallium (Total)	mg/L	7	0.0005	<0.0005	5	0.0006	<0.0005 - 0.0009	4	0.0005	<0.0005 - 0.0006	5	0.0005	<0.0005	5	0.0005	<0.0005	5	0.0005	<0.0005
Thorium (Total)	mg/L	7	0.007	<0.005 - 0.012	5	0.012	<0.005 - 0.023	4	0.008	<0.005 - 0.015	5	0.005	<0.005	5	0.005	<0.005	5	0.0126	<0.005 - 0.022
Uranium (Total)	mg/L	7	0.002	0.0005 - 0.0035	5	0.0029	0.0006 - 0.0071	4	0.0016	0.0008 - 0.0036	5	0.0017	0.0003 - 0.0057	5	0.0038	0.0034 - 0.0042	5	0.0078	0.0047 - 0.0141
Vanadium (Total)	mg/L	7	0.02	<0.01 - 0.05	5	0.044	<0.01 - 0.11	4	0.03	<0.01 - 0.09	5	0.01	<0.01 - 0.01	5	0.01	<0.01	5	0.044	0.02 - 0.08
Zinc (Total)	mg/L	7	0.06	0.012 - 0.156	5	0.139	0.011 - 0.356	4	0.076	0.009 - 0.247	5	0.0086	<0.005 - 0.02	5	0.016	0.012 - 0.024	5	0.142	0.054 - 0.252
Radionuclides																			
Gross Alpha	pCi/L	6	6.9	0.2 - 16.5	5	9.08	-1 - 18.1	4	7.05	-0.6 - 18.4	5	1	-0.6 - 2	4	5.95	4.4 - 6.8	4	26.8	13.8 - 40.8
Gross Alpha MDC	pCi/L	6	2.6	1.7 - 3.8	5	2.72	1.4 - 4.2	4	2.9	1.4 - 4.1	5	7.2	3.7 - 17.1	4	5.1	3.1 - 9.4	4	5.6	3.6 - 7.6
Gross Alpha precision (+/-)	pCi/L	6	1.9	1.4 - 2.6	5	1.98	1.4 - 3.1	4	2.05	1.6 - 2.6	5	4.3	2.3 - 10.2	4	3.4	2.1 - 6	4	4.6	2.9 - 6.5
Gross Beta	pCi/L	6	8.7	6.2 - 12.6	5	13.9	7.3 - 22	4	10.6	7.8 - 15.8	5	12.1	4.8 - 32	4	12.5	9 - 21.2	4	19.5	11.4 - 27.6
Gross Beta MDC	pCi/L	6	3.1	2.7 - 4	5	3.32	2.7 - 3.9	4	3.3	2.9 - 3.5	5	8.94	4.5 - 22.4	4	5.5	3.8 - 6.9	4	5.1	4 - 6.6
Gross Beta precision (+ /-)	pCi/L	6	2.02	1.8 - 2.5	5	2.24	1.9 - 2.8	4	2.15	2 - 2.3	5	5.5	2.9 - 13.9	4	3.5	2.4 - 4.5	4	3.4	2.6 - 4.4
Radium 226	pCi/L	6	0.58	0.06 - 1.6	5	1.08	-0.1 - 2.8	4	0.59	-0.2 - 1.7	5	0.1	-0.03 - 0.22	4	0.22	0.13 - 0.33	4	1.17	0.59 - 2
Radium 226 MDC	pCi/L	6	0.19	0.13 - 0.27	5	0.19	0.16 - 0.23	4	0.19	0.14 - 0.29	5	0.23	0.16 - 0.32	4	0.21	0.16 - 0.31	4	0.22	0.16 - 0.31
Radium 226 precision (+ /-)	pCi/L	6	0.2	0.09 - 0.27	5	0.208	0.09 - 0.35	4	0.16	0.12 - 0.24	5	0.14	0.11 - 0.18	4	0.15	0.13 - 0.21	4	0.26	0.19 - 0.41
Radium 228	pCi/L	6	1.2	0.65 - 1.8	5	1.2	0.03 - 3.2	4	1.3	-0.3 - 3.2	5	0.77	-0.3 - 2.5	4	1.3	-0.3 - 3.2	4	2.33	1.4 - 2.9
Radium 228 MDC	pCi/L	6	1.9	0.74 - 3.5	5	1.7	1.2 - 2.1	4	1.3	0.71 - 1.8	5	1.9	1.3 - 2.6	4	1.8	0.97 - 2.7	4	1.78	1.2 - 2.6
Radium 228 precision (+ /-)	pCi/L	6	1.21	0.47 - 2.1	5	1.08	0.7 - 1.4	4	0.82	0.46 - 1.2	5	1.2	0.76 - 1.7	4	1.1	0.67 - 1.7	4	1.18	0.79 - 1.7
Radon 222	pCi/L	6	-124	-426 - -5	5	-140	-390 - 33.6	4	-108	-383 - -12.1	5	-22.2	-89.9 - 10.4	4	-29.9	-60.6 - 2.2	4	-97.6	-124 - -56.6
Radon 222 MDC	pCi/L	6	192	76 - 342	5	214	82 - 339	4	178	75 - 331	5	116	70.4 - 187	4	104	71.2 - 147	4	104	71.4 - 147
Radon 222 precision (+ /-)	pCi/L	6	112	43.6 - 199	5	125	47.5 - 198	4	104	42.8 - 197	5	67.9	40.7 - 112	4	60.4	40.7 - 87.3	4	59.3	39.9 - 86.5
Strontium 90	pCi/L	6	0.67	-0.8 - 1.5	5	0.66	-0.9 - 1.9	4	0.25	-1.6 - 2	5	1.1	-0.7 - 4.3	4	0.28	-0.7 - 0.8	4	0.58	-1.2 - 2.7
Strontium 90 MDC	pCi/L	6	2.37	1.9 - 2.9	5	3.3	2.2 - 5.2	4	2.5	2.3 - 2.6	5	3.6	2.3 - 6.7	4	3.9	2.3 - 7.1	4	4.4	2.6 - 8.7
Strontium 90 precision (+/-)	pCi/L	6	1.4	1.2 - 1.8	5	2.02	1.4 - 3.1	4	1.48	1.4 - 1.6	5	2.2	1.4 - 4.2	4	2.3	1.3 - 4.2	4	2.6	1.5 - 5.3
Calculated Parameters																			
Anions Sum	meq/L	7	6.4	2.72 - 12.5	5	6	2.22 - 12.6	4	7	1.92 - 11	5	29.1	10.8 - 80.4	5	10.2	15.8	5	12.96	8.97 - 18.3
Cations Sum	meq/L	7	6.5	3.06 - 12	5	6	2.49 - 11.8	4	7	2.09 - 10.5	5	28.5	10.4 - 78.4	5	13.2	16.9	5	13.1	9.03 - 18.2
A/C Balance (%)	%	7	1.11	-2.68 - 5.96	5	2.31	-3.06 - 5.83	4	1.03	-2.23 - 4.25	5	-0.92	-2.55 - 2.05	5	4.06	3.44	5	0.702	-1.66 - 3.29



Site ID		UCC-01			UCC-02			UCC-03			USP-01			USP-02			USP-03		
Parameters	Units	n	Mean	Range	n	Mean	Range	n	Mean	Range	n	Mean	Range	n	Mean	Range	n	Mean	Range
A/C Balance Sigma (%)	%	2	0.45	-0.87 - 1.76	2	0.59	-1.31 - 2.48	2	1.27	0.8 - 1.73	1	1.31	1.31	1	-3.21	-3.21	1	0	0
Calculated TDS	mg/L	1	307	307	1	601	601	0	NM	NM	0	NM	NM	0	NM	NM	0	NM	NM
NOTES: 1. Detection limit values displayed with less than symbol (<) 2. NM - not measured 3. Range statistics calculated using half the detection limit value; arithmetic mean statistics calculated using the detection limit value 4. Lower detected values displayed for maximum range over higher non-detected values when minimum values were detected values.																			

Table 11  
Monitoring Well Network Well Information, Upton Plant Site

Well	Location (WYSP, feet; Easting / Northing) (Bold - surveyed)		TOC Elevation (ft amsl)	Started	Completed	Total Depth (ft bgs)	Total Depth, Elog (ft bgs)	Geophysical Logs	Surface Casing depth ft bgs / ID (in)	Monitor Well Casing Type/ID (in.)	Bottom of Casing (ft bgs)	Screened Interval (ft bgs)	Screen Type/ Slot Size	Sand Pack Interval (ft bgs)	Annulus Seal	Cement Cap depth (ft bgs)	Stickup (ft ags)	Completion Zone	Initial Water Level (ft btoc)	1st Water Sample
UMW-01	1310024.06	788113.75	4272.88	04/16/12	04/21/12	941.00	935	SP, G, C, R, NP	20/10	Steel/4	940.5	892.9 - 932.9	SS - 20	941 - 841	Chips/Plug Gel	20	3.00	Deep - Dakota Aquifer	67.70	4/23/2012
UMW-02	1315237.01	787268.61	4256.02	03/05/12	03/14/12	688.00	687	SP, G, C, R, NP	20/10	Steel/4	654.25	610 - 650	SS - 20	688 - 551	Chips/Plug Gel	25	**	Deep - Dakota Aquifer	Flowing (+8')	3/14/2012
UMW-03	1315193.20	785434.68	4292.02	03/26/12	04/01/12	860.00	859	SP, G, C, R, NP	20/10	Steel/4	850.9	800 - 840	SS - 20	860 - 782.5	Chips/Plug Gel	20	1.90	Deep - Dakota Aquifer	35.00	4/2/2012
UMW-04	1315186.57	787253.45	4255.01	03/15/12	03/17/12	365.00	--	--	20/10	Steel/4	355	345 - 350	SS - 20	365 - 326	Chips/Plug Gel	20	3.25	Deep - Newcastle	340.00	4/25/2012
UMW-05	1309803.11	786319.98	4318	02/07/13	02/26/13	1265.00	1252.8	SP, G, T, R, D, C, CB	20/10	Steel/4	1254.5	1237 - 1227 1252 - 1242	No slots - perforated	None	Cement	20	3.00	Deep - Dakota Aquifer	64.00	2/26/2013
USMW-01	1316036.73	787646.77	4249.07	04/04/12	04/04/12	8.50	--	--	--	PVC Sch. 80/4	8.5	8.5 - 3.5	PVC Slot - 20	8.5 - 2.5	Chips	1	3.00	Shallow - Valley Fill	2.05	5/24/2012
USMW-02	1312098.51	788712.71	4237.29	04/05/12	04/05/12	19.00	--	--	--	PVC Sch. 80/4	19	19 - 9	PVC Slot - 20	19 - 7.5	Chips	1	3.00	Shallow - Valley Fill	13.30	5/24/2012
USMW-03	1309984.31	789623.40	4226.26	04/17/12	04/17/12	17.75	--	--	--	PVC Sch. 80/4	17.75	17.75 - 7.75	PVC Slot - 20	17.75 - 7.6	Chips	1	2.00	Shallow - Valley Fill	Dry	5/24/2012
USMW-04	1310055.77	786296.49	4297.04	05/02/13	05/02/13	8.20	--	--	--	PVC Sch. 80/4	8.2	8.0 - 3.0	PVC Slot - 20	8.2 - 2.5	Chips	1	2.2	Shallow - Weathered Shale	Dry	9/18/2013
USMW-05	1310173	786450	4308	05/02/13	05/02/13	16.75	--	--	--	PVC Sch. 80/4	16.5	16.5 - 6.5	PVC Slot - 20	16.5 - 4.0	Chips	1	2.5	Shallow - Weathered Shale	Dry	9/18/2013

**Table 12**  
**In-Situ Field Parameters, Upton Site Groundwater Monitoring**

Well	Date Sampled	In-Situ Parameters				
		Conductivity (μS/cm)	Depth to Bottom (ft below MP)	Depth to Water (ft below MP)	pH	Temp . (°C)
UMW-01	4/23/12		940.5	67.7		
UMW-01	9/24/12					
UMW-01	10/10/12	1047	940.5	72.05	9	17.4
UMW-01	3/4/13	996	940.5	70	9.48	16.2
UMW-01	5/2/13					
UMW-01	8/20/13	1040	940.5	78	9.3	17.7
UMW-01	11/11/13	1162	940.5	23.4	9.4	16.7
UMW-01	3/25/14	1206	940.5	72.2	9	15.2
UMW-01	6/30/14	1077	940.5	76.3	9.4	59.8
UMW-01	8/8/14	1040	940.5	73.6	9.3	56.4
UMW-01	12/2/14	972	940.5	92	9.4	59
UMW-02	3/14/12				8.8	12
UMW-02	9/20/12	1108	654.25	0	9	12.9
UMW-02	10/10/12	1102	760	0	9.1	11.2
UMW-02	2/26/13	1108	760		8.98	6.5
UMW-02	5/2/13					
UMW-02	8/14/13	1094	760		9.3	14.1
UMW-02	11/12/13	1141	760		9.4	9.8
UMW-02	3/13/14	1230	760	Flowing	8.3	6.3
UMW-02	6/17/14	1060	760	Flowing	10.6	51.8
UMW-02	8/6/14	1105	760	Flowing	9.1	52.3
UMW-02	12/2/14		760	Below TOC		
UMW-03	4/2/12	1222	850.9	35	7.75	11.2
UMW-03	4/5/12		850.9	48.6		
UMW-03	4/16/12		850.9	43.53		
UMW-03	4/21/12		850.9	43.12		
UMW-03	4/23/12			42.98		
UMW-03	4/25/12			42.83		
UMW-03	9/20/12		850.9	47.98	10	17.9
UMW-03	2/27/13	1571	850.9	53	10.04	16.8
UMW-03	8/19/13	138.9	850.9	53.6	9.9	17.9
UMW-03	11/12/13	1089	850.9	58	9.4	16.4
UMW-03	3/24/14	1174	850.9	58	8.94	14
UMW-03	6/30/14	1110	850.9	58	9.6	57.1
UMW-03	8/8/14	1048	850.9	60	9.4	57.8
UMW-03	12/2/14	1111	850.9	56	9.5	56.2

