C0150032
Incoming
OK

OGMCOAL DNR <ogmcoal@utah.gov>

Crandall Canyon October Data

1 message

Leonard, JD <jleonard@coalsource.com> Mon, Nov 26, 2012 at 4:23 PM
To: Ken Hoffman <kenhoffman@utah.gov>
Cc: ogmcoal@utah.gov, "Hibbs, David" <dhibbs@coalsource.com>, "Davis, Dale" <daledavis@coalsource.com>

Hi Ken,

Attached is the October monthly information for Crandall Canyon Mine, if you have any questions or need additional information please contact me.

Thank You

JD Leonard

435-888-4026

jleonard@coalsource.com

2 attachments

October polymer.pdf
63K

Ken Hoffman Crandall Final Document.xlsx
37K

SGS

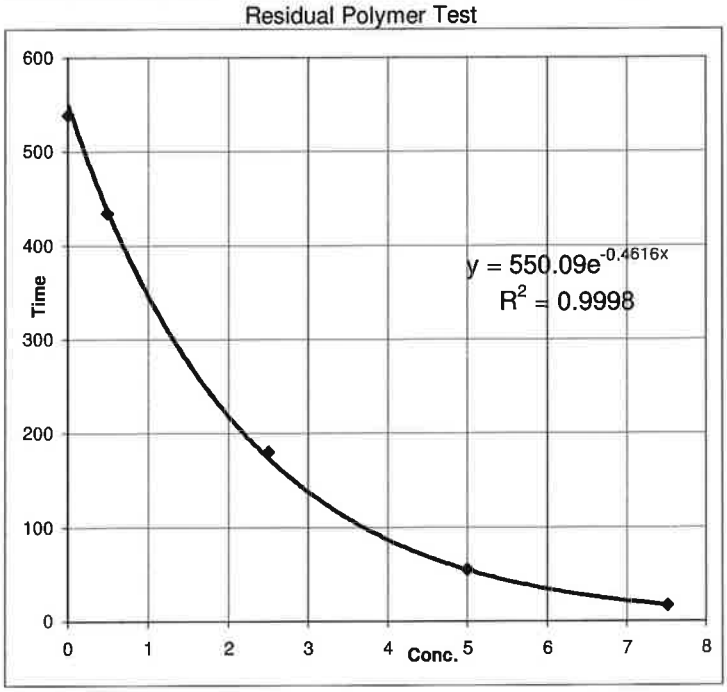
Analysis Report

Genwal Resources Inc.
794 "C" Canyon Road
East Carbon, UT 84520

Client Sample ID: Polymer Test
Date Sampled: 10/30/2012
Date Received: 10/30/2012
Product Description:
Sample Taken At: Genwal Mine
Sample Taken By: JD
Time Received: 1345
Time Sampled: 1200

Coagulant (1mg/l) and Flocculent

Exponent	INTERCEPT	
-0.4616	550.090000	
Standards	Time	Conc. Mg/l
BLANK	539	0
1	434	0.5
2	180	2.5
3	55	5
4	17	7.5



Comments: Customer supplied method

Residual Polymer (based on 1 mg/l Coagulant)

Sample #	mL of Sample	Time	Conc. Mg/l
1216202-001	45	509	0.17

ND = none detect (<0 mg/l)

Domenic Ibanez
Water Lab Supervisor

SGS North America Inc.
Minerals Services
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Crandall Canyon Mine
Post-Treatment Mine Water 2012

Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December
		1/24/2012	2/21/2012	3/23/2012	4/17/2012	5/15/2012	6/12/2012	7/30/2012	8/31/2012	9/30/2012	10/30/2012		
Field													
pH	std. units	7.6	8.1	8.5	7.8	7.5	7.5	8.1	8.2	7.6	8		
Temperature	deg. C	9 C	9 C	12 C	11 C	13 C	13 C	12 C	11 C	12 C	12 C		
Conductivity	µmhos/cm2	926	733	1066	1085	1270	933	913	984	1034	1055		
Dissolved Oxygen	mg/L	9.09	8.9	8.2	8.9	9.2	8.14	11.28	11.53	9.3	9.8		
Lab													
Iron	total, mg/L	0.08	0.05	0.068	<0.05	0.09	<0.05	<0.05	<0.05	<0.05	<0.05		
Iron	dissolved, mg/L	<0.03	<0.03	0.067	<0.03	<.03	<0.03	<0.03	<0.03	<0.03	<0.03		
Iron	ferrous, mg/L	0.052	0	0.06	0.02	0.019	0	0.03	0.005	0.02	0.009		
Aluminum	total, mg/L	0.1	0.09	0.14	0.08	0.16	0.09	0.1	0.13	0.13	0.17		
Aluminum	dissolved, mg/L	<0.03	<0.03	<0.03	<0.03	<.03	<0.03	<0.03	<0.03	<0.03	0.04		
Manganese	total, mg/L	0.093	0.068	0.068	0.075	0.089	0.085	0.083	0.08	0.078	0.084		
Manganese	dissolved, mg/L	0.093	0.068	0.067	0.075	0.089	0.085	0.083	0.08	0.078	0.084		
Alkalinity	Bicarbonate, mg/L	357	273	275	300	367	359	368	364	362	355		
Alkalinity	Carbonate, mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		
Alkalinity	Total	357	273	275	300	367	359	368	364	362	355		
Sulfate	mg/L	147	110	109	120	148	150	142	138	138	138		
TDS	mg/L	590	446	436	477	595	575	572	556	558	576		
Suspended Solids	mg/L	<5	<5	<5	<5	<5	<5	14	9	<5	<5		
Seep Flow	gpm	3.01	1	1	1.5	1.5	1.5	1.5	2	2	2		

Pre-Treatment Mine Water 2012

Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December
Field													
pH	std. units	7.3	7.5	7.3	7.4	7.3	7.3	7	7.2	7	7.1		
Temperature	deg. C	11 C	11 C	11 C	11 C	12 C	10 C	11C	11 C	12 C	12 C		
Conductivity	µmhos/cm2	919	723	1290	1254	1290	982	921	1010	960	975		
Dissolved Oxygen	mg/L	7.1	7.8	7.4	7.5	7.6	7.5	7.08	6.83	6.8	6.7		
Lab													
Iron	total, mg/L	2.290	1.580	2.960	2.450	2.730	4.020	2.990	2.720	2.090	1.770		
Iron	dissolved, mg/L	0.03	0.06	<0.03	0.17	<0.03	<0.03	<0.03	0.05	0.09	0.07		
Iron	ferrous, mg/L	0.96	0.469	1.236	0.754	0.809	0.901	0.803	0.674	0.627	0.488		
Aluminum	total, mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		
Aluminum	dissolved, mg/L	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03		
Manganese	total, mg/L	0.097	0.071	0.105	0.094	0.097	0.098	0.099	0.102	0.083	0.088		
Manganese	dissolved, mg/L	0.097	0.071	0.105	0.094	0.097	0.093	0.088	0.093	0.082	0.086		
Alkalinity	Bicarbonate, mg/L	375	282	359	371	378	371	375	370	373	367		
Alkalinity	Carbonate, mg/L	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		
Alkalinity	Total	375	282	359	371	378	371	375	370	373	367		
Sulfate	mg/L	148	108	148	145	151	151	144	141	139	135		
TDS	mg/L	603	448	591	576	596	581	576	565	565	573		
Suspended Solids	mg/L	<5	<5	<5	<5	<5	<5	23	5	<5	<5		
Chloride	mg/L	9	7	9	9	9	9	9	9	9	9		
Calcium	Dissolved, mg/L	98.75	72.01	100.65	99.14	99.6	98.47	93.58	97.21	93.7	97.41		
Potassium	Dissolved, mg/L	8.25	5.99	8.24	8.12	8.09	7.9	8.14	8.22	8.16	7.87		
Sodium	Dissolved, mg/L	33.68	24.69	33.74	32.94	32.75	31.9	32.29	34.4	32.9	34.2		
Magnesium	Dissolved, mg/L	53.18	38.57	54.42	54.95	55.73	54.4	50.85	53.56	51.37	52.95		
Silica	Dissolved, mg/L	8.51	5.92	7.98	8.84	8.26	7.94	9.18	9.25	8.45	9.13		
Hot Acidity	mg/L	-374	<5	-376	-370	-376	-368	-374	<5	-370	-374		
Average Flow	gpm	429	430	395	389	412	399	393	400	400	446		

