

Snake River near Murphy

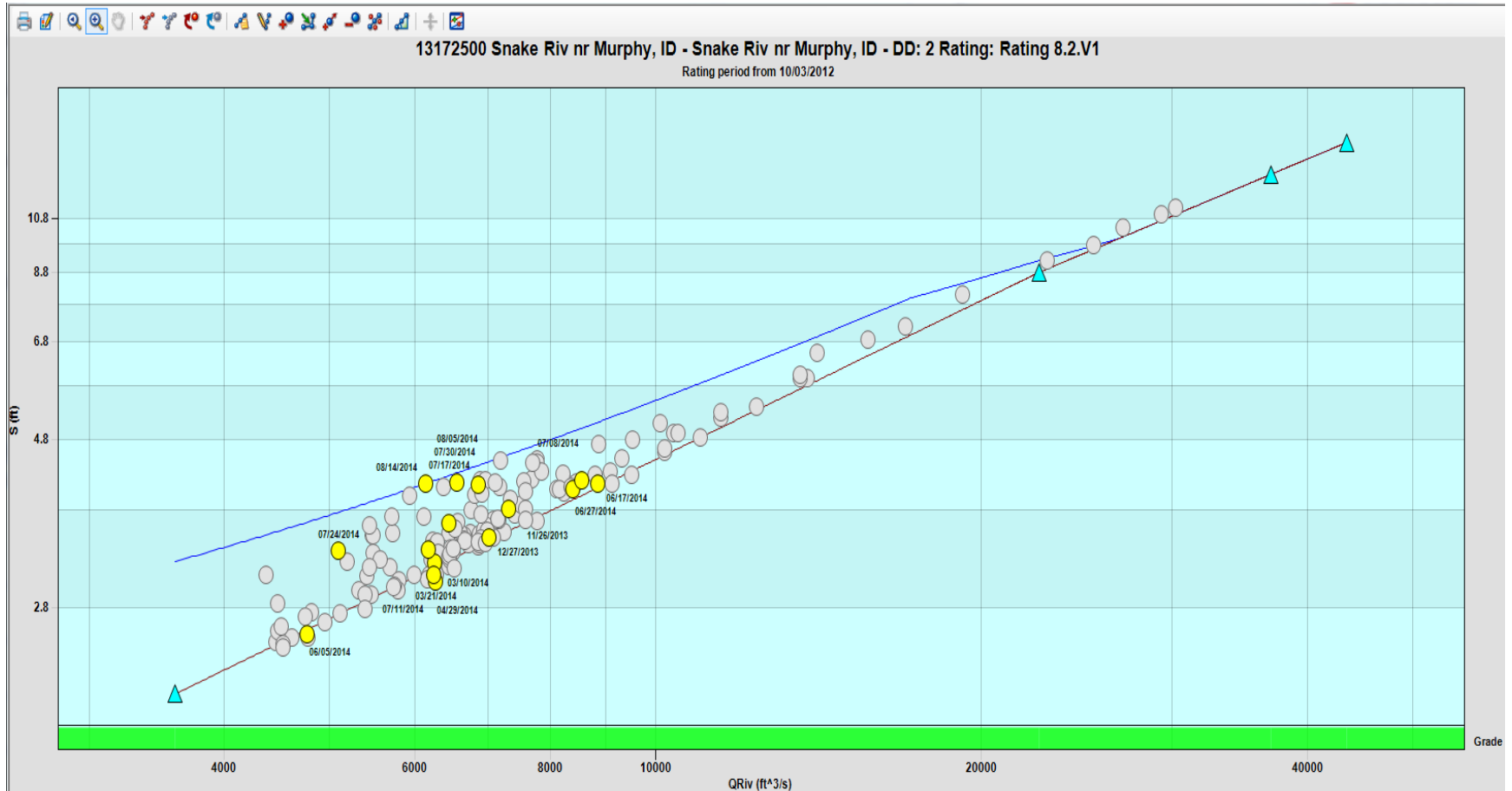


Swan Falls compliance gages

Swan Falls Project 503	Swan Falls Reservoir (Full Elevation 2314 ft-msl) <u>April 1 through October 31</u> - Operate to minimum headwater boundary of 2310.6 (limit set for irrigators) <u>Year Round Operations</u> - Operate to minimum headwater boundaries of 2310
	Snake River below Swan Falls Dam <u>FERC Article 402</u> <u>April 1 through October 31</u> - Minimum flow 3900 cfs measured at Snake River near Murphy <u>November 1 through March 31</u> - Minimum flow 5600 cfs measured at Snake River near Murphy <u>Year Round Operations</u> - Maximum hourly ramp rate of 1 ft/hr measured at Snake River blw Swan Falls - Maximum daily ramp rate of 3 ft/day measured at Snake River blw Swan Falls
	<u>IDWR Water Right No. 02-0100</u> (not a FERC requirement. In Idaho State Water Plan as result of Swan Falls Agreement) <u>April 1 through October 31</u> - Minimum 3 day average flow 3900 cfs measured at Snake River near Murphy <u>November 1 through March 31</u> - Minimum 3 day average flow 5600 cfs measured at Snake River near Murphy