Well	Date Sampled	In-Situ Parameters				
		Conductivity (μS/cm)	Depth to Bottom (ft below MP)	Depth to Water (ft below MP)	pH	Temp . (°C)
UMW-04	4/25/12	NR NR	355	340	9.15	13
UMW-04	9/20/12		355	339		
UMW-04	10/10/12		355	342.8		
UMW-04	2/27/13		355	328.9		
UMW-04	8/20/13		355	338		
UMW-04	11/12/13		355	almost dry	NR	NR
UMW-04	3/25/14		355	340	NR	NR
UMW-04	6/30/14		355	dry		
UMW-04	8/8/14		355	dry		
UMW-04	12/2/14		355	dry		
UMW-05	2/26/13	1262	1255	49	8.8	10.2
UMW-05	8/19/13	1177	1255	95	9.3	17.7
UMW-05	11/13/13	1173	1252.8	98.5	9.3	17.6
UMW-05	3/18/14	1206	1252.8	117.4	8.5	15.6
UMW-05	6/30/14	120	1255	101.6	9.2	58.5
UMW-05	8/6/14	1184	1255	126.3	8.9	60.9
UMW-05	12/3/14	1171	1255	103	8.9	62.7
USMW-01	4/16/12		9.4	2.05		
USMW-01	4/21/12		9.4	1.94		
USMW-01	4/25/12			1.09		
USMW-01	5/21/12	7.25 9.73 10.4 9.95 Or 10.28	10.5	3.1		
USMW-01	8/14/13		10.2	1.9	7.2	16.5
USMW-01	11/14/13		8.5	2.35	7.3	8.1
USMW-01	3/13/14		10.2	2.75	5.5	1
USMW-01	6/27/14		10.2	1	7.24	52.2
USMW-01	8/8/14		10.2	3.35	7.2	55.7
USMW-01	12/3/14		10.2	2	7.3	41.5
USMW-02	4/16/12	1413 7.4 7.14 7.75 6.39 12.13 5.32	17.55	13.3		
USMW-02	4/19/12		17.55	13		
USMW-02	4/21/12		17.55	13.88		
USMW-02	4/23/12			12.75		
USMW-02	4/25/12			12.65		
USMW-02	5/21/12		20.3	14.6		
USMW-02	5/24/12			14.5		
USMW-02	2/26/13		20.31	15.84	7.6	12
USMW-02	8/20/13		19	14.2	7.3	11.3
USMW-02	11/14/13		19	14.35	7.3	11.3
USMW-02	3/13/14		19	15.3	4.8	6.1
USMW-02	6/17/14		19	14.1	7.8	49.5
USMW-02	8/8/14		19	13.95	7.2	49.3
USMW-02	12/3/14		19	13.5	6.9	49.1

Well	Date Sampled	In-Situ Parameters				
		Conductivity (μS/cm)	Depth to Bottom (ft below MP)	Depth to Water (ft below MP)	pH	Temp . (°C)
USMW-03	4/18/12		17.1			
USMW-03	4/21/12		17.1			
USMW-03	5/21/12		19.1	16.3		
USMW-03	5/24/12			16.35		
USMW-03	2/26/13		19	14.69	7.2	10.6
USMW-03	8/20/13		20.25	15.7		
USMW-03	9/19/13		20	16.33	7.3	11.9
USMW-03	11/14/13	NR	17.5	14.4	7	11.5
USMW-03	3/13/14	Or	20.25	14.8	5.3	6.6
USMW-03	6/17/14	Or	20.25	14.5	7.1	48.7
USMW-03	8/8/14	Or	20.25	14.1	7	51.3
USMW-03	12/3/14	Or	20.25	14.3	6.9	49
USMW-04	11/13/13	NR	16.75	9.1	7.2	12.1
USMW-04	3/18/14	Or	16.7	10.1	4.4	4.5
USMW-04	5/16/14	Or	16.7	12.9	7	43.5
USMW-04	6/27/14	Or	16.7	12.6	7.1	47.5
USMW-04	8/6/14	Or	16.7	12.3	6.9	48.7
USMW-04	12/3/14	Or	16.7	11.25	7	47.9
USMW-05	11/13/13	NR	8.2	2.15	6.9	8.5
USMW-05	3/18/14	NR	NR	2.85	NR	NR
USMW-05	5/16/14	Or	11.1	2.8	6.8	44.2
USMW-05	6/30/14	Or	11.1	3.6	6.7	56.8
USMW-05	8/6/14	Or	11.1	3.83	6.5	57.7
USMW-05	12/3/14	Or	11.1	3.6	6.8	41
<b>NOTES:</b> UMW-04 sample on 11/12/13 only 1 L collected before dry. NR – No reading due to insufficient sample volume Or – Over Range						

**Table 13**  
**Water Quality Collection Summary, Upton Site Groundwater Monitoring**

Well	Month / Year Sampled																																Total Samples		
	1Q2012		2Q2012		3Q2012			4Q2012			1Q2013		2Q2013			3Q2013			4Q2013			1Q2014			2Q2014			3Q2014			4Q2014				
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct		Nov	Dec
UMW-01 VOC/SVOC	--	X					X	X					X		X			X			X				X			X		X				X	8
UMW-02 VOC/SVOC	X	Dev.					X	X				X			X			X			X				X			X		X				NS	8
UMW-03 VOC/SVOC	--	X					X	X				X			X			X			X				X			X		X				X	8
UMW-04 VOC/SVOC	--	X					X	NS				X*			X			X*			X*				X*			NS		NS				NS	7
UMW-05 VOC/SVOC	--	--					--	--				X			X			X			X				X			X		X				X	5
USMW-01 VOC/SVOC	--		X				NS	NS					X	X				X			X				X			X		X				X	6
USMW-02 VOC/SVOC	--		X				NS	NS					X	X				X			X				X			X		X				X	6
USMW-03 VOC/SVOC	--		X				NS	NS					X		X				X		X				X			X		X				X	6
USMW-04 VOC/SVOC	--		--				--	--					--		--				X		X				X			X		X				X	3
USMW-05 VOC/SVOC	--		--				--	--					--		--				X		X				NS			X		X				X	2

**NOTES:**

X – Indicates sample collected during the month.

VOC/SVOC (Volatile organic compounds/seim-volatile organic compounds) sampling suite.

\*UMW-04 samples from 2/13, 8/13, and 11/13 were only analyzed for oil and grease due to insufficient sample volume.

--Well was not yet installed

NS – No sample due to lack of available water for sample.

DEV. – Well development at UMW-02 prohibited sample collection.

Table 14  
Upton Site Water Quality Data, Major Ions, Non-Metals, and Data Quality

Well	Date Sampled	Major Ions, Dissolved												Non-Metals								Data Quality			
		Bicarbonate as HCO3	Carbonate as CO3	Chloride	Fluoride	Nitrate (as N)	Nitrate + Nitrite	Nitrite (as N)	Sulphate	Calcium	Magnesium	Potassium	Sodium	Alkalinity (Total as CaCO3)	Conductivity (µS/cm)	Hardness as CaCO3	pH	SAR (unitless)	TDS (mg/L)	Sulphide	Cyanide (Total)	Oil & Grease	Anions Sum (meq/L)	Cations Sum (meq/L)	A/C Balance (%)
UMW-01	4/23/12	201	<5	15	0.7	<0.1	<0.1	<0.1	1160	48	11	4	542	165	2740	160	7.68	18.4	1910	<0.04	<0.005	<5	27.8	27	-1.61
UMW-01	9/24/12	365	23	68	0.5	<0.1	<0.1	<0.1	73	2	<1	1	238	337	994	7	8.76	37.8	571	0.08	<0.005	<5	10.2	10.5	1.55
UMW-01	10/10/12	364	19	67	0.5	<0.1	<0.1	<0.1	116	3	<1	2	248	330	1050	10	8.65	34.4	611	0.07	<0.005	<5	10.9	11	0.33
UMW-01	3/4/13	332	38	68	0.6	<0.1	<0.1	<0.1	120	2	<1	1	245	335	1080	8	9.05	36.8	625	0.11	<0.005	<5	11.1	10.8	-1.36
UMW-01	5/2/13	326	39	68	0.5	<0.1	<0.1	<0.1	78	2	<1	<1	218	332	1020	7	9.1	36.1	598	0.24	<0.005	<5	10.2	9.66	-2.82
UMW-01	8/20/13	332	38	69	0.6	<0.1	<0.1	<0.1	95	2	<1	1	239	335	1060	8	9.13	36.1	598	0.4	<0.005	<5	10.7	10.6	-0.25
UMW-01	11/11/13	320	33	62	0.5	<0.1	<0.1	<0.1	174	4	<1	1	269	317	1210	14	9.11	31.2	698	0.41	<0.005	<5	11.7	12	1.11
UMW-01	3/25/14	342	31	65	0.5	<0.1	<0.1	<0.1	132	5	9	1	306	331	1120	49	9.07	19	649	0.51	<0.005	<5	11.2	14.3	12.1
UMW-01	6/30/14	324	46	67	0.5	<0.1	<0.1	<0.1	118	3	<1	1	244	343	1100	9	8.88	34.8	654	0.64	<0.005	<5	11.3	10.8	-1.96
UMW-01	8/8/14	322	44	67	0.6	<0.1	<0.1	<0.1	70	3	8	1	272	338	1060	42	9.17	18.3	617	0.84	<0.005	<5	10.1	12.7	11.2
UMW-01	12/2/14	356	48	68	0.6	<0.1	<0.1	<0.1	47	2	<1	1	227	372	980	7	9.15	37.1	584	0.81	<0.005	<5	10.4	10	-1.58
	Min	320	19	62	0.5	ND	ND	ND	47	2	<1	<1	218	317	980	7	8.65	18.3	571	0.07	ND	ND	10.1	9.66	--
	Max	365	48	69	0.6	ND	ND	ND	174	5	9	2	306	372	1210	49	9.17	37.8	698	0.84	ND	ND	11.7	14.3	--
	Ave	338	36	67	0.5	ND	ND	ND	102	3	3	1	251	337	1067	16	9.01	32.2	621	0.41	ND	ND	10.8	11.2	--
	St. Dev.	17							37	1			26	14					38						
UMW-02																									
	3/14/12	211	<5	22	0.3	<0.1	<0.1	<0.1	866	55	9	4	453	180	2230	180	8.09	14.8	1530	0.3	<0.005	6	22.3	23.4	2.43
	9/20/12	244	10	32	0.3	<0.1	<0.1	<0.1	251	5	<1	1	237	216	1090	16	8.59	26.1	655	<0.04	<0.005	<5	10.5	10.6	0.88
	10/10/12	240	13	34	0.3	<0.1	<0.1	<0.1	249	4	<1	1	224	218	1090	13	8.71	26.5	673	0.21	<0.005	<5	10.5	10	-2.3
	2/26/13	241	15	33	0.3	<0.1	<0.1	<0.1	245	4	<1	1	232	223	1100	14	8.87	27.3	665	0.33	<0.005	<5	10.5	10.4	-0.51
	5/2/13	222	17	34	0.4	<0.1	<0.1	<0.1	254	4	<1	1	220	211	1100	12	8.94	27.6	680	0.24	<0.005	<5	10.5	9.84	-3.14
	8/14/13	237	11	34	0.4	<0.1	<0.1	<0.1	265	4	<1	1	221	213	1110	11	8.93	28.8	666	0.24	<0.005	<5	10.8	9.88	-4.3
	11/12/13	226	15	32	0.4	<0.1	<0.1	<0.1	252	4	<1	1	233	211	1100	13	8.94	28.6	672	0.25	<0.005	<5	10.4	10.4	0.18
	3/13/14	233	11	34	0.4	<0.1	<0.1	<0.1	263	5	1	1	242	210	1100	18	8.79	24.5	686	0.38	<0.005	<5	10.6	10.9	1.36
	6/17/14	234	14	34	0.4	<0.1	<0.1	<0.1	280	7	24	2	345	216	1130	120	8.88	14	672	0.22	<0.005	<5	11.1	17.4	21.9
	8/6/14	222	16	33	0.4	<0.1	<0.1	<0.1	259	5	2	1	255	209	1110	20	8.93	24.7	685	0.25	<0.005	<5	10.5	11.5	4.65
		Min	222	10	32	0.3	ND	ND	ND	245	4	<1	1	220	209	1090	11	8.59	14	655	<0.04	ND	ND	10.4	9.84
Max		244	17	34	0.4	ND	ND	ND	280	7	24	2	345	223	1130	120	8.94	28.8	686	0.38	ND	ND	11.1	17.4	--
Ave		233	14	33	0.4	ND	ND	ND	258	5	4	1	245	214	1103	26	8.84	25.3	673	0.25	ND	ND	10.6	11.2	--
St. Dev.		8							11	1			39	5					10						
UMW-03	4/2/12	408	18	105	0.6	<0.1	<0.1	<0.1	116	2	<1	1	278	364	1220	8	8.41	43.7	735	<0.2	<0.005	6	12.7	12.3	-1.59
UMW-03	9/20/12	217	82	45	0.5	<0.1	<0.1	<0.1	290	3	<1	3	303	315	1370	9	9.6	44	805	<0.04	<0.005	<5	13.6	13.4	-0.64
UMW-03	10/11/12	186	75	43	0.4	<0.1	<0.1	<0.1	310	2	<1	2	297	278	1400	7	9.62	49.6	846	<0.04	<0.005	<5	13.2	13.1	-0.51
UMW-03	2/27/13	179	92	41	0.4	<0.1	<0.1	<0.1	345	2	<1	2	301	299	1500	6	9.78	54.5	886	<0.04	<0.005	<5	14.4	13.3	-3.98
UMW-03	5/7/13	167	98	45	0.4	<0.1	<0.1	<0.1	426	2	<1	3	376	300	1720	5	9.94	69.9	1010	0.05	<0.005	<5	16.1	16.5	1.19
UMW-03	8/19/13	183	77	41	0.4	<0.1	<0.1	<0.1	342	2	<1	2	299	278	1450	6	9.66	53	858	0.11	<0.005	<5	13.9	13.2	-2.58
UMW-03	11/12/13	243	23	36	0.4	<0.1	<0.1	<0.1	227	2	<1	1	238	237	1110	6	9.08	42.4	643	0.15	<0.005	<5	10.5	10.5	-0.07
UMW-03	3/24/14	242	23	34	0.4	<0.1	<0.1	<0.1	237	3	4	1	270	236	1090	22	9.16	24.8	658	0.22	<0.005	<5	10.6	12.2	6.84
UMW-03	6/30/14	215	41	34	0.4	<0.1	<0.1	<0.1	242	2	<1	1	245	244	1090	8	9.01	38	676	0.2	<0.005	<5	10.9	10.8	-0.15
UMW-03	8/8/14	216	30	33	0.4	<0.1	<0.1	<0.1	233	5	2	1	244	227	1110	19	9.13	24.1	677	0.23	<0.005	<5	10.4	11	3.12
UMW-03	12/2/14	197	67	34	0.4	<0.1	<0.1	<0.1	223	3	<1	2	248	272	1120	9	9.63	35.9	681	0.15	<0.005	<5	11.1	11	-0.25
	Min	167	18	33	0.4	ND	ND	ND	116	2	<1	1	238	227	1090	5	8.41	24.1	643	<0.04	ND	<5	10.4	10.5	--
	Max	408	98	105	0.6	ND	ND	ND	426	5	4	3	376	364	1720	22	9.94	69.9	1010	0.23	ND	6	16.1	16.5	--
	Ave	223	57	45	0.4	ND	ND	ND	272	3	1	2	282	277	1289	10	9.37	43.6	770	0.13	ND	5	12.5	12.5	--
	St. Dev.	66							83	0.9			40	41					119						

