EXHIBIT B

UAA ADDENDUM:

RE-EVALUATION OF PROPOSED MINERALS SITE-SPECIFIC WATER QUALITY CRITERIA FOR THE WHITE RIVER NEAR FAYETTEVILLE, ARKANSAS

Re-evaluation of Proposed Minerals Site-specific Water Quality Criteria for the White River near Fayetteville, Arkansas

1.1 Background

On October 11, 2013, the City of Fayetteville filed a Third Party Rulemaking Petition to amend the Arkansas water quality criteria for chloride, sulfate, and TDS in a 5.65-mile segment of the White River upstream of Beaver Lake. APCEC Docket No. 13-10-R. The segment of the river starts at the outfall of the City's Noland Wastewater Treatment Plant (WWTP), River Mile 17.25, and ends immediately downstream of the confluence with Richland Creek, River Mile 11.6[1]. The criteria changes requested in the Petition were as follows:

	Chloride	Sulfate	Total Dissolved Solids
Existing Criteria	20 mg/L	20 mg/L	160 mg/L
Proposed Criteria	60 mg/L	100 mg/L	440 mg/L

On October 25, 2013, the Commission entered a Minute Order initiating the rulemaking. During the public comment period, the Arkansas Department of Environmental Quality (ADEQ) submitted written comments which agreed the City had demonstrated that, "[T]he aquatic life is not impacted by minerals and the aquatic life designated use is currently maintained." But the Department's comment went on to state:

> "The criteria [changes proposed by the City] need to be re-evaluated to insure they reflect instream concentrations based on either the submitted data or the minerals concentrations measured over the past 23 years in monitoring data. These measurements are taken from monthly samples collected at the Hwy 45 Bridge [identified below as WR-03] located approximately 4 miles downstream from the City of Fayetteville discharge."

The City and ADEQ conferred at length regarding the questions raised in the Department's comments. In these post-comment discussions ADEQ recommended that the City revise its proposal to divide the affected river segment in two, with different criteria changes for the upstream and downstream segments.

Based on ADEQ's written comments and the related discussions with Department staff, the City has revised the criteria changes that it proposes to present to the Commission for final approval. Specifically, the City agrees with the Department's recommendation to divide the affected segment into two reaches, one from the Noland WWTP outfall to a point 0.4 miles downstream (WR-02), and another from WR-02 to the confluence with Richland Creek. The new criteria proposed for the two segments are as follows:

Revised Proposal	Chloride	Sulfate	Total Dissolved Solids
Noland to WR-02	44 mg/L	79 mg/L	362 mg/L
WR-02 to Richland Creek	30 mg/L	40 mg/L	237 mg/L

The purpose of this Addendum is to summarize the re-evaluation upon which the newly proposed criteria changes are based.

[1] River Miles were computed by CH2M using GIS data with River Mile 0.0 located at the Interstate Route 412 Bridge over the White River.

1.2 Re-evaluation of Minerals Data

1.2.1 Overview of the Proposed Minerals Criteria in the UAA

Figure 1 is a schematic of the UAA sampling station locations. Table 1 provides the river-mile distance from the Noland WWTP Outfall-001 (WWTP-001) to the White River UAA sampling stations, as well as the drainage area associated with each White River station. Refer to the UAA for a more detailed description of the UAA sampling stations.

The numeric derivation of the minerals criteria originally proposed in the UAA was based in part on a mass-balance spreadsheet model. The primary inputs to the mass-balance model were:

- Background flow: Q7-10 computed from the U.S. Geological Survey (USGS) long-term flow records
- Background minerals concentrations: 95th percentile concentration of June through November (low-flow season) 2006 through 2012
- WWTP-001 flow: design capacity (19.5 cubic feet per second [cfs]; 12.6 million gallons per day [mgd])
- WWTP-001 minerals concentrations: 95th percentile concentration of June through November 2006 through 2012

Multiple input scenarios to the mass balance model were evaluated and presented in Section 4 of the UAA. Based on a weight-of-evidence approach considering all findings of the UAA, the City sought site-specific minerals WQC for the White River reach from WWTP-001 to immediately downstream of the confluence with Richland Creek of:

- 60 mg/L chloride
- 100 mg/L sulfate
- 440 mg/L TDS

1.2.2 Re-evaluation Approach

The primary objectives of the proposed criteria re-evaluation were to incorporate ADEQ's suggestion that the river reach be split into two segments and to address ADEQ's request to "ensure [the new criteria] reflect instream concentrations based on either the submitted data or the minerals concentrations measured over the past 23 years in monitoring data." The approach taken to address ADEQ's comment also addresses the other public comments submitted, specifically that the criteria should not be set any higher than necessary.

Water quality samples reported in the UAA study (2011-2012) provide a basis for comparing minerals levels observed at WR-02 and WR-03. Water quality samples continued to be collected after the UAA was submitted to ADEQ on May 21, 2013, using the same protocol documented in the UAA. Samples were collected monthly through January 2013, and then quarterly in 2014. The UAA minerals dataset and summary statistics, extended through October 2014, for the White River and WWTP-001 sampling stations are shown in Table 2. The 95th percentile concentrations associated with the WR-02 and WR-03 data are:

- WR-02: 46 mg/L chloride; 51 mg/L sulfate; and, 328 mg/L TDS (May 19, 2011 – October 30, 2014)
- WR-03: 33 mg/L chloride; 39 mg/L sulfate; and, 259 mg/L TDS (May 19, 2011 – October 30, 2014)

The difference between WR-02 and WR-03 minerals concentrations are due to the sampling locations being 0.4-miles and 5.5-miles downstream of WWTP-001, respectively. In addition, WR-03 minerals concentrations are periodically subject to dilution from Beaver Lake backwater effects; whereas WR-02 is far enough upstream that it is not influenced by Beaver Lake. Figures 2, 3, and 4 illustrate the dilution effect that Beaver Lake imparts on minerals concentrations at WR-03 when the Beaver Lake pool elevation (EL) exceeds 1121.43 feet above mean sea level. For reference, the top of the flood pool is EL 1130.0; and, the bottom of the flood pool is EL 1121.43 from May through September, and EL 1120.43 from

October through April. Figure 5 reveals that pool elevations exceeding 1121.43 feet are not constrained to periods of high flow in the White River.

An evaluation of the minerals data collected over the past 23 years is hindered by the fact that aside from the recent samples collected for the UAA (from May 19, 2011, to October 30, 2014), the only minerals data available for the White River reach between WWTP-001 and the confluence with Richland Creek were sampled at WR-03. If one examines the extended record of monitoring data collected at WR-03, it is clear there is significant temporal variability in the minerals concentrations. Figures 6, 7, and 8 illustrate the annual mean and standard deviation of chloride, sulfate, and TDS concentrations, respectively, at WR-03 over time. Temporal variability is evident in the 95th percentile minerals values computed as well. For example, considering the Noland WWTP came online on February 25, 1988, the maximum and minimum 95th percentile minerals values computed for any 5-year period starting February 25, 1993 (five years after the WWTP start-up date) through October 30, 2014, are as follows:

5-Year 95th Percentile	Chloride	Sulfate	Total Dissolved Solids
Maximum	51 mg/L	99 mg/L	369 mg/L
Minimum	21 mg/L	33 mg/L	188 mg/L

The temporal variability observed in the minerals concentrations at WR-03 is due to a combination of:

- Year-to-year hydrologic variability in the watershed as shown in Figures 9 and 10, indicating daily flows and moving 5-year average flows, respectively
- Variability of the WWTP influent and effluent minerals concentrations (see Figures 11, 12, and 13 for effluent data [no influent data shown given the very limited dataset])
- Variability of the WWTP effluent flow (see Figure 14)
- Variability of the Beaver Lake pool elevation (see Figures 15 and 16)

In developing a split reach set of minerals criteria, there is no long-term body of monitoring data for WR-02 comparable to that available for WR-03. In order to make use of the longer period of data available for WR-03, the existing data for WR-02 was analyzed against the samples collected at WR-03 on the same dates. The analysis helped determine whether there was a sufficiently reliable statistical correlation to project a correlative set of values for WR-02.