Crandall Canyon Mine Flows				
Date	Time	Pressure	GPM	Recorded by:
1/1/2012	10:00	30.59	381	Brenda
1/2/2012	10:00	30.63	338	Brenda
1/3/2011	10:00	30.47	381	Brenda
1/4/2011	10:00	30.60	348	Brenda
1/5/2012	10:00	30.39	387	Rachel
1/6/2012	10:00	30.16	460	Rachel
1/7/2012	10:00	29.95	538	Rachel
1/8/2012	10:00	30.19	486	Rachel
1/9/2012	10:00	30.33	418	Brenda
1/10/2012	10:00	30.22	426	Brenda
1/11/2012	10:00	30.16	466	Brenda
1/12/2012	10:00	30.26	436	Brenda
1/13/2012	10:00	30.30	430	Rachel
1/14/2012	10:00	30.37	404	Rachel
1/15/2012	10:00	30.05	428	Rachel
1/16/2012	10:00	29.72	581	Rachel
1/17/2012	10:00	30.24	478	Brenda
1/18/2012	10:00	30.13	462	Brenda
1/19/2012	10:00	30.03	449	Brenda
1/20/2012	10:00	30.02	461	Brenda
1/21/2012	10:00	29.71	471	Rachel
1/22/2012	10:00	29.98	540	Rachel
1/23/2012	10:00	29.97	466	Rachel
1/24/2012	10:00	30.12	443	Rachel
1/25/2012	10:00	30.39	367	Brenda
1/26/2011	10:00	30.22	380	Brenda
1/27/2012	10:00	30.24	384	Brenda
1/28/2012	10:00	30.44	363	Brenda
1/29/2012	10:00	30.43	336	Rachel
1/30/2012	10:00	30.11	390	Rachel
1/31/2012	10:00	30.11	416	Rachel
		Monthly Average		429.41

Crandall Canyon Mine Flows				
Date	Time	Pressure	GPM	Recorded by:
2/1/2012	10:00	30.22	397	Rachel
2/2/2012	10:00	29.96	438	Brenda
2/3/2012	10:00	30.15	432	Brenda
2/4/2012	10:00	30.28	394	Brenda
2/5/2012	10:00	30.25	384	Brenda
2/6/2012	10:00	30.11	418	Rachel
2/7/2012	10:00	30.24	408	Rachel
2/8/2012	10:00	30.26	398	Rachel
2/9/2012	10:00	30.28	388	Rachel
2/10/2012	10:00	30.24	390	Brenda
2/11/2012	10:00	30.10	416	Brenda
2/12/2012	10:00	29.76	604	Brenda
2/13/2012	10:00	29.82	488	Brenda
2/14/2012	10:00	29.77	513	Rachel
2/15/2012	10:00	29.93	469	Rachel
2/16/2012	10:00	30.20	411	Rachel
2/17/2012	10:00	30.20	398	Rachel
2/18/2012	10:00	30.09	401	Brenda
2/19/2012	10:00	29.72	478	Brenda
2/20/2012	10:00	30.03	456	Brenda
2/21/2012	10:00	30.10	416	Brenda
2/22/2012	10:00	30.05	394	Rachel
2/23/2012	10:00	30.02	436	Rachel
2/24/2012	10:00	30.30	392	Rachel
2/25/2012	10:00	30.00	397	Brenda
2/26/2012	10:00	30.13	419	Rachel
2/27/2012	10:00	29.92	422	Brenda
2/28/2012	10:00	29.70	499	Brenda
2/29/2012	10:00	30.03	430	Brenda
Monthly Average				430.55

Crandall Canyon Mine Flows				
Date	Time	Pressure	GPM	Recorded by;

3/1/2012	10:00	29.82	443	Rachel
3/2/2012	10:00	30.04	434	Rachel
3/3/2012	10:00	30.33	368	Rachel
3/4/2012	10:00	30.37	328	Rachel
3/5/2012	10:00	30.24	338	Brenda
3/6/2012	10:00	29.71	431	Brenda
3/7/2012	10:00	29.65	551	Brenda
3/8/2012	10:00	30.36	377	Brenda
3/9/2019	10:00	30.43	315	Rachel
3/10/2012	10:00	30.11	342	Rachel
3/11/2012	10:00	29.88	403	Brenda
3/12/2012	10:00	30.00	410	Brenda
3/13/2012	10:00	29.98	399	Brenda
3/14/2012	10:00	30.05	404	Brenda
3/15/2012	10:00	30.17	370	Leland
3/16/2012	10:00	29.96	398	Leland
3/17/2012	10:00	29.57	496	Leland
3/18/2012	10:00	29.63	514	Rachel
3/19/2012	10:00	30.06	434	Rachel
3/20/2012	10:00	30.14	374	Rachel
3/21/2012	10:00	30.08	353	Rachel
3/22/2012	10:00	30.06	366	Brenda
3/23/2012	10:00	30.11	363	Brenda
3/24/2012	10:00	30.01	357	Brenda
3/25/2012	10:00	29.73	430	Brenda
3/26/2012	10:00	30.00	383	Leland
3/27/2012	10:00	29.90	386	Leland
3/28/2012	10:00	30.06	376	Leland
3/29/2012	10:00	30.06	380	Leland
3/30/2012	10:00	29.97	320	Rachel
Monthly Average				**395gpm**