Well	Date Sampled	Major Ions, Dissolved												Non-Metals								Data Quality			
		Bicarbonate as HCO3	Carbonate as CO3	Chloride	Fluoride	Nitrate (as N)	Nitrate + Nitrite	Nitrite (as N)	Sulphate	Calcium	Magnesium	Potassium	Sodium	Alkalinity (Total as CaCO3)	Conductivity (µS/cm)	Hardness as CaCO3	pH	SAR (unitless)	TDS (mg/L)	Sulphide	Cyanide (Total)	Oil & Grease	Anions Sum (meq/L)	Cations Sum (meq/L)	A/C Balance (%)
UMW-04	4/25/12	77	<5	187	1.5	<0.1	<0.1	<0.1	6020	245	83	14	2470	70	10600	950	8.63	34.7	9180	0.14	<0.005	<5	132	127	-2.08
UMW-04	9/20/12	339	<5	253	2	<0.1	<0.1	<0.1	5130	207	84	12	2290	278	9720	860	7.41	33.9	7330	12	<0.005	<5	120	117	-1.08
UMW-04	2/27/13																				<5				
UMW-04	5/9/13	130	39	465	3.2	<0.1	0.5	0.5	2940	10	3	8	1690	172	7240	35	9.41	124	4650		<0.005	7	78	74.5	-2.31
UMW-04	8/20/13																				6				
UMW-04	3/25/14																				<5				
	Min	77	<5	187	1.5	ND	<0.1	<0.1	2940	10	3	8	1690	70	7240	35	7.41	33.9	4650	0.14	ND	<5	78	74.5	--
	Max	339	39	465	3.2	ND	0.5	0.5	6020	245	84	14	2470	278	10600	950	9.41	124	9180	12	ND	7	132	127	--
	Ave	182	16	302	2.2	ND	0.2	0.2	4697	154	57	11	2150	173	9187	615	8.48	64.2	7053	--	ND	6	110	106	--
	St. Dev.	139							1585	126			408	104					2278						
UMW-05	2/26/13	432	43	131	0.7	<0.1	0.3	0.3	74	9	<1	5	282	425	1290	26	9.06	24.1	759	<0.2	0.189	21	13.8	12.9	-3.38
UMW-05	5/9/13	387	48	133	0.7	<0.1	<0.1	<0.1	25	3	<1	4	283	398	1230	8	9.14	43.9	710	<0.04	0.031	<5	12.3	12.6	1.29
UMW-05	8/19/13	406	43	134	0.6	<0.1	<0.1	<0.1	4	2	<1	2	263	405	1210	5	9.06	51.6	662	<0.04	<0.005	<5	12	11.6	-1.65
UMW-05	11/13/13	406	41	128	0.6	<0.1	<0.1	<0.1	1	2	<1	2	282	401	1180	6	8.99	51	672	<0.04	<0.005	<5	11.7	12.4	3.02
UMW-05	3/18/14	425	34	129	0.6	<0.1	<0.1	<0.1	<1	2	<1	1	271	405	1180	5	8.94	53.9	649	<0.04	<0.005	<5	11.8	11.9	0.65
UMW-05	6/30/14	431	41	131	0.6	<0.1	<0.1	<0.1	<1	2	<1	1	274	422	1170	5	8.83	52.5	677	<0.04	<0.005	<5	12.2	12.1	-0.36
UMW-05	8/6/14	430	30	128	0.7	<0.1	<0.1	<0.1	<1	2	<1	1	282	402	1190	5	8.85	55.6	684	<0.04	<0.005	<5	11.7	12.4	2.97
UMW-05	12/3/14	466	34	127	0.7	<0.1	<0.1	<0.1	<1	2	<1	1	281	439	1170	5	8.85	53.2	689	<0.04	<0.005	<5	12.4	12.4	-0.23
	Min	387	30	127	0.6	ND	<0.1	<0.1	1	2	ND	1	263	398	1170	5	8.83	24.1	649	ND	<0.005	<5	11.7	11.6	--
	Max	466	48	134	0.7	ND	0.3	0.3	74	9	ND	5	283	439	1290	26	9.14	55.6	759	ND	0.189	21	13.8	12.9	--
	Ave	423	39	130	0.7	ND	0.1	0.1	14	3	ND	2	277	412	1203	8	8.97	48.2	688	ND	0.06	9	12.2	12.3	--
	St. Dev.	24							34	2			7	15					34						
USMW-01	5/24/12	812	<5	105	2.6	14.4	14.9	0.5	9650	393	817	10	3270	666	14900	4400	7.8	21.6	14400	<0.04	<0.005	<5	218	229	2.46
USMW-01	3/11/13	1290	<5	104	2.3	0.1	0.3	0.2	9420	420	731	9	3150	1050	14800	4100	7.39	21.5	14400	0.3	<0.005	<5	220	218	-0.42
USMW-01	4/30/13	1280	<5	105	2.4	3.7	3.7	<0.1	8290	405	684	7	2960	1050	13900	3800	7.4	20.8	13400	<0.04	<0.005	<5	197	205	2.06
USMW-01	dup.	4/30/13	<5	105	2.3	3.6	3.6	<0.1	8450	373	705	8	3020	1040	13900	3800	7.4	21.2	13000	<0.04	<0.005	<5	200	208	1.91
USMW-01	8/14/13	421	<5	39	1.3	<0.1	<0.1	<0.1	3410	222	199	6	1360	345	6350	1400	7.2	15.9	5310	<0.04	<0.005	<5	79	86.6	4.57
USMW-01	11/14/13	802	<5	69	1.1	<0.2	<0.2	<0.1	5820	439	434	8	2530	657	9900	2900	7.18	20.5	8800	<0.04	<0.005	<5	136	168	10.3
USMW-01	3/13/14	1040	<5	76	1.3	<0.2	<0.1	<0.1	7020	374	441	7	2370	857	11700	2800	7.3	19.7	11000	0.06	<0.005	<5	165	158	-2.22
USMW-01	6/27/14	1140	<5	79	1.5	0.1	0.2	<0.1	7320	438	503	6	2610	938	11500	3200	7.16	20.2	11200	<0.04	<0.005	<5	173	177	1.06
USMW-01	8/8/14	1110	<5	78	1.5	<0.2	<0.1	<0.1	6990	451	450	6	2440	912	12200	3000	7.1	19.4	11500	<0.04	<0.005	<5	166	166	-0.13
USMW-01	12/3/14	1170	<5	71	1.3	<0.2	0.2	<0.1	6360	424	453	7	2460	959	11000	2900	7.2	19.8	10500	<0.04	<0.005	<5	154	166	3.72
	Min	421	ND	39	1.1	<0.1	<0.1	<0.1	3410	222	199	6	1360	345	6350	1400	7.1	15.9	5310	<0.04	ND	ND	79	86.6	--
	Max	1290	ND	105	2.6	14.4	14.9	0.5	9650	451	817	10	3270	1050	14900	4400	7.8	21.6	14400	0.3	ND	ND	220	229	--
	Ave	1007	ND	81	1.7	2.1	2.2	0.2	7142	396	524	7	2572	826	11806	3167	7.3	19.9	11168	0.1	ND	ND	168	175	--
	St. Dev.	282							1909	70			561	230					2881						
USMW-02	5/24/12	522	<5	48	1.9	<0.1	0.2	0.2	6030	417	340	7	2280	428	10200	2400	7.44	20	9310	<0.04	<0.005	<5	135	148	4.41
USMW-02	3/11/13	612	<5	37	1.4	<0.1	<0.1	<0.1	4880	391	270	6	1780	502	8390	2100	7.38	16.9	7690	<0.04	<0.005	<5	113	119	2.84
USMW-02	4/30/13	378	<5	113	1.7	4.5	4.5	<0.1	7290	384	369	9	2800	310	12300	2500	7.48	24.4	10200	<0.2	<0.005	<5	162	171	2.9
USMW-02	8/20/13	535	<5	37	1.6	0.1	0.1	<0.1	4510	351	198	6	1510	439	7970	1700	7.2	16	7100	<0.04	<0.005	<5	104	99.8	-1.96
USMW-02	11/14/13	556	<5	34	1.2	<0.2	<0.1	<0.1	4430	387	206	5	1500	456	7880	1800	7.27	15.4	6770	<0.04	<0.005	<5	102	102	-0.27
USMW-02	3/13/14	559	<5	33	1.3	<0.1	<0.1	<0.1	4500	345	198	7	1530	458	7740	1700	7.23	16.2	6770	<0.04	<0.005	<5	104	100	-1.83
USMW-02	6/17/14	547	<5	35	0.8	0.9	0.9	<0.1	4300	380	196	5	1440	448	7820	1800	7.21	15	6800	<0.04	<0.005	<5	99.7	97.8	-0.94
USMW-02	8/8/14	498	<5																						