Murphy Rating Curve

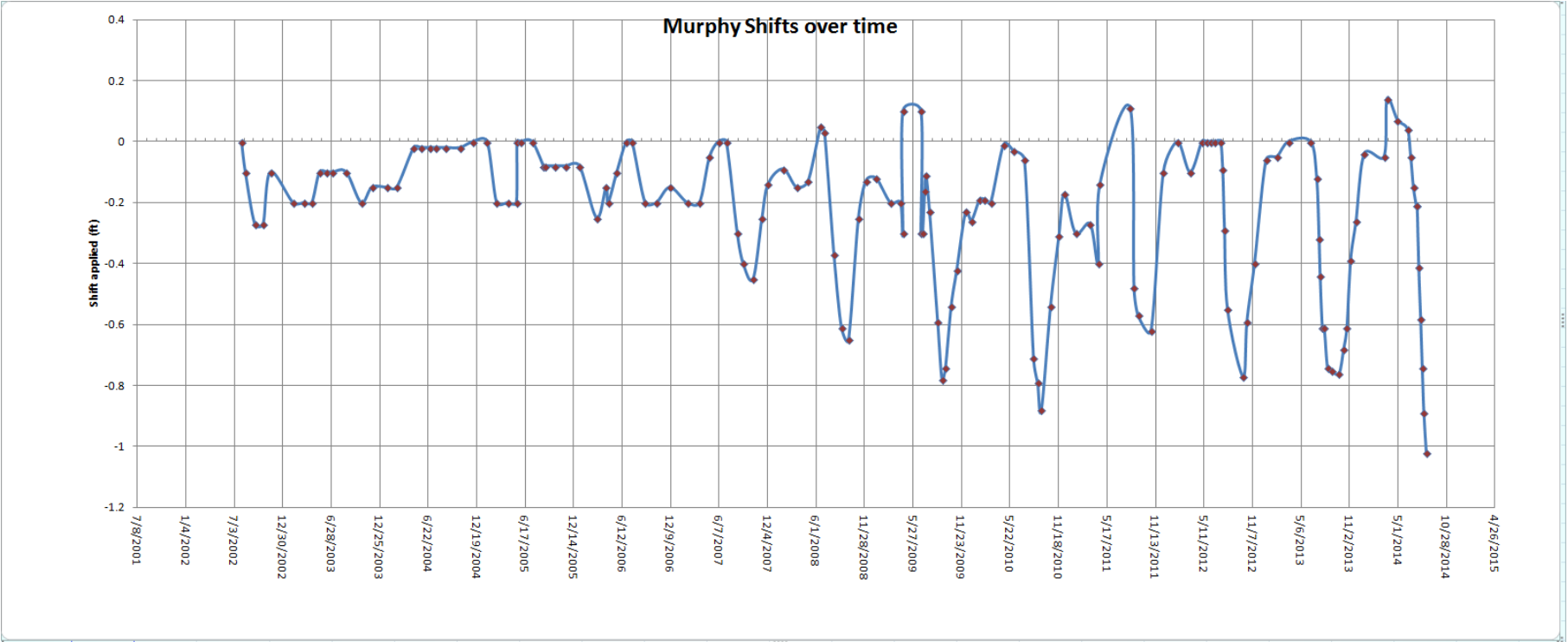
shift >1 ft

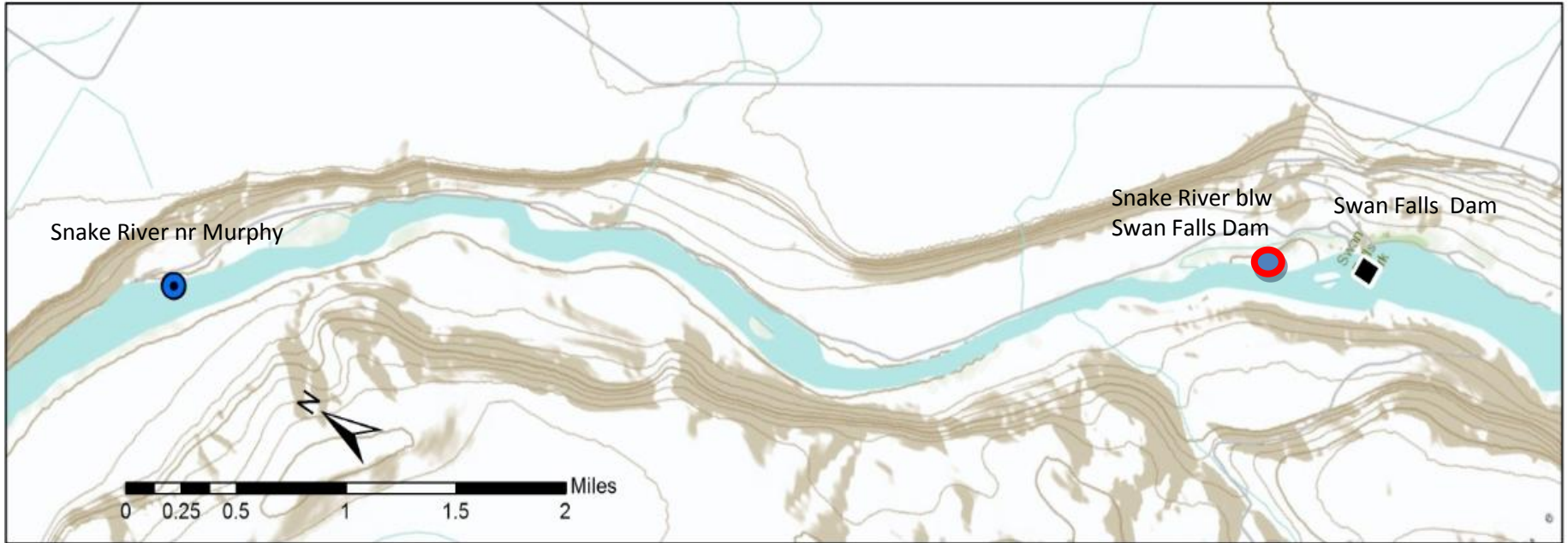




Murphy seasonal shift due to aquatic growth

Swan Falls Ramp shifts were more random now we are calibrating the gage





Snake River blw Swan falls control

-large boulder riffle ~200ft d.s. of gage



Snake River blw Swan Falls



Snake River blw Swan Falls

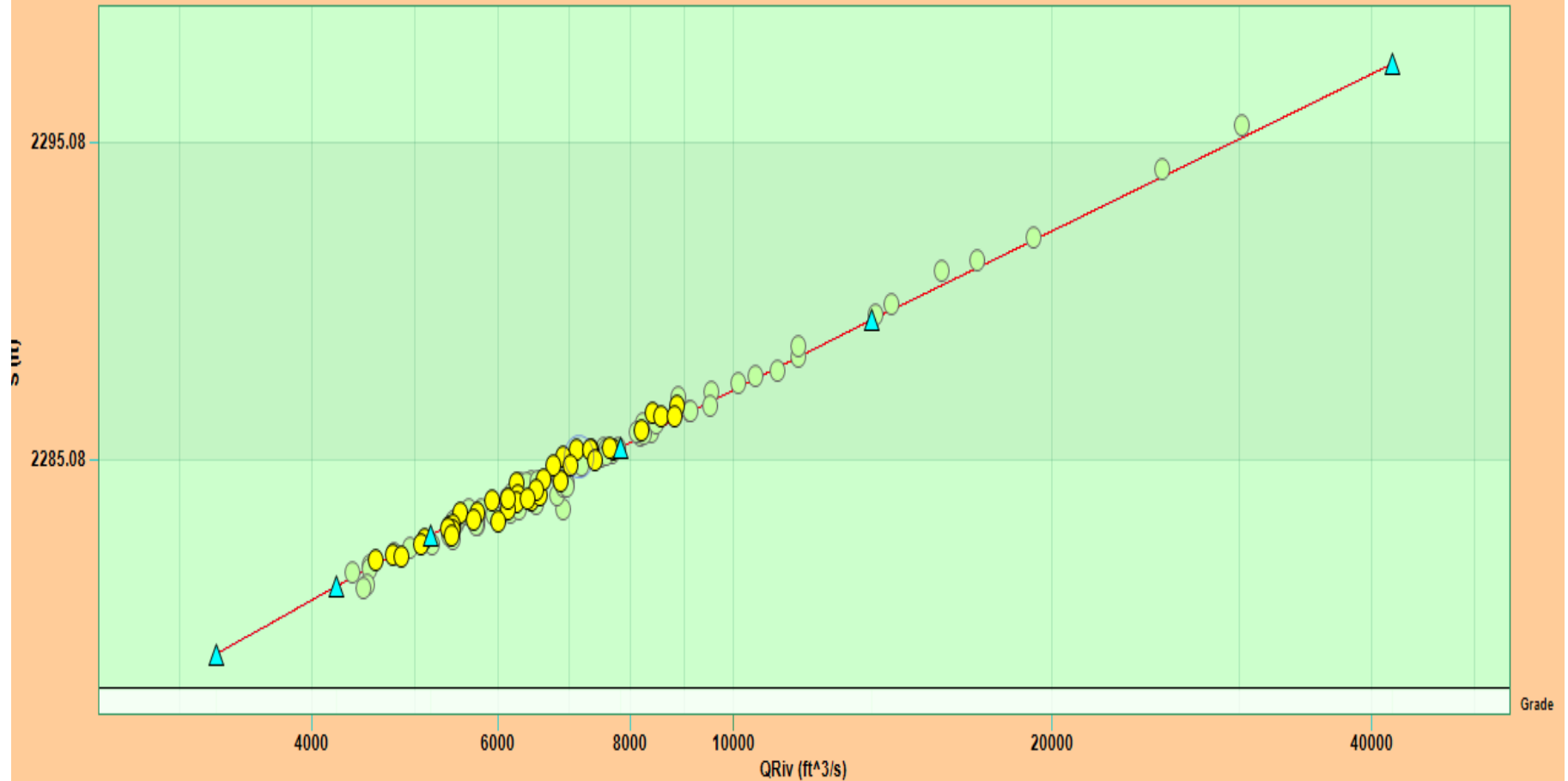


Snake Riv blw Swan Falls, Rating 1

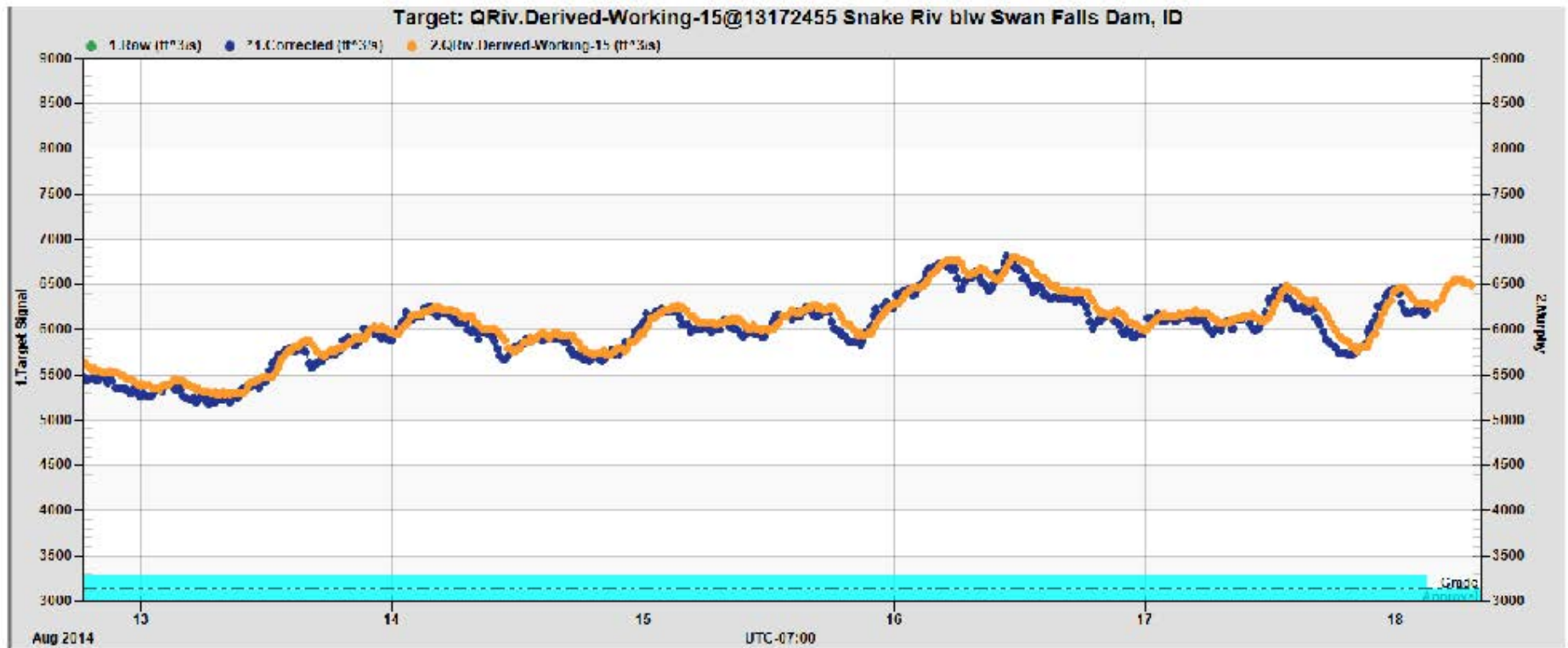


13172454 Snake Riv blw Swan Falls Dam, ID - Snake Riv blw Swan Falls Dam, ID - DD: 1 Rating: 1