Crandall Canyon Mine Flows

Date	Time	Pressure	GPM	Recorded by;
4/1/2012	10:00	29.64	442	Rachel

4/2/2012	10:00	29.92	427	Rachel
4/3/2012	10:00	30.06	396	Rachel
4/4/2012	10:00	29.97	393	Brenda
4/5/2012	10:00	29.85	415	Brenda
4/6/2012	10:00	29.88	452	Brenda
4/7/2012	10:00	30.39	357	Brenda
4/8/2012	10:00	30.35	326	Leland
4/9/2012	10:00	30.2	330	Leland
4/10/2012	10:00	30.09	356	Brenda
4/11/2012	10:00	29.91	385	Brenda
4/12/2012	10:00	29.89	433	Rachel
4/13/2012	10:00	29.9	487	Rachel
4/14/2012	10:00	29.58	499	Brenda
4/15/2012	10:00	29.95	453	Brenda
4/16/2012	10:00	30.21	389	Brenda
4/17/2012	10:00	30.15	353	Brenda
4/18/2012	10:00	30.08	338	Rachel
4/19/2012	10:00	30.09	371	Rachel
4/20/2012	10:00	30.26	345	Rachel
4/21/2012	10:00	30.25	334	Rachel
4/22/2012	10:00	30.24	335	Brenda
4/23/2012	10:00	30.2	345	Brenda
4/24/2012	10:00	30.08	364	Brenda
4/25/2012	10:00	30.06	385	Brenda
4/26/2012	10:00	29.93	399	Rachel
4/27/2012	10:00	30.04	374	Rachel
4/28/2012	10:00	30.1	410	Rachel
4/29/2012	10:00	30.07	411	Rachel
4/30/2012	10:00	30.07	395	Brenda
Monthly Average				**389gpm**

Crandall Canyon Mine Flows

Date	Time	Pressure	GPM	Recorded by;
5/1/2012	10:00	29.87	445	Brenda
5/2/2012	10:00	29.88	450	Brenda

5/3/2012	10:00	29.96	424	Brenda
5/4/2012	10:00	30.01	418	Rachel
5/5/2012	10:00	30.08	366	Rachel
5/6/2012	10:00	30.16	384	Rachel
5/7/2012	10:00	30.08	387	Rachel
5/8/2012	10:00	30.22	376	Rachel
5/9/2012	10:00	30.17	371	Rachel
5/10/2012	10:00	30.08	410	Lily
5/11/2012	10:00	29.78	534	Lily
5/12/2012	10:00	30.22	359	Rachel
5/13/2012	10:00	30.27	363	Rachel
5/14/2012	10:00	30.32	350	Rachel
5/15/2012	10:00	30.22	363	Rachel
5/16/2012	10:00	30.11	391	Brenda
5/17/2012	10:00	30.03	415	Brenda
5/18/2012	10:00	29.68	503	Brenda
5/19/2012	10:00	30.08	448	Brenda
5/20/2012	10:00	30.23	402	Rachel
5/21/2012	10:00	30.25	380	Rachel
5/22/2012	10:00	29.98	406	Rachel
5/23/2012	10:00	29.81	474	Rachel
5/24/2012	10:00	29.86	486	Brenda
5/25/2012	10:00	29.54	553	Brenda
5/26/2012	10:00	29.61	561	Brenda
5/27/2012	10:00	29.98	461	Brenda
5/28/2012	10:00	30.17	411	Rachel
5/29/2012	10:00	30.14	395	Rachel
5/30/2012	10:00	30.14	390	Rachel
5/31/2012	10:00	30.18	379	Rachel
Monthly Average				**412gpm**

Crandall Canyon Mine Flows

Date	Time	Pressure	GPM	Recorded by;
6/1/2012	10:00	30.12	384	Brenda
6/2/2012	10:00	29.99	409	Brenda