Well	Date Sampled	Major Ions, Dissolved												Non-Metals								Data Quality			
		Bicarbonate as HCO3	Carbonate as CO3	Chloride	Fluoride	Nitrate (as N)	Nitrate + Nitrite	Nitrite (as N)	Sulphate	Calcium	Magnesium	Potassium	Sodium	Alkalinity (Total as CaCO3)	Conductivity (µS/cm)	Hardness as CaCO3	pH	SAR (unitless)	TDS (mg/L)	Sulphide	Cyanide (Total)	Oil & Grease	Anions Sum (meq/L)	Cations Sum (meq/L)	A/C Balance (%)
USMW-03	5/24/12	355	<5	180	2.1	<1	<0.4	<0.4	51300	469	3450	27	15700	291	51300	15000	7.22	55.2	65500	<0.04	<0.005	<5	1080	992	-4.17
USMW-03	3/11/13	524	<5	214	2.4	<0.1	<0.1	<0.1	53400	490	3820	31	17700	430	53100	17000	7.06	59.2	73300	0.04	<0.005	<5	1130	1110	-0.73
USMW-03	5/3/13	516	<5	186	2	<2	<1	<1	48600	463	3010	31	16500	423	51200	14000	7.19	61.5	68300	<0.04	<0.005	<5	1030	987	-1.9
USMW-03	9/19/13	664	<5	183	4.1	<1	<0.4	<0.4	48600	441	3250	29	15500	544	49600	14000	6.9	56.1	69700	<0.04	<0.005	<5	1030	966	-3.1
USMW-03	11/14/13	533	<5	186	2	<1	<1	<0.4	48000	466	3340	28	16300	437	50500	15000	7.02	57.9	71600	<0.04	<0.005	<5	1010	1010	-0.34
USMW-03	3/13/14	568	<5	201	3.6	<1	<0.4	<0.4	50700	445	3230	31	15200	466	51400	14000	7.13	54.9	69200	<0.04	<0.005	<5	1070	948	-6.14
USMW-03	6/17/14	618	<5	210	2	<0.1	<0.1	<0.1	52100	450	3560	32	16500	507	52700	16000	6.86	57.1	72800	<0.04	<0.005	<5	1100	1030	-3.21
USMW-03	8/8/14	579	<5	190	3.7	<1	<0.4	<0.4	44400	474	3310	29	16700	475	52100	15000	6.84	59.7	73300	<0.04	<0.005	<5	940	1020	4.27
USMW-03	12/3/14	657	<5	191	3	<1	<0.4	<0.4	47600	498	3370	33	16600	539	50000	15000	6.76	58.9	73100	<0.04	<0.005	<5	1010	1030	0.95
	Min	355	ND	180	2	ND	ND	ND	44400	441	3010	27	15200	291	49600	14000	6.76	54.9	65500	<0.4	ND	ND	940	948	--
	Max	664	ND	214	4.1	ND	ND	ND	53400	498	3820	33	17700	544	53100	17000	7.22	61.5	73300	0.04	ND	ND	1130	1110	--
	Ave	557	ND	193	2.8	ND	ND	ND	49411	466	3371	30	16300	457	51322	15000	7	57.8	70756	0.04	ND	ND	1044	1010	--
	St. Dev.	93							2740	19			750	77					2751						
USMW-04	9/18/13	1720	<5	3940	2.4	<1	<0.4	<0.4	34500	519	2100	61	15600	1410	46900	10000	7.11	68	55100	<0.04	<0.005	<5	859	879	1.13
USMW-04	11/13/13	1820	<5	3770	0.5	<1	<0.4	<0.4	32400	492	2060	56	14900	1490	47900	9700	6.98	65.8	55800	<0.04	<0.005	<5	810	842	1.94
USMW-04	3/18/14	1840	<5	3450	1	<1	<0.4	<0.4	31300	452	2000	59	14100	1510	47300	9400	6.94	63.2	53700	<0.2	<0.005	<5	780	800	1.32
USMW-04	5/16/14	1780	<5	3460	1.1	<1	<0.4	<0.4	31700	446	1720	45	13200	1460	47100	8200	6.88	63.6	53300	<0.04	<0.005	<5	787	740	-3.13
USMW-04	6/27/14	1800	<5	3720	<0.1	<0.1	<0.1	<0.1	32900	473	1950	47	14400	1480	44800	9200	6.93	65	54000	<0.04	<0.005	<5	819	810	-0.56
USMW-04	8/6/14	1650	<5	3100	1.4	<1	<1	<0.4	27400	454	1750	44	13500	1350	45900	8300	7.03	64.2	52700	<0.2	<0.005	<5	686	753	4.68
USMW-04	12/3/14	1280	<5	2510	1.3	<1	0.7	0.7	23100	525	1470	46	10600	1050	36100	7400	6.95	53.9	39800	<0.04	<0.005	<5	574	611	3.1
USMW-05	9/18/13	546	<5	205	3.1	<1	<0.4	<0.4	26800	458	3180	47	7400	448	28700	14000	6.4	27	31400	<0.04	<0.005	<5	573	608	2.98
USMW-05	11/13/13	642	<5	207	2.5	<0.5	<0.2	<0.2	23000	432	2870	30	6070	526	28000	13000	6.74	23.2	33200	<0.04	<0.005	<5	496	523	2.65
USMW-05	5/16/14	679	<5	193	2.9	<0.5	<0.2	<0.2	21200	397	2770	24	5870	557	26800	12000	6.47	23	32700	<0.04	<0.005	<5	458	504	4.71
USMW-05	6/30/14	732	<5	191	3.2	<0.5	<0.2	<0.2	22100	392	2560	22	5280	600	26100	12000	6.67	21.4	31300	<0.04	<0.005	<5	477	460	-1.76
USMW-05	8/6/14	772	<5	180	3.3	<0.5	<0.2	<0.2	22200	401	2620	24	5670	633	26600	12000	6.6	22.7	33100	<0.2	<0.005	<5	480	483	0.33
USMW-05	12/3/14	919	<5	204	3.6	<0.5	<0.2	<0.2	21800	443	2690	27	5570	753	26200	12000	6.58	22	33300	<0.04	<0.005	<5	475	487	1.22
NOTES: All concentrations in units of milligrams per liter (mg/L) unless otherwise noted. < - Denotes non-detect, followed by detection limit. Average calculations based on detection limit, if applicable. Min/Max/Averages not calculated for wells with less than 3 samples. Standard deviation calculated for major constituents bicarbonate, sulphate, calcium, sodium, and for alkalinity and total dissolved solids. ND - Indicates all constituent results were Non-Detect. SAR - Sodium Adsorption Ratio; TDS - Total Dissolved Solids dup. - Duplicate sample. Only original sample included in max/min/ave/st. dev. Calculations. Shading indicates non-representative sample possibly contaminated with drilling fluid																									

Table 15  
Upton Site Water Quality Data, Dissolved Metals

Well	Date Sampled	Dissolved Metals																									
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Cerium	Chromium	Cobalt	Copper	Iron	Lanthanum	Lead	Lithium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Thorium	Uranium	Vanadium	Zinc
UMW-01	4/23/12	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001		<0.001	0.001	<0.005	0.68		<0.001	0.1	1.18	<0.0001	0.003	0.012	0.001	<0.001	<0.0005	<0.005	0.0002	<0.01	<0.005
UMW-01	9/24/12	0.09	<0.001	0.003	<0.05	<0.001	0.1	<0.001	<0.001	<0.001	<0.001	0.02	0.09	<0.001	0.003	<0.1	0.021	<0.0001	0.001	<0.005	<0.001	<0.001	<0.0005	<0.005	0.0001	<0.01	0.015
UMW-01	10/10/12	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	0.06	<0.001	<0.001	<0.1	0.034	<0.0001	0.001	<0.005	<0.001	<0.001	<0.0005	<0.005	<0.0001	<0.01	<0.005
UMW-01	3/4/13	0.16	<0.001	<0.001	<0.05	<0.001	0.1	<0.001	<0.001	<0.001	<0.001	<0.005	0.12	<0.001	0.001	<0.1	0.024	<0.0001	0.002	<0.005	0.009	<0.001	<0.0005	<0.005	<0.0001	<0.01	0.012
UMW-01	5/2/13	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	0.05	<0.001	0.003	<0.1	0.019	<0.0001	0.001	<0.005	0.003	<0.001	<0.0005	<0.005	<0.0001	<0.01	0.014
UMW-01	8/20/13	<0.05	<0.001	<0.001	<0.05	<0.001	0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.02	<0.0001	0.001	<0.005	0.001	<0.001	<0.0005	<0.005	<0.0001	<0.01	<0.005
UMW-01	11/11/13	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.027	<0.0001	<0.001	<0.005	<0.001	<0.001	<0.0005	<0.005	<0.0001	<0.01	<0.005
UMW-01	3/25/14	<0.05	<0.001	<0.001	<0.05	<0.001	0.1	<0.001	<0.001	<0.001	<0.001	0.009	0.13	<0.001	<0.001	<0.1	0.027	<0.0001	0.001	<0.005	0.004	<0.001	<0.0005	<0.005	0.0019	<0.01	<0.005
UMW-01	6/30/14	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	0.04	<0.001	<0.001	<0.1	0.018	<0.0001	0.001	<0.005	0.002	<0.001	<0.0005	<0.005	<0.0001	<0.01	<0.005
UMW-01	8/8/14	<0.05	<0.001	<0.001	<0.05	<0.001	0.1	<0.001	<0.001	<0.001	<0.001	<0.005	0.03	<0.001	<0.001	<0.1	0.079	<0.0001	0.001	<0.005	<0.001	<0.001	<0.0005	<0.005	0.0002	<0.01	<0.005
UMW-01	12/2/14	<0.05	<0.001	<0.001	<0.05	<0.001	0.1	<0.001	<0.001	<0.001	<0.001	<0.005	0.04	<0.001	<0.001	<0.1	0.014	<0.0001	<0.001	<0.005	<0.001	<0.001	<0.0005	<0.005	<0.0001	<0.01	<0.005
	Max	0.16	ND	0.003	ND	ND	0.1	ND	ND	ND	ND	0.02	0.13	ND	0.003	ND	0.079	ND	0.002	ND	0.009	ND	ND	ND	0.0019	ND	0.015
UMW-02	3/14/12	0.19	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001		<0.001	0.002	<0.005	0.07		<0.001	<0.1	0.14	<0.0001	0.003	<0.005	0.001	<0.001	<0.0005	<0.005	0.0004	<0.01	<0.005
UMW-02	9/20/12	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.015	<0.0001	<0.001	<0.005	0.002	<0.001	<0.0005	<0.005	<0.0001	<0.01	0.038
UMW-02	10/10/12	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.017	<0.0001	<0.001	<0.005	0.001	<0.001	<0.0005	<0.005	<0.0001	<0.01	0.052
UMW-02	2/26/13	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	0.03	<0.001	<0.001	<0.1	0.014	<0.0001	<0.001	<0.005	0.004	<0.001	<0.0005	<0.005	<0.0001	<0.01	0.272
UMW-02	5/2/13	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.017	<0.0001	<0.001	<0.005	0.001	<0.001	<0.0005	<0.005	0.0001	<0.01	0.08
UMW-02	8/14/13	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.013	<0.0001	<0.001	<0.005	<0.001	<0.001	<0.0005	<0.005	<0.0001	<0.01	0.22
UMW-02	11/12/13	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.014	<0.0001	<0.001	<0.005	<0.001	<0.001	<0.0005	<0.005	<0.0001	<0.01	0.087
UMW-02	3/13/14	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.017	<0.0001	<0.001	<0.005	<0.001	<0.001	<0.0005	<0.005	0.0003	<0.01	0.154
UMW-02	6/17/14	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.164	<0.0001	<0.001	<0.005	0.001	<0.001	<0.0005	<0.005	0.0005	<0.01	0.183
UMW-02	8/6/14	<0.05	<0.001	<0.001	<0.05	<0.001	<0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	<0.1	0.014	<0.0001	<0.001	<0.005	<0.001	<0.001	<0.0005	<0.005	0.0005	<0.01	0.153
	Max	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.03	ND	ND	ND	0.164	ND	ND	ND	0.004	ND	ND	ND	0.0005	ND	0.272
UMW-03	4/2/12	0.16	<0.001	<0.001	<0.05	<0.001	0.1	<0.001	<0.001	<0.001	<0.001	<0.005	0.13	<0.001	<0.001	<0.1	0.023	<0.0001	0.001	<0.005	0.002	<0.001	<0.0005	<0.005	<0.0001	<0.01	<0.005
UMW-03	9/20/12	<0.05	<0.001	<0.001	<0.05	<0.001	0.1	<0.001	<0.001	<0.001	<0.001	<0.005	0.04	<0.001	<0.001	<0.1	0.006	<0.0001	0.002	<0.005	<0.001	<0.001	<0.0005	<0.005	<0.0001	<0.01	<0.005
UMW-03	10/11/12	<0.05	<0.001	<0.001	<0.05	<0.001	0.1	<0.001	<0.001	<0.001	<0.001	<0.005	<0.03	<0.001	<0.001	&											