Rating period from 10/01/2013



Watching two gages for divergence...



Meas. ID	Date/Time	S ft	QRiv ft^3	Grade	Made by	S Error %	S Error Value ft^3/s	Shift ft
	11/19/2014 14:33	2284.45		31 - GOOD				
169-6	11/21/2014 12:07	2284.581	6620	31 - GOOD	DB, PV	-1.4	-93.1	-0.07
1	12/12/2014 09:35	2285.099	7410	31 - GOOD	CR, AB	0.2	11.5	0.01
2	12/18/2014 09:52	2285.379	7650	31 - GOOD	MC, CR	-1.8	-140	-0.10
3	1/23/2015 09:00	2286.22	8810	31 - GOOD	DB, MC	-1.3	-117	-0.08
4	3/10/2015 09:45	2284.32	6520	31 - GOOD		2.1	134	0.11
6	3/26/2015 11:30	2283.47	5390	31 - GOOD	CR PV	-0.2	-10.7	-0.01
5	3/26/2015 11:15	2283.48	5430	31 - GOOD	CR PV	0.3	18.4	0.02
8	4/30/2015 08:00	2282.69	4600	31 - GOOD	CR JH	-1.8	-86.4	-0.10
9	5/19/2015 10:15	2285.87	8200	21 - FAIR	MC/MK/D	-2.9	-242	-0.18
10	6/12/2015 08:15	2284.14	6390	31 - GOOD	CR/PV/AB	3.6	223	0.18
11	6/30/2015 07:27	2283.38	5440	31 - GOOD	JH, PV, JB	2.6	137	0.13
12	7/8/2015 07:42	2282.77	4860	31 - GOOD	DB, JH	2.3	107	0.13
13	7/16/2015 08:08	2283.41	5380	31 - GOOD	JH, DB	0.8	44.4	0.04
14	7/23/2015 08:00	2283.77	5730	31 - GOOD	CR DB	-0.1	-4.67	0.00
15	7/30/2015 07:30	2284.13	6120	31 - GOOD	CR AB	-0.6	-35.1	-0.03
16	8/7/2015 07:45	2283.24	5420	31 - GOOD	MK PV TH	5.1	262	0.25
17	8/11/2015 07:50	2283.63	5680	31 - GOOD	AB CR	1.9	103	0.09
18	8/20/2015 08:46	2283.06	5070	31 - GOOD	JH ,FG	1.4	69.9	0.08
		min flow	4600		average	0.6	21.2	
		max flow	8810					

Snake River below Swan Falls Rating

- 20 measurements since gage installation 11/19/2014
- Measured flow range from 4600 - 8810cfs
- Average shifts 0.6% from the rating
 - No shifts have been run
- Shifts range from -2.9% to 5.1%
- Average error in discharge 21.2 cfs
 - Murphy shifts range -38.0 to 2.3 %, average error 945 cfs
- Turbine compares within +/- 2%

- End