6/3/2012	10:00	30.06	411	Brenda
6/4/2012	10:00	30.05	401	Brenda
6/6/2012	10:00	30.06	437	Rachel
6/7/2012	10:00	30.08	414	Rachel
6/8/2012	10:00	30	406	Rachel
6/9/2012	10:00	30.09	458	Brenda
6/10/2001	10:00	30.14	427	Brenda
6/11/2012	10:00	30.09	387	Brenda
6/12/2012	10:00	30.2	370	Brenda
6/13/2012	10:00	30.01	388	Rachel
6/14/2012	10:00	29.98	413	Lily
6/15/2012	10:00	29.97	412	Rachel
6/16/2012	10:00	29.97	390	Rachel
6/17/2012	10:00	29.98	881	Brenda
6/18/2012	10:00	29.94	416	Brenda
6/19/2012	10:00	29.91	445	Brenda
6/20/2012	10:00	29.91	420	Brenda
6/21/2012	10:00	30.17	486	Rachel
6/22/2012	10:00	30	403	Rachel
6/23/2012	10:00	29.98	443	Lily
6/24/2012	10:00	30.03	402	Rachel
6/25/2012	10:00	39.41	390	Lily
6/26/2012	10:00	39.41	400	Lily
6/27/2012	10:00	39.41	403	Lily
6/28/2012	10:00	30.23	414	Rachel
6/29/2012	10:00	30.22	372	Rachel
6/30/2012	10:00	30.12	381	Rachel
Monthly Average				**399gpm**

Crandall Canyon Mine Flows

Date	Time	Pressure	GPM	Recorded by;
7/1/2012	10:00	30.03	397	Rachel
7/2/2012	10:00	30.11	401	Rachel
7/3/2012	10:00	30.08	397	Rachel
7/4/2012	10:00	39.62	403	Lily

7/5/2012	10:00	XX	VNM	Lily
7/6/2012	10:00	30.24	389	Rachel
7/7/2012	10:00	30.26	370	Rachel
7/8/2012	10:00	30.33	358	Rachel
7/9/2012	10:00	30.29	355	Rachel
7/10/2012	10:00	30.25	362	Rachel
7/11/2012			VNM	
7/12/2012			VNM	
7/13/2012			VNM	
7/14/2012			VNM	
7/15/2012	10:00	30.19	394	Rachel
7/16/2012	10:00	30.18	403	Rachel
7/17/2012	10:00	30.19	404	Rachel
7/18/2012	10:00	30.17	490	Rachel
7/19/2012			VNM	
7/20/2012			VNM	
7/21/2012			VNM	
7/22/2012			VNM	
7/23/2012	10:00	30.26	383	Rachel
7/24/2012	10:00	30.21	365	Rachel
7/25/2012	10:00	30.18	411	Rachel
7/26/2012	10:00	30.14	405	Rachel
7/27/2012	10:00	39.1	404	Lily
7/28/2012	10:00	39.21	389	Lily
7/29/2012	10:00	30.34	386	Lily
7/30/2012	10:00	30.28	397	Lily
7/31/2012	10:00	30.3	398	Rachel
Monthly Average				**393gpm**

Readings not taken on the 11th-15th or the 19th-22nd

New Security guard wasn't aware that she had to, she now understands.

Crandall Canyon Mine Flows

Date	Time	Pressure	GPM	Recorded by;
8/1/2012	10:00	30.3	390	Rachel
8/2/2012	10:00	30.21	392	Rachel
8/3/2012	10:00	30.14	406	Rachel
8/4/2012	10:00	30.19	419	Lily

8/5/2012	10:00	30.31	399	Lily
8/6/2012	10:00	30.4	379	Lily
8/7/2012	10:00	30.35	375	Lily
8/8/2012	10:00	30.33	380	Rachel
8/9/2012	10:00	30.29	382	Rachel
8/10/2012	10:00	30.27	392	Rachel
8/11/2012	10:00	30.2	407	Rachel
8/12/2012	10:00	30.25	401	Lily
8/13/2012	10:00	30.28	403	Lily
8/14/2012	10:00	30.24	407	Lily
8/15/2012	10:00	30.16	420	Lily
8/16/2012	10:00	30.17	418	Rachel
8/17/2012	10:00	30.19	411	Rachel
8/18/2012	10:00	30.18	400	Rachel
8/19/2012	10:00	30.15	356	Rachel
8/21/2012	10:00	30.19	FMB 400	Rachel
8/22/2012	10:00	30.13	FMB 400	Rachel
8/23/2012	10:00	30.14	FMB 400	Lily
8/24/2012	10:00	30.12	FMB 400	Lily
8/25/2012	10:00	30.14	FMB 400	Lily
8/26/2012	10:00	30.21	FMB 400	Lily
8/27/2012	10:00	30.32	FMB 400	Rachel
8/28/2012	10:00	30.34	FMB 400	Rachel
8/29/2012	10:00	30.22	FMB 400	Lily
8/30/2012	10:00	30.17	FMB 400	Lily
8/31/2012	10:00	30.2	FMB 400	Lily
Monthly Average				**398gpm**