Well	Date Sampled	Dissolved Metals																									
		Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Cerium	Chromium	Cobalt	Copper	Iron	Lanthanum	Lead	Lithium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Thorium	Uranium	Vanadium	Zinc
USMW-01	5/24/12	0.09	0.001	0.008	0.16	<0.001	1.1	<0.001	0.002	<0.001	0.003	0.061	<0.06	<0.001	<0.001	0.9	0.106	<0.0001	0.027	0.036	0.073	<0.001	<0.0005	<0.005	0.167	<0.01	0.011
USMW-01	3/11/13	0.05	<0.001	<0.001	<0.05	<0.001	1.5	<0.001	0.003	<0.001	0.008	0.067	0.07	<0.001	<0.001	0.9	1.52	<0.0001	0.021	0.047	0.005	<0.001	<0.0005	0.009	0.178	<0.01	0.047
USMW-01	4/30/13	0.3	<0.001	0.003	0.08	<0.001	1.3	<0.001	0.003	<0.001	0.004	0.089	0.15	<0.001	<0.001	0.9	0.583	<0.0001	0.02	0.043	0.005	<0.001	<0.0005	<0.005	0.195	<0.01	0.027
dup.	4/30/13	0.33	<0.001	0.004	0.05	<0.001	1.1	<0.001	0.001	<0.001	0.003	0.089	0.21	<0.001	<0.001	0.8	0.588	<0.0001	0.022	0.043	0.007	<0.001	<0.0005	<0.005	0.2	<0.01	0.029
USMW-01	8/14/13	<0.05	<0.001	0.001	<0.05	<0.001	0.7	<0.001	0.002	0.003	0.011	<0.005	0.62	<0.001	<0.001	0.4	1.6	<0.0001	0.01	0.013	<0.002	<0.001	<0.0005	<0.005	0.0652	<0.01	0.015
USMW-01	11/14/13	<0.05	<0.001	0.003	<0.05	<0.001	1.2	<0.001	0.001	<0.001	0.019	<0.005	2.38	<0.001	<0.001	0.7	2.66	<0.0001	0.014	0.028	0.001	<0.001	<0.0005	0.008	0.136	<0.01	0.009
USMW-01	3/13/14	<0.05	<0.001	0.001	<0.05	<0.001	1.1	<0.001	0.001	0.001	0.005	0.014	0.07	<0.001	<0.001	0.6	1.18	<0.0001	0.009	0.028	0.003	<0.001	<0.0005	<0.005	0.139	<0.01	0.018
USMW-01	6/27/14	<0.05	<0.001	0.002	<0.05	<0.001	1.2	<0.001		<0.001	0.006	0.01	<0.08	<0.001	<0.001	0.7	2.72	<0.0001	0.011	0.035	0.007	<0.001	<0.0005	<0.005	0.132	<0.01	0.048
USMW-01	8/8/14	<0.05	<0.001	0.002	<0.05	<0.001	1.3	<0.001	0.002	<0.001	0.015	0.006	0.62	<0.001	<0.001	0.9	3.83	<0.0001	0.012	0.033	0.004	<0.001	<0.0005	<0.005	0.135	<0.01	0.018
USMW-01	12/3/14	0.05	<0.001	0.002	<0.05	<0.001	1.1	<0.001	<0.001	<0.001	0.009	0.006	0.08	<0.001	<0.001	0.9	2.81	<0.0001	0.01	0.03	0.002	<0.001	<0.0005	<0.005	0.116	<0.01	<0.005
	Max	0.3	0.001	0.008	0.16	ND	1.5	ND	0.003	0.003	0.019	0.089	2.38	ND	ND	0.9	3.83	ND	0.027	0.047	0.073	ND	ND	0.009	0.195	ND	0.048
USMW-02	5/24/12	<0.05	<0.001	0.004	<0.05	<0.001	1.1	<0.001	0.001	<0.001	0.005	0.018	<0.06	<0.001	<0.001	0.5	0.486	<0.0001	0.024	0.022	0.03	<0.001	<0.0005	<0.005	0.0986	<0.01	<0.005
USMW-02	3/11/13	<0.05	<0.001	0.003	<0.05	<0.001	1.2	<0.001	0.004	<0.001	0.004	0.04	0.62	0.001	<0.001	0.6	1.05	<0.0001	0.008	0.014	0.001	<0.001	0.0006	<0.005	0.072	<0.01	0.057
USMW-02	4/30/13	3.11	<0.001	0.002	0.05	<0.001	0.7	<0.001	<0.001	0.005	0.003	0.071	1.04	<0.001	0.001	0.7	0.143	<0.0001	0.011	0.018	0.025	<0.001	<0.0005	<0.005	0.0801	<0.01	0.047
USMW-02	8/20/13	<0.05	<0.001	<0.001	<0.05	<0.001	1.2	<0.001	<0.001	<0.001	0.002	0.021	0.28	<0.001	<0.001	0.5	0.393	<0.0001	0.003	0.013	0.001	<0.001	<0.0005	<0.005	0.0444	<0.01	0.015
USMW-02	11/14/13	<0.05	<0.001	0.001	<0.05	<0.001	1.2	<0.001	<0.001	<0.001	0.003	<0.005	0.03	<0.001	<0.001	0.5	0.728	<0.0001	0.005	0.012	<0.001	<0.001	<0.0005	<0.005	0.052	<0.01	0.008
USMW-02	3/13/14	<0.05	<0.001	0.001	<0.05	<0.001	1.2	<0.001	<0.001	<0.001	0.005	0.024	0.05	<0.001	<0.001	0.5	1.25	<0.0001	0.003	0.013	0.015	<0.001	<0.0005	<0.005	0.0468	<0.01	0.023
USMW-02	6/17/14	<0.05	<0.001	<0.001	<0.05	<0.001	1	<0.001	<0.001	<0.001	<0.001	0.013	<0.03	<0.001	<0.001	0.5	0.53	<0.0001	0.005	0.012	0.002	<0.001	<0.0005	<0.005	0.0471	<0.01	<0.005
USMW-02	8/8/14	<0.05	<0.001	<0.001	<0.05	<0.001	1.1	<0.001	0.01	<0.001	<0.001	<0.005	<0.03	0.004	<0.001	0.5	0.839	<0.0001	0.004	0.012	<0.001	<0.001	<0.0005	<0.005	0.0358	<0.01	0.007
USMW-02	12/3/14	5.33	<0.001	0.002	0.07	<0.001	1	<0.001		0.006	0.004	0.006	2.48		0.001	0.5	1.48	<0.0001	0.003	0.017	0.002	<0.001	<0.0005	<0.005	0.0234	0.01	0.014
	Max	5.33	ND	0.004	0.07	ND	1.2	ND	0.01	0.006	0.005	0.071	2.48	0.004	0.001	0.7	1.48	ND	0.024	0.022	0.03	ND	0.0006	ND	0.0986	0.01	0.057
USMW-03	5/24/12	0.09	<0.001	0.012	0.05	<0.001	2.4	<0.001	0.01	0.008	0.005	0.047	<0.3	0.002	0.001	4.6	1.3	<0.0001	0.043	0.061	0.19	<0.001	0.0006	<0.005	0.0609	0.02	0.346
USMW-03	3/11/13	0.16	<0.002	<0.006	<0.05	0.001	3.5	0.002	0.007	0.011	0.025	0.119	0.8	0.001	0.003	5.8	15.1	<0.0001	0.013	0.133	0.009	<0.001	<0.0005	0.016	0.0665	<0.01	0.09
USMW-03	5/3/13	0.28	0.001	<0.005	<0.05	<0.001	3.2	0.002	0.008	0.03	0.016	0.024	0.57	0.002	<0.001	5.7	12.2	<0.0001	0.024	0.111	<0.02	<0.002	<0.0005	0.044	0.0679	<0.01	<0.006
USMW-03	9/19/13	0.09	0.001	0.003	<0.05	<0.001	3.4	0.002	0.005	<0.001	0.048	0.038	8.1	0.002	<0.001	4.9	21.8	<0.0001	0.006	0.185	0.012	<0.001	<0.0005	0.009	0.0732	<0.01	0.055
USMW-03	11/14/13	0.08	<0.001	0.006	<0.05	<0.001	3.3	0.002	0.004	<0.009	0.012	0.029	0.09	0.002	0.002	5.4	10.5	<0.0001	0.009	0.114	<0.008	<0.001	<0.0005	0.008	0.0593	<0.01	0.05</

Table 16  
Upton Site Water Quality Data, Radionuclides

Well	Date Sampled	Radionuclides																	
		Gross Alpha (pCi/L)	Gross Alpha MDC (pCi/L)	Gross Alpha precision (+/-) (pCi/L)	Gross Beta (pCi/L)	Gross Beta MDC (pCi/L)	Gross Beta precision (+/-) (pCi/L)	Radium 226 (pCi/L)	Radium 226 MDC (pCi/L)	Radium 226 precision (+/-) (pCi/L)	Radium 228 (pCi/L)	Radium 228 MDC (pCi/L)	Radium 228 precision (+/-) (pCi/L)	Radon 222 (pCi/L)	Radon 222 MDC (pCi/L)	Radon 222 precision (+/-) (pCi/L)	Strontium 90 (pCi/L)	Strontium 90 MDC (pCi/L)	Strontium 90 precision (+/-) (pCi/L)
UMW-01	4/23/12	21.6	7.8	6.4	-2	12.4	7.4	0.98	0.18	0.23	1.8	1.4	0.89	311	158	98.2	-0.4	2.4	1.4
UMW-01	9/24/12	-2	2.4	1.3	0.6	3.4	2	0.16	0.19	0.13	0.36	1.8	1.1	450	167	106	4.5	6	3.8
UMW-01	10/10/12	-1	3.1	1.8	-0.5	3.5	2.1	0.26	0.18	0.15	-0.4	2.1	1.2	424	392	239	1.4	2.6	1.6
UMW-01	3/4/13	9.5	2.8	2.2	-2	3.9	2.3	0.16	0.15	0.11	0.46	1.3	0.78	439	229	142	0.5	2.9	1.8
UMW-01	5/2/13	-0.009	2.7	1.6	-3	3.4	1.9	0.03	0.16	0.09	-1	2.1	1.2	464	336	207	-0.6	2.5	1.4
UWM-01	8/20/13	-2	5.2	3	-4	8.3	4.9	0.15	0.19	0.14	-0.3	1.5	0.86	96.1	87	51.6	0.5	2.9	1.7
UMW-01	11/11/13	-0.3	2.5	1.5	-0.8	3.7	2.2	0.14	0.17	0.12	0.07	1.3	0.79	123	85	50.6	1.3	2.2	1.4
UMW-01	3/25/14	-1	4.1	2.4	1.5	3.8	2.3	0.42	0.19	0.17	0.08	1.3	0.75	123	71	42.9	1.2	1.7	1.1
UMW-01	6/30/14	-0.7	2.4	1.4	0.3	2.9	1.7	0.13	0.14	0.1	-0.6	1.3	0.76	16.8	222	128	1.1	3.2	1.9
UMW-01	8/8/14	-0.07	2.4	1.4	-0.002	3.5	2.1	0.14	0.1	0.07	0.59	1.3	0.82	184	104	62.4	-0.7	11.4	6.8
UMW-01	12/2/14	4.6	3.2	2.1	0.8	3.5	2.1	0.07	0.18	0.11	1.9	1	0.7	139	76	46	1.6	6.7	4
	Min	-2			-4			0.03			-1			16.8			-0.7		
	Max	9.5			1.5			0.42			1.9			464			4.5		
	Ave	0.7			-0.7			0.2			0.1			246			1.1		
UMW-02	3/14/12	79.2	14.5	11.8	68.8	17.3	11.6	0.97	0.18	0.23	2.9	1.4	0.96	33.1	100	59.7	-0.2	2.9	1.7
UMW-02	9/20/12	-0.9	2.3	1.3	-2	3.6	2.1	0.06	0.17	0.11	-0.2	1.9	1.1	393	354	216	1.1	1.7	1
UMW-02	10/10/12	-2	2.7	1.5	-1	3.4	2	0.38	0.17	0.16	0.66	1.9	1.2	45.6	399	238	0.1	1.6	1
UMW-02	2/26/13	2.1	2.8	1.8	-0.4	3.2	1.9	0.1	0.23	0.15	1.9	1.7	1.1	185	222	135	0.9	2.4	1.5
UMW-02	5/2/13	-1	2.6	1.5	-1	3.3	2	-0.01	0.11	0.06	-0.3	2.2	1.3	254	332	202	-0.3	2.3	1.4
UMW-02	8/14/13	-2	3	1.7	0.06	3.5	2.1	0.04	0.18	0.11	0.18	1.3	0.75	84.2	60	36	-0.6	3.2	1.8
UMW-02	11/12/13	-0.4	2.1	1.2	-3	3.6	2.1	0.15	0.17	0.12	1.2	1.4	0.88	57.1	73	42.8	0.7	2.2	1.3
UMW-02	3/13/14	0.5	3.8	2.3	2.5	3.8	2.3	0.13	0.12	0.09	-0.03	1.1	0.64	55.8	131	76.3	0.6	2.3	1.4
UMW-02	6/17/14	-0.2	3.5	2.1	-0.002	3.9	2.3	0.02	0.18	0.11	0.95	1.1	0.72	74.2	84	49.3	-0.2	2.4	1.4
UMW-02	8/6/14	-0.5	3.5	2	0.7	3.8	2.3	0.12	0.1	0.07	1.2	1.3	0.86	127	154	90.8	0.8	7.8	4.7
	Min	-2			-3			-0.01			-0.3			45.6			-0.6		
	Max	2.1			2.5			0.38			1.9			393			1.1		
	Ave	-0.5			-0.5			0.1			0.6			142			0.3		
UMW-03	4/2/12	4.6	4.9	3.1	5.7	5.8	3.6	0.51	0.17	0.18	1.6	1.3	0.84	220	148	90.9	0.1	2.1	1.3
UMW-03	9/20/12	-4	3.7	2	0.2	4.1	2.5	0.23	0.11	0.1	-0.2	1.3	0.74	518	351	216	0.8	1.8	1.1
UMW-03	10/11/12	-0.7	3.3	1.9	-1	4.1	2.4	0.36	0.16	0.15	0.4	1.9	1.1	419	393	240	0	1.6	1
UMW-03	2/27/13	-3	3.9	2.2	-0.4	4.7	2.8	0.15	0.19	0.13	-0.05	1.6	0.95	509	228	143	1	2.4	1.5
UMW-03	5/7/13	-2	3.7	2.1	-0.2	4.5	2.6	0.2	0.29	0.2	0.1	2	1.2	383	185	115	1	2.6	1.6
UMW-03	8/19/13	-3	3.9	2.2	0.5	4.2	2.5	0.2	0.32	0.22	1.2	2.5	1.5	132	74	44.5	-0.8	2.9	1.7
UMW-03	11/12/13	-0.03	2.4	1.4	-0.05	3.3	2	0.47	0.17	0.17	0.94	1.3	0.85	150	71	43.2	0.9	2.1	1.3
UMW-03	3/24/14	2.5	3.7	2.3	1	3.6	2.2	0.37	0.2	0.17	0.46	1.3	0.8	118	87	51.6	0.4	0.7	0.4
UMW-03	6/30/14	-0.4	2.1	1.2	-2	3.9	2.3	0.22	0.14	0.11	1.3	1.3	0.87	106	214	125	1.1	3.3	2
UMW-03	8/8/14	1.1	2.9	1.8	-0.7	3.8	2.3	0.11	0.09	0.07	0.85	1.3	0.8	152	106	63	0	2.6	1.5
UMW-03	12/2/14	0.6	2.6	1.6	2.4	3.7	2.2	-0.1	0.2	0.09	-0.3	1.4	0.8	-28.9	74	42.3	0.8	5.5	3.3
	Min	-4			-2			-0.1			-0.3			-28.9			-0.8		
	Max	4.6			5.7			0.51			1.6			518			1.1		
	Ave	-0.4			0.5			0.2			0.6			243			0.5		
UMW-04	4/25/12	62.6	57.2	36.8	46.7	72.3	44.1	0.65	0.36	0.31	1	2.6	1.6	250	358	217	0.9	2.4	1.5
UMW-04	9/20/12	34.2	48.2	30.3	34.2	51.1	31.1	1.4	0.21	0.28	1.4	1.2	0.77	13.9	363	216	2.9	6.2	3.8

Well	Date Sampled	Radionuclides																	
		Gross Alpha (pCi/L)	Gross Alpha MDC (pCi/L)	Gross Alpha precision (+/-) (pCi/L)	Gross Beta (pCi/L)	Gross Beta MDC (pCi/L)	Gross Beta precision (+/-) (pCi/L)	Radium 226 (pCi/L)	Radium 226 MDC (pCi/L)	Radium 226 precision (+/-) (pCi/L)	Radium 228 (pCi/L)	Radium 228 MDC (pCi/L)	Radium 228 precision (+/-) (pCi/L)	Radon 222 (pCi/L)	Radon 222 MDC (pCi/L)	Radon 222 precision (+/-) (pCi/L)	Strontium 90 (pCi/L)	Strontium 90 MDC (pCi/L)	Strontium 90 precision (+/-) (pCi/L)
UMW-05	2/26/13	7.6	5.5	3.6	5.4	7	4.3	1.1	0.17	0.23	1.2	1.5	0.93	262	219	134	0.8	2.8	1.7
UMW-05	5/9/13	3.7	4.4	2.8	1.5	4.2	2.5	0.09	0.15	0.1	-0.1	1.6	0.92	193	332	200	-0.9	2.8	1.6
UMW-05	8/19/13	-2	3.3	1.8	1.2	4.3	2.6	0.16	0.17	0.13	0.58	1.3	0.83	106	87	51.8	-0.9	2.6	1.5
UMW-05	11/13/13	0.4	2.6	1.5	0.4	3.8	2.3	0.24	0.15	0.12	1.5	1.6	1	155	150	89	-0.8	2.7	1.6
UMW-05	3/18/14	7.6	2.2	1.9	-2	3.9	2.3	0.13	0.16	0.11	0.35	1.4	0.87	162	85	51.5	1.6	1.9	1.2
UMW-05	6/30/14	-4	3.8	2.1	-1	4.1	2.4	0.21	0.15	0.12	0.17	1.5	0.88	80.9	207	121	3.4	3.7	2.3
UMW-05	8/6/14	-0.4	3	1.8	0.8	4.2	2.5	0.12	0.12	0.08	1.4	1.6	1	129	154	90.6	-1.8	7.2	4.2
UMW-05	12/3/14	-0.1	3	1.7	1.6	4.2	2.6	0.03	0.18	0.11	0.53	1.2	0.74	84.9	63	37.7	0.8	2.1	1.3
	Min	-4			-2			0.03			-0.1			80.9			-1.8		
	Max	7.6			5.4			1.1			1.5			262			3.4		
	Ave	1.6			1.0			0.3			0.7			147			0.3		
USMW-01	5/24/12	131	51	36.7	25.8	64.5	39.1	0.1	0.31	0.2	1.6	2.6	1.6	69.5	142	85.7	-0.9	8.7	5.1
USMW-01	3/11/13	175	49.7	37.5	30.6	66.2	40.3	0.9	0.45	0.38	2	1.9	1.2	274	181	112	-1.2	2	1.1
USMW-01	4/30/13	177	42.1	33.8	-3	67.6	40.6	0.64	0.31	0.27	-0.9	3	1.8	347	195	121	0.3	2.6	1.6
USMW-01 dup.	4/30/13	161	44.2	34.1	17.2	64.8	39.2	0.78	0.31	0.29	-0.1	3.1	1.8	5140	195	174	1.3	2.5	1.5
USMW-01	8/14/13	84.2	31.5	22.6	-9	36.7	21.8	0.32	0.2	0.16	1.1	1.4	0.89	183	61	37.7	0	2.5	1.5
USMW-01	11/14/13	95.8	31.2	22.7	25	40.1	24.5	0.44	0.21	0.18	3.4	2.2	1.5	13.3	129	74.7	-0.6	3.2	1.9
USMW-01	3/13/14	162	47.2	35.2	39	49.1	30.3	0.83	0.22	0.21	1.2	1.9	1.2	152	131	78	1	1.9	1.2
USMW-01	6/27/14	226	51.5	40.5	2.2	48.9	29.5	0.17	0.3	0.2	-0.5	2.4	1.4	-11.9	107	61.5	0.5	6.6	4
USMW-01	8/8/14	132	37.2	29.2	8	54.3	32.7	0.59	0.3	0.24	4.9	4.1	2.7	7.9	107	61.7	-1.7	4	2.3
USMW-01	12/3/14	94.8	43.8	30	13.5	40.7	24.7	0.33	0.23	0.18	1.4	1.5	0.98	6.2	62	35.6	1.6	9.5	5.8
	Min	84.2			-9			0.1			-0.9			-11.9			-1.7		
	Max	226			39			0.9			4.9			347			1.6		
	Ave	142			14.7			0.5			1.6			116			-0.1		
USMW-02	5/24/12	106	39.2	28.3	22.2	53.2	32.3	0.4	0.29	0.22	7.6	2.3	1.8	1190	141	99.5	-0.3	9.6	5.7
USMW-02	3/11/13	62.6	29.2	20.2	-7	34.5	20.5	0.61	0.17	0.17	2.4	1.6	1.1	581	183	117	-1.8	2	1.1
USMW-02	4/30/13	95.1	50.2	33.5	30.6	54.1	32.9	1.2	0.2	0.26	1.3	2	1.3	1480	193	135	1.3	2.5	1.5
USMW-02	8/20/13	62.1	23.2	16.9	-20	29.9	17.5	0.16	0.15	0.11	1.1	1.2	0.76	199	72	44.1	0	2	1.2
USMW-02	11/14/13	56.2	31.1	20.6	-10	32.6	19.4	0.3	0.13	0.12	3.7	1.6	1.2	82.8	128	74.9	-0.6	3.2	1.9
USMW-02	3/13/14	91.5	28.2	21.1	27.1	33	20.3	0.64	0.11	0.12	1.5	1	0.65	79	128	74.9	2.5	3.8	2.4
USMW-02	6/17/14	46.8	23.5	16.6	15.9	37	22.5	0.17	0.16	0.12	0.41	1.2	0.72	200	85	51.5	-0.2	1.2	0.7
USMW-02	8/8/14	48.7	21.2	15.1	8.2	29.2	17.6	0.29	0.09	0.08	2	1.2	0.83	253	106	64.8	0	1.7	1
USMW-02	12/3/14	33.1	24.9	16.5	18.2	38.3	23.3	0.76	0.17	0.2	0.93	1.1	0.72	212	62	38.7	4.6	7.8	4.9
	Min	33.1			-20			0.16			0.41			79			-1.8		
	Max	106			30.6			1.2			7.6			1480			4.6		
	Ave	67			9.5			0.5			2.3			475			0.6		
USMW-03	5/24/12	-200	242	131	-100	241	142	0.78	0.18	0.2	1.4	1.5	0.97	282	141	87.8	-0.7	7.6	4.5
USMW-03	3/11/13	-30	295	174	-100	267	157	1.9	0.21	0.31	4.6	2	1.4	344	184	114	-3.5	4.3	2.4
USMW-03	5/3/13	-100	252	145	-100	265	155	0.85	0.13	0.17	0.48	1.1	0.66	309	282	172	0.9	5	3
USMW-03	9/19/13	-30	179	105	-100	261	153	1.1	0.15	0.22	1.4	1.6	1	76	129	75.6	0.7	2.7	1.6
USMW-03	11/14/13	96	242	148	-60	257	153	0.59	0.18	0.18	1.7	1.9	1.2	24.1	127	73.5	-0.7	3.4	2
USMW-03	3/13/14	-40	261	152	162	316	191	1.3	0.23	0.25	2.6	2	1.3	65.1	129	75.6	1.1	2.2	1.4
USMW-03	6/17/14	339	199	138	-5	271	162	0.17	0.23	0.16	5.2	1.7	1.3	59.4	84	49.3	-0.2	4.8	2.8
USMW-03	8/8/14	-50	205	118	48.6	273	164	0.96	0.34	0.3	-0.6	5.6	3.3	-4.5	104	60.1	0.3	17	10.1
USMW-03	12/3/14	45.8	146	89.1	-50	265	157	1	0.18	0.23	0.66	1.2	0.77	50.3	62	36.7	0.5	5.6	3.3
	Min	-200			-100			0.17			-0.6			-4.5			-3.5		
	Max	339			162			1.9			5.2			344			1.1		
	Ave	3			-34			1.0			1.9			134			-0.2		

Well	Date Sampled	Radionuclides																	
		Gross Alpha (pCi/L)	Gross Alpha MDC (pCi/L)	Gross Alpha precision (+/-) (pCi/L)	Gross Beta (pCi/L)	Gross Beta MDC (pCi/L)	Gross Beta precision (+/-) (pCi/L)	Radium 226 (pCi/L)	Radium 226 MDC (pCi/L)	Radium 226 precision (+/-) (pCi/L)	Radium 228 (pCi/L)	Radium 228 MDC (pCi/L)	Radium 228 precision (+/-) (pCi/L)	Radon 222 (pCi/L)	Radon 222 MDC (pCi/L)	Radon 222 precision (+/-) (pCi/L)	Strontium 90 (pCi/L)	Strontium 90 MDC (pCi/L)	Strontium 90 precision (+/-) (pCi/L)
USMW-04	9/18/13	262	195	129	66.3	256	154	1.2	0.16	0.23	1.7	1.5	0.96	-50.4	153	87.7	1.3	2.4	1.5
USMW-04	11/13/13	302	167	115	197	238	146	0.95	0.21	0.24	4.8	2.2	1.6	-130	153	86.4	-0.9	2.7	1.6
USMW-04	3/18/14	745	181	153	17.8	254	152	0.55	0.74	0.5	-2	8.8	5.1	-1.9	85	49	4.7	9.9	6.1
USMW-04	5/16/14	226	196	128	-20	267	159	1.5	0.29	0.34	2.7	1.9	1.2	-65.7	104	59	1.7	12.3	7.4
USMW-04	6/27/14	240	263	168	-200	283	166	0.64	0.29	0.26	1.8	2.3	1.5	-105	106	59.5	0.7	5.8	3.5
USMW-04	8/6/14	435	351	226	10.6	295	176	1.4	0.39	0.37	6.2	5.3	3.5	-172	151	84.6	0.2	4.7	2.8
USMW-04	12/3/14	303	188	123	161	151	93.3	0.46	0.18	0.17	1.2	1.2	0.79	-83.8	63	35.1	1.3	7.6	4.6
	Min	226			-200			0.46			-2			-172			-0.9		
	Max	745			197			1.5			6.2			-1.9			4.7		
	Ave	359			33			1.0			2.3			-87			1.3		
USMW-05	9/18/13	120	105	68.7	23.6	150	90.3	0.65	0.17	0.19	2	1.5	1	-77.7	153	87	1.1	2	1.2
USMW-05	11/13/13	48.4	85.8	53.7	-40	138	81.7	0.56	0.2	0.19	2.6	2.1	1.4	-35.3	154	88.5	0	2.3	1.4
USMW-05	5/16/14	7.9	128	76.2	-60	141	82.9	0.39	0.21	0.17	2.2	1.3	0.91	14.6	104	60.5	-3.5	11.7	6.8
USMW-05	6/30/14	-40	131	76	-50	147	86.5	0.18	0.21	0.15	0.16	2	1.2	-28.4	212	122	2.9	5.7	3.5
USMW-05	8/6/14	38.4	127	77	64.5	148	89.4	0.73	0.4	0.31	8.8	5.5	3.7	-55.2	153	87.7	3.6	4.8	3
USMW-05	12/3/14	-40	131	75.6	32	143	85.6	0.2	0.17	0.13	1.1	1.2	0.76	-7.9	64	36.7	1.8	5.4	3.3
	Min	-40			-60			0.18			0.16			-77.7			-3.5		
	Max	120			64.5			0.73			8.8			14.6			3.6		
	Ave	22			-5			0.5			2.8			-32			1.0		
<b>NOTES:</b> MDC - Minimum detectable concentration Min/Max/Averages not calculated for wells with less than 3 samples. Min/Max/Average calculations not evaluated for MDC and precision values. Shading indicates non-representative sample possibly contaminated with drilling fluid																			