Crandall Canyon Mine Flows

Date	Time	Pressure	GPM	Recorded by;
9/1/2012	10:00	30.2	FMB 400	Rachel
9/2/2012	10:00	30.27	FMB 400	Rachel
9/3/2012	10:00	30.27	FMB 400	Lily
9/4/2012	10:00	30.26	FMB 400	Rachel
9/5/2012	10:00	30.24	FMB 400	Lily

9/6/2012	10:00	30.17	FMB 400	Lily
9/7/2012	10:00	30.26	FMB 400	Lily
9/8/2012	10:00	30.37	FMB 400	Rachel
9/9/2012	10:00	30.3	FMB 400	Rachel
9/10/2012	10:00	30.18	FMB 400	Rachel
9/11/2012	10:00	30.11	FMB 400	Rachel
9/12/2012	10:00	30.2	FMB 400	Rachel
9/13/2012	10:00	30.46	FMB 400	Lily
9/14/2012	10:00	30.45	FMB 400	Lily
9/15/2012	10:00	30.26	FMB 400	Lily
9/16/2012	10:00	30.25	FMB 400	Rachel
9/17/2012	10:00	30.2	FMB 400	Lily
9/18/2012	10:00	30.26	FMB 400	Lily
9/19/2012	10:00	30.28	FMB 400	Rachel
9/20/2012	10:00	30.26	FMB 400	Rachel
9/21/2012	10:00	30.25	FMB 400	Rachel
9/22/2012	10:00	30.29	FMB 400	Lily
9/23/2012	10:00	30.25	FMB 400	Lily
9/24/2012	10:00	30.16	FMB 400	Lily
9/25/2012	10:00	30.07	FMB 400	Rachel
9/26/2012	10:00	30.17	FMB 400	Rachel
9/27/2012	10:00	30.25	FMB 400	Rachel
9/28/2012	10:00	30.23	FMB 400	Rachel
9/29/2012	10:00	30.21	FMB 400	Lily
9/30/2012	10:00	30.32	FMB 400	Lily
	Monthly Average			**400gpm**

Crandall Canyon Mine Flows

Date	Time	Pressure	GPM	Recorded by;
10/1/2012	10:00	30.35	FMB 400	Lily
10/2/2012	10:00	30.18	FMB 400	Lily
10/3/2012	10:00	30.06	FMB 400	Rachel
10/4/2012	10:00	30.14	471	Rachel
10/5/2012	10:00	30.09	480	Rachel
10/6/2012	10:00	30.16	476	Rachel

10/7/2012	10:00	30.19	479	Lily
10/8/2012	10:00	30.14	476	Lily
10/9/2012	10:00	30.11	481	Lily
10/10/2012	10:00	30.16	411	Lily
10/11/2012	10:00	30.11	472	Rachel
10/12/2012	10:00	30.05	487	Rachel
10/13/2012	10:00	30.03	486	Rachel
10/14/2012	10:00	29.91	422	Rachel
10/15/2012	10:00	30.24	418	Lily
10/16/2012	10:00	30.06	443	Lily
10/17/2012	10:00	30.10	478	Lily
10/18/2012	10:00	30.28	432	Lily
10/19/2012	10:00	30.21	421	Rachel
10/20/2012	10:00	29.93	458	Rachel
10/21/2012	10:00	29.88	501	Rachel
10/22/2012	10:00	29.88	503	Rachel
10/23/2012	10:00	29.86	510	Lily
10/24/2012	10:00	29.85	507	Lily
10/25/2012	10:00	30.13	466	Lily
10/26/2012	10:00	30.43	398	Lily
10/27/2012	10:00	30.33	414	Rachel
10/28/2012	10:00	30.31	408	Rachel
10/29/2012	10:00	30.30	393	Rachel
10/30/2012	10:00	30.28	373	Rachel
10/31/2012	10:00	30.27	375	Lily
	Monthly Average			**446 gpm**

Legend

***VNM- Value Not Measured**

***FMB- Flow meter broken (assumed to be 400 gpm for chemical dosage**