**Table 17**  
**Upton Site Water Quality Data, Volatile Organic Compounds**

Analyte	Monitor Well and Date Sampled				
	UMW-01	UMW-02	UMW-03	USMW-01	USMW-03
	5/3/2013	5/7/2013	5/7/2013	5/9/2013	5/3/2013
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1	<1	<1	<1	<1
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1	<1	<1	<1	<1
1,1-Dichloropropene	<1	<1	<1	<1	<1
1,2,3-Trichlorobenzene	<1	<1	<1	<1	<1
1,2,3-Trichloropropane	<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1	<1	<1	<1	<1
1,2,4-Trimethylbenzene	0.32	<1	0.38	<1	<1
1,2-Dibromo-3-chloropropane	<1	<1	<1	<1	<1
1,2-Dichlorobenzene	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1	<1	<1	<1	<1
1,3,5-Trimethylbenzene	<1	<1	0.14	<1	<1
1,3-Dichlorobenzene	<1	<1	<1	<1	<1
1,3-Dichloropropane	<1	<1	<1	<1	<1
1,4-Dichlorobenzene	<1	<1	<1	<1	<1
2,2-Dichloropropane	<1	<1	<1	<1	<1
2-Chloroethyl vinyl ether	<1	<1	<1	<1	<1
2-Chlorotoluene	<1	<1	<1	<1	<1
2-Hexanone	<20	<20	<20	<20	<20
4-Chlorotoluene	<1	<1	<1	<1	<1
Acetone	<20	<20	<20	<20	<20
Acetonitrile	<20	<20	<20	<20	<20
Acrolein	<20		<20	<20	<20
Acrylonitrile	<20		<20	<20	<20
Benzene	<1	<1	0.18	<1	<1
Bromobenzene	<1	<1	<1	<1	<1
Bromochloromethane	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1
Bromoform	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1
Carbon disulfide	<1	<1	0.18	<1	<1
Carbon Tetrachloride	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1
Chlorodibromomethane	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1
Chloroform	<1	<1	<1	<1	<1
Chloromethane	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1	<1	<1	<1	<1
Dibromoethane	<1	<1	<1	<1	<1
Dichlorodifluoromethane	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	0.096	<1	<1
Hexachlorobutadiene	<1	<1	<1	<1	<1
Iodomethane	<1	<1	<1	<1	<1
Isopropylbenzene	<1	<1	<1	<1	<1
M/P-Xylene	<1	<1	0.26	<1	<1
Methyl ethyl ketone	<20	<20	<20	<20	<20
Methyl isobutyl ketone	<20	<20	<20	<20	<20
Methylene chloride	0.12	<1	<1	<1	<1
Methyl-tertiary-butyl ether	<1	<1	<1	<1	<1
Naphthalene	<1	<1	<1	<1	<1

Analyte	Monitor Well and Date Sampled				
	UMW-01	UMW-02	UMW-03	USMW-01	USMW-03
	5/3/2013	5/7/2013	5/7/2013	5/9/2013	5/3/2013
n-Butylbenzene	<1	<1	<1	<1	<1
n-Propylbenzene	<1	<1	<1	<1	<1
O-Xylene	0.13	<1	0.17	<1	<1
p-Isopropyltoluene	<1	<1	<1	<1	<1
sec-Butylbenzene	<1	<1	<1	<1	<1
Styrene	<1	<1	<1	<1	<1
tert-Butylbenzene	<1	<1	<1	<1	<1
Tetrachloroethene	<1	<1	<1	<1	<1
Toluene	15	<1	46	<1	<1
trans-1,2-Dichloroethene	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1	<1	<1	<1	<1
Trichloroethene	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1	<1	<1	<1	<1
Vinyl acetate	<1	<1	<1	<1	<1
Vinyl Chloride	<1	<1	<1	<1	<1
Xylene	0.13	<1	0.42	<1	<1
<b>NOTES:</b> All units in micrograms per liter (µg/L)					



**Table 18**  
**Upton Site Water Quality Data, Semi-Volatile Organic Compounds**

Analyte	Monitor Well and Date Sampled				
	UMW-01	UMW-02	UMW-03	USMW-01	USMW-03
	5/3/2013	5/7/2013	5/7/2013	5/9/2013	5/3/2013
1,2,4-Trichlorobenzene	<10	<10	<10	<10	<10
1,2-Dichlorobenzene	<10	<10	<10	<10	<10
1,3-Dichlorobenzene	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	<10	<10	<10	<10	<10
1-Methylnaphthalene	<10	<10	<10	<10	<10
2,4,5-Trichlorophenol	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	<10	<10	<10	<10	<10
2,4-Dichlorophenol	<10	<10	<10	<10	<10
2,4-Dimethylphenol	<10	<10	<10	<10	<10
2,4-Dinitrophenol	<50	<50	<50	<50	<50
2,4-Dinitrotoluene	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	<10	<10	<10	<10	<10
2-Chloronaphthalene	<10	<10	<10	<10	<10
2-Chlorophenol	<10	<10	<10	<10	<10
2-Methylnaphthalene	<10	<10	<10	<10	<10
2-Nitrophenol	<10	<10	<10	<10	<10
3,3'-Dichlorobenzidine	<10	<10	<10	<10	<10
4,6-Dinitro-2-methylphenol	<50	<50	<50	<50	<50
4-Bromophenyl phenyl ether	<10	<10	<10	<10	<10
4-Chloro-3-methylphenol	<10	<10	<10	<10	<10
4-Chlorophenol	<10	<10	<10	<10	<10
4-Chlorophenyl phenyl ether	<10	<10	<10	<10	<10
4-Nitrophenol	<50	<50	<50	<50	<50
Acenaphthene	<10	<10	<10	<10	<10
Acenaphthylene	<10	<10	<10	<10	<10
Anthracene	<10	<10	<10	<10	<10
Azobenzene	<10	<10	<10	<10	<10
Benzidine	<10	<10	<10	<10	<10
Benzo(a)anthracene	<10	<10	<10	<10	<10
Benzo(a)pyrene	<10	<10	<10	<10	<10
Benzo(b)fluoranthene	<10	<10	<10	<10	<10
Benzo(g,h,i)perylene	<10	<10	<10	<10	<10
Benzo(k)fluoranthene	<10	<10	<10	<10	<10
bis(-2-chloroethoxy)Methane	<10	<10	<10	<10	<10
bis(-2-chloroethyl)Ether	<10	<10	<10	<10	<10
bis(2-chloroisopropyl)Ether	<10	<10	<10	<10	<10
bis(2-ethylhexyl)Phthalate	<10	<10	<10	<10	<10
Butylbenzylphthalate	<10	<10	<10	<10	<10
Chrysene	<10	<10	<10	<10	<10
Dibenzo(a,h)anthracene	<10	<10	<10	<10	<10
Diethyl phthalate	<10	<10	<10	<10	7.8
Dimethyl phthalate	<10	<10	<10	<10	<10
Di-n-butyl phthalate	<10	<10	<10	<10	<10
Di-n-octyl phthalate	<10	<10	<10	<10	<10
Fluoranthene	<10	<10	<10	<10	<10
Fluorene	<10	<10	<10	<10	<10
Hexachlorobenzene	<10	<10	<10	<10	<10
Hexachlorobutadiene	<10	<10	<10	<10	<10
Hexachlorocyclopentadiene	<10	<10	<10	<10	<10
Hexachloroethane	<10	<10	<10	<10	<10
Indeno(1,2,3-cd)pyrene	<10	<10	<10	<10	<10
Isophorone	<10	<10	<10	<10	<10
m+p-Cresols	<10	<10	<10	<10	<10
Naphthalene	<10	<10	<10	<10	<10
Nitrobenzene	<10	<10	<10	<10	<10
n-Nitrosodimethylamine	<10	<10	<10	<10	<10
n-Nitroso-di-n-propylamine	<10	<10	<10	<10	<10
n-Nitrosodiphenylamine	<10	<10	<10	<10	<10

Analyte	Monitor Well and Date Sampled				
	UMW-01	UMW-02	UMW-03	USMW-01	USMW-03
	5/3/2013	5/7/2013	5/7/2013	5/9/2013	5/3/2013
o-Cresol	<10	<10	<10	<10	<10
Pentachlorophenol	<50	<50	<50	<50	<50
Phenanthrene	<10	<10	<10	<10	<10
Phenol	<10	<10	<10	<10	<10
Pyrene	<10	<10	<10	<10	<10
Pyridine	<10	<10	<10	<10	<10
NOTES: All units in micrograms per liter (µg/L)					

**Table 19**  
**Groundwater Rights within and 3 Miles Adjacent to the Upton Plant Project Boundary**

WR Number	Priority Date	Summary WR Status	Appropriator	Facility Name	Uses	Sec	Qtr-Qtr	Well Log (Y/N)	Total Flow (CFS)/ Appropriation (GPM)	Total Depth (ft)	Static Water Level (Ft)	Latitude	Longitude
Township 47 North, Range 65 West													
P18227.0P	07/22/1942	Complete		RAY NORRIS #1	DOM_GW	18	NWNW	Unknown	20	110.00	70	44.0605800	-104.7170900
P12699.0P	03/02/1944	Complete		MARTENS #IK 17	STK	14	NESW	Unknown	4	1700.00	-6	44.0537800	-104.6316800
P5537.0P	07/31/1954	Complete	MARY ANN SHANNON	SHANNON #6	STK	18	SWSE	Unknown	5	160.00	-1	44.0497500	-104.7071700
P12698.0P	12/31/1959	Complete		FOLTZ #IK 26	STK	13	SESE	Unknown	4	638.00	-6	44.0503300	-104.6014400
CR UW05/101	02/13/1974		TOWN OF UPTON	TOWN OF UPTON WELL NO. 5	MUN_GW	01	NENW	Unknown	35			44.0896330	-104.6116830
CR UW16/135	02/13/1974		TOWN OF UPTON	TOWN OF UPTON WELL NO. 5	MUN_GW	01	NENW	Unknown				44.0896330	-104.6116830
P36695.0W	03/21/1977	Complete	FRANK A. & JENNY L. WATSON	WATSON #1	DOM_GW	01	NESE	Unknown	4	610.00	150	44.0826900	-104.6014500
P42867.0W	04/17/1978	Complete	WILLIAM P. GARDNER JR.	PINE HOLE	DOM_GW; STK	01	NESE	Unknown	15	85.00	18	44.0826900	-104.6014500
P44733.0W	08/11/1978	Complete	R. DON & JUDITH A. WARKENTIN	PINEY #1	DOM_GW	12	NWNE	Unknown	5	80.00	35	44.0754800	-104.6064900
P47576.0W	04/23/1979	Complete	DERK J. OR BETTY A. BRADFORD	BRADFORD #1	DOM_GW	12	NENE	Unknown	8	100.00	10	44.0755000	-104.6014500
P55924.0W	03/10/1981	Complete	DALE E. BOE	BOE #1	DOM_GW	01	NESW	Unknown	4	480.00	460	44.0826600	-104.6115200
CR UW07/040	09/09/1982	Fully Adjudicated	TOWN OF UPTON	UPTON WELL #6	MUN_GW	01	NENW	Unknown	200	3310.00	61.6	44.0898500	-104.6115100
P150030.0W	03/25/2003	Complete		NOLD # 2	DOM_GW	01	NWSE	Unknown	5	817.00	10	44.0826800	-104.6064900
P196069.0W	06/29/2011	Complete	RAYMOND NORRIS REVOCABLE TRUST, RAYMOND NORRIS	R NORRIS #1	DOM_GW; STK	18	NWNE	N	5	118.00	92	44.0604170	-104.7070330
P199618.0W	01/25/2013	Incomplete	MARK AND LISA GRIFFITH	GRIFFITH #1	DOM_GW	17	NESE	Unknown	20			44.0530170	-104.6821140
Township 47 North, Range 66 West													
P5535.0P	11/25/1966	Complete	MARY ANN SHANNON	SHANNON #4	DOM_GW	13	SWSE	Unknown	10	100.00		44.0496500	-104.7271500
P5668.0W	05/29/1970	Complete	MARY ANN SHANNON	SHANNON #7	DOM_GW; STK	13	SWSE	Unknown	5	180.00	40	44.0496500	-104.7271500
P31075.0W	09/18/1975	Complete		M. NORRIS #1	DOM_GW	13	NENE	Unknown	7	372.00	120	44.0605600	-104.7220400
P56135.0W	03/25/1981	Complete	FRED NORRIS	NORRIS #6	STK	12	SWNE	Unknown	3	300.00	160	44.0714200	-104.7269800
P93631.0W	12/13/1993	Complete	FLYING J RANCH	MCKENZIE 1A	STK	01	NWNE	Unknown	5	125.00	35	44.0895500	-104.7268000
Township 48 North, Range 65 West													
P18705.0P	04/22/1969	Complete	LEONARD N. HANSON	LEONARD HANSON #1	DOM_GW; STK	35	SESW	Unknown	15	36.50	14	44.0934600	-104.6315700
P28338.0W	02/13/1974	Fully Adjudicated		TOWN OF UPTON WELL #5	MUN_GW	35	SWSW	Unknown	35	545.00	120	44.0934500	-104.6365900
CR UW05/098	02/13/1974	Fully Adjudicated	TOWN OF UPTON	TOWN OF UPTON WELL #2	MUN_GW	25	NWSW	Unknown	205	3162.00	-1	44.1121600	-104.6160900
CR UW05/099	02/13/1974	Fully Adjudicated	TOWN OF UPTON	TOWN OF UPTON WELL #3	MUN_GW	25	NESW	Unknown	35	804.00	200	44.1121300	-104.6111100
CR UW05/100	02/13/1974	Fully Adjudicated	TOWN OF UPTON	TOWN OF UPTON WELL #4	MUN_GW	35	SWSW	Unknown	205	-1.00	-1	44.0934500	-104.6365900
P26846.0W	05/31/1974	Complete	LEONARD N. HANSON	HANSON WELL #2	DOM_GW	35	SWSW	Unknown	5	21.00	4	44.0934500	-104.6365900
P26847.0W	05/31/1974	Complete	LEONARD N. HANSON	HANSON WELL #3	DOM_GW	35	SWSW	Unknown	6	30.00	6	44.0934500	-104.6365900
P43774.0W	06/16/1978	Complete	ALVIN HUCKINS	HUCKINS #1	DOM_GW; STK	21	NWNW	Unknown	15	720.00	150	44.1338200	-104.6763500
P49344.0W	08/07/1979	Complete	JOHN W. & CAROLE L. HOLMES	HOLMES #1	DOM_GW	25	NWSW	Unknown	10	50.00	14	44.1121600	-104.6160900
P50697.0W	11/16/1979	Complete	SAMUEL AND OR JOYCE A. HAPTONSTALL	HAP #1	STK	25	NWNW	Unknown	10	40.00	1.5	44.1196700	-104.6158800
P56239.0W	07/09/1980	Complete	LEONARD N. HANSON	HANSON #4	DOM_GW;	35	SESW	Unknown	9	50.00	38	44.0934600	-104.6315700

WR Number	Priority Date	Summary WR Status	Appropriator	Facility Name	Uses	Sec	Qtr-Qtr	Well Log (Y/N)	Total Flow (CFS)/ Appropriation (GPM)	Total Depth (ft)	Static Water Level (Ft)	Latitude	Longitude
					STK								
P55797.0W	02/20/1981		ROBERT P. VAN LOAN	R & R #1	MIS	26	SENE	Unknown	11	683.00	94	44.1159200	-104.6209800
P55909.0W	03/09/1981	Complete	JAMES C. OR HARRIETT E. NORRIS	NORRIS #1	DOM_GW; STK	23	SESW	Unknown	2	640.00	200	44.1233600	-104.6308600
P61798.0W	08/19/1982	Complete	JOHN W. & CAROLE L. HOLMES	HOLMES #2	DOM_GW	25	NWSW	Unknown	5	590.00	80	44.1121600	-104.6160900
CR UW05/103	01/28/1983	Fully Adjudicated	TOWN OF UPTON	ENL TOWN OF UPTON WELL #2	MUN_GW	25	NWSW	Unknown	120	3162.00	385.9	44.1121600	-104.6160900
CR UW05/104	01/28/1983	Fully Adjudicated	TOWN OF UPTON	ENL TOWN OF UPTON WELL #4	MUN_GW	35	SWSW	Unknown	170	3193.00	151.86	44.0934500	-104.6365900
P77358.0W	06/24/1988	Complete	HENRY L. MARTENS	RALSTON #1	STK	28	NESW	Unknown	6.5	810.00	90	44.1117700	-104.6715500
P96809.0W	08/19/1994	Complete	CAROLYN HOLSO	HOLSO #1	DOM_GW	26	NENW	Unknown	10	664.00	147	44.1195900	-104.6309800
P97549.0W	10/17/1994	Complete		HS MW-1	MON	35	SWSE	Unknown	0	14.00	6	44.0934700	-104.6265400
P97550.0W	10/17/1994	Complete		HS MW-2	MON	35	SWSE	Unknown	0	11.00	5	44.0934700	-104.6265400
P97551.0W	10/17/1994	Complete		HS MW-3	MON	35	SWSE	Unknown	0	14.00	6	44.0934700	-104.6265400
P97552.0W	10/17/1994	Complete		HS MW-4	MON	35	SWSE	Unknown	0	14.00	6	44.0934700	-104.6265400
P97553.0W	10/17/1994	Complete		AG MW-1	MON	35	SWSE	Unknown	0	14.00	7	44.0934700	-104.6265400
P97554.0W	10/17/1994	Complete		AG MW-2	MON	35	SWSE	Unknown	0	14.00	8	44.0934700	-104.6265400
P97555.0W	10/17/1994	Complete		AG MW-3	MON	35	SWSE	Unknown	0	14.00	6	44.0934700	-104.6265400
P97556.0W	10/17/1994	Complete		AG MW-4	MON	35	SWSE	Unknown	0	14.00	5	44.0934700	-104.6265400
P97557.0W	10/17/1994	Complete		CS MW-1	MON	35	SWSE	Unknown	0	14.00	6	44.0934700	-104.6265400
P97559.0W	10/17/1994	Complete		BAB MW-1	MON	35	NESW	Unknown	0	12.00	6	44.0971800	-104.6314900
P97560.0W	10/17/1994	Complete		BAB MW-2	MON	35	NESW	Unknown	0	14.00	5	44.0971800	-104.6314900
P97561.0W	10/17/1994	Complete		BAB MW-3	MON	35	NESW	Unknown	0	14.00	6	44.0971800	-104.6314900
P97562.0W	10/17/1994	Complete		JSV MW-1	MON	35	NESW	Unknown	0	14.00	3	44.0971800	-104.6314900
P97563.0W	10/17/1994	Complete		JSV MW-2	MON	35	NESW	Unknown	0	14.00	3	44.0971800	-104.6314900
P98208.0W	01/09/1995	Fully Adjudicated		UPTON WELL #7	MUN_GW	25	NWSW	Unknown	200	3466.00	199.61	44.1121600	-104.6160900
CR UW12/037	01/09/1995	Fully Adjudicated	TOWN OF UPTON	UPTON WELL NO. 7	MUN_GW	25	NWSW	Unknown	375			44.1115390	-104.6173810
P104313.0W	10/21/1996	Complete	JOSEPH E/DENISE R LORENZ	LORENZ 01	DOM_GW	23	NWSE	Unknown	10	683.00	110	44.1272500	-104.6256100
P108946.0W	02/18/1998	Complete		ENL LORENZ 01	DOM_GW	23	NWSE	Unknown	5	683.00	110	44.1272500	-104.6256100
P130058.0W	10/17/2000	Complete	AMERICAN COLLOID COMPANY	FOCI #1	DOM_GW; STK	21	SWSW	Unknown	25	800.00	150	44.1227800	-104.6764700
P134275.0W	04/02/2001	Fully Adjudicated		UPTON ACC #2	MIS	27	SWSW	Unknown	0	834.00	13.5	44.1082100	-104.6564800
CR UW11/156	04/12/2001		AMERICAN COLLOID COMPANY		MIS	27	SWSW	Unknown	50			44.1082100	-104.6564800
P145598.0W	07/01/2002	Complete		MW2334	MON	35	SWNE	Unknown	0	20.00	15	44.1009200	-104.6263900
P151382.0W	05/09/2003	Complete	HAROLD R. CUMMINGS	CUMMINGS #1	DOM_GW	23	NWSE	Unknown	12	864.00	125	44.1272500	-104.6256100
P151917.0W	06/10/2003	Complete	ANDY KELLER	ANDY KELLER # 1	DOM_GW; STK	26	NENW	Unknown	12	666.00	300	44.1195900	-104.6309800
P157956.0W	04/20/2004	Complete	LES R & HEATHER BUTTS	BUTTS #1	DOM_GW	26	NWNE	Unknown	12	825.00	7.88	44.1196300	-104.6259300
P163277.0W	10/14/2004	Complete	SAM AND MICHELE SANCHEZ	SANCHEZ 1	DOM_GW	23	NWNE	Unknown	10	640.00	90	44.1349000	-104.6252500
P163461.0W	10/29/2004		PAUL & DANIELLE KLINE	KLINE #1	DOM_GW	23	NESW	Unknown	15			44.1271500	-104.6307200
P167388.0W	04/28/2005	Complete	ROBERT FINN	HOOT #1	DOM_GW	25	SWNW	N	12	700.00	70	44.1155000	-104.6163330
P175186.0W	08/12/2005	Incomplete		UPTON NO. 8 WELL	MUN_GW	25	NWSW	N	265	3350.00	133.61	44.1120000	-104.6156670
CR UW18/034	08/12/2005	Fully Adjudicated	TOWN OF UPTON	UPTON NO. 8 WELL	MUN_GW	25	NWSW	Unknown	400			44.1122810	-104.6161080
P169555.0W	08/18/2005	Complete	MARK R. & CINDY D. DUCA	R & R 1	DOM_GW	26	SWSE	Unknown	11	683.00	94	44.1083900	-104.6262300
P175070.0W	05/18/2006	Complete	GARY D. AND ROBERTA PAUL	HOBO #1	DOM_GW; STK	25	SESW	N	25	480.00	85	44.1087330	-104.6128000

WR Number	Priority Date	Summary WR Status	Appropriator	Facility Name	Uses	Sec	Qtr-Qtr	Well Log (Y/N)	Total Flow (CFS)/ Appropriation (GPM)	Total Depth (ft)	Static Water Level (Ft)	Latitude	Longitude
P179841.0W	02/28/2007	Complete	E. ROBERT AND LAVADA J. DAHLKE	RENA NO. 1	DOM_GW	23	SWNW	N	4.2	690.00	350	44.1304000	-104.6352000
P180996.0W	04/11/2007	Complete	GINGER JESPERSON	GINGER JESPERSON #1	STK	18	SENW	N	25	1125.00	278	44.1451000	-104.7121000
P183066.0W	08/21/2007	Complete	WES AND SARAH RHODEN	SARAH 1	DOM_GW; STK	14	SESE	N	10	540.00	310	T48N, R65W, Sec 14, SE1/4 - SE1/4	Move to SESE
P185992.0W	03/13/2008	Complete	JOHN EDWARDS	J&B WELL	DOM_GW	23	SWSE	N	12	595.00	280	44.1229670	-104.6259830
P187846.0W	08/11/2008	Complete	DOYLE BAYER	WELL, ONE	DOM_GW	14	NWSW	N	10	660.00	125	44.1413940	-104.6330560
P188054.0W	08/12/2008	Incomplete	SHAWN AND KRISTIE AYLESWORTH	AYLESWORTH #1	DOM_GW; STK	11	SESW	Unknown	8			44.1532000	-104.6306470
P194002.0W	07/22/2010	Incomplete	DAVID AND SANDRA UPTON	DTU #1	STK	26	SWSE	Unknown	10			44.1089220	-104.6277780
P198689.0W	08/24/2012	Incomplete	RALPH SHUCK	SHUCK #1	DOM_GW; MIS; STK	24	SENW	Unknown	25			44.1305470	-104.6105140
Township 48 North, Range 66 West													
P21110.0P	12/31/1915	Complete	GENE CRANSTON	LOWELL #2	STK	26	NWSE	Unknown	25	20.00	15	44.1115000	-104.7466800
P21109.0P	12/31/1918	Complete	GENE CRANSTON	LOWELL #1	STK	26	NWSE	Unknown	3	18.00	10	44.1115000	-104.7466800
P177299.0W	09/20/2006	Complete	DOUG MATERI	MATERI S.S. #1	STK	36	SESW	N	5	225.00	102	44.0943670	-104.7296170
P198924.0W	08/02/2012	Incomplete	USDA-NATIONAL FOREST SERVICE	ENL. OF MATERI S.S. #1	MIS	36	SESW	Unknown	10			44.0926500	-104.7317470
Source: WYSEO, 2013													