Table 3 lists the data used to correlate WR-02 and WR-03 minerals concentrations. The data were collected during the UAA period of May 19, 2011, through October 30, 2014. During that time, 28 samples were collected at each station (see Table 2). From these samples:

- One outlier sample collected July 19, 2011, was removed from the data correlation. The sample was collected on a day when the White River flow at WR-01 was very low (1.6 cfs; Q7-10 = 0.8 cfs) and Beaver Lake was at a flood stage elevation (EL) of 1125.95 feet above mean sea level.
- Four samples collected on days when there was no effluent from the Noland WWTP were synthesized into one sample to make the dataset more consistent with the frequency of no effluent flow. From January 1, 2006, through November 27, 2014, the number of days for which there was no effluent flow constituted 5.96 percent of the total days. So, the correlation dataset shown in Table 3, with one of 24 (4.17 percent) samples representing days of zero-effluent flow was used because it more closely represents the occurrence of 5.96 percent compared to two of 25 samples (8.00 percent). Had all four samples been left in the correlation dataset, the zero-effluent flow samples would constitute 14.81 percent (four of 27) of the sample set, thus over-representing this condition.

Statistical correlations were done using untransformed and transformed datasets to identify the relationship between WR-03 and WR-02 that produced the maximum coefficient of determination, R^2, for each mineral.

Box-Cox transformations were used to seek data normality. The resultant R^2 values for both the untransformed and transformed data are shown in Table 4. Figures 17 through 19 are scatter plots of the WR-03 and WR-02 data that include the outlier of July 19, 2011, and the four samples collected on days when there was no effluent flow to the White River. Figures 20 through 22 show the data correlations with the data outlier removed and the four zero-effluent samples synthesized to one.

For consistency with the correlation methodology (i.e., the same reason the outlier was removed from the dataset used to correlate WR-03 and WR-02 data), data collected on days when Beaver Lake was below flood stage (less than or equal to EL 1121.43) was used to compute the 95th percentile minerals concentrations at WR-03. For the period of January 2000 through October 2014, the 95th percentile concentrations at WR-03 of the "below-flood-stage data" were: 36 mg/L chloride (n =405), 54 mg/L sulfate (n = 406), and 294 mg/L TDS (n = 239).[2] Using the correlation statistics presented above, the associated 95th percentile minerals concentrations at WR-02 are: 44 mg/L chloride; 79 mg/L sulfate; and, 362 mg/L TDS. The values for WR-02 based on the longer-term record at WR-03 reflect the variability in minerals concentrations in the river from the WWTP discharge to WR-02 as influenced by the WWTP operations over a range of hydrologic conditions that have occurred since January 2000; and, they are protective of the aquatic life designated use because they are well below the no-observed effect concentrations measured during the whole effluent toxicity test (243 mg/L chloride; 276 mg/L sulfate; and 1,200 mg/L TDS; see Table 5); and, are comparable to concentrations measured during the Fall of 2011 when the UAA biological sampling occurred.

Fish and benthic macroinvertebrate community sampling occurred September 13 and October 11 of 2011, respectively; and, during that same season, mineral concentrations of 51 mg/L chloride (September 13, 2011), 71 mg/L sulfate (July 19, 2011), and 342 mg/L TDS (September 13, 2011) were measured (see Table 2). Also, while there are no minerals data available for WR-02 prior to May 2011, the WR-03 data record, which is comprised of hundreds of samples, reveals the average and median minerals concentrations at WR-03 were very similar when comparing the extended period (beginning January 2000) to the near-term period (beginning April 2009). As shown in Table 6, even when differentiating for the Beaver Lake pool elevation, the average and median concentrations of the four datasets shown in the table are within 2 mg/L chloride, 4 mg/L sulfate, and 15 mg/L TDS. This indicates that the more prevalent conditions to which the aquatic biota have been exposed, were not significantly different when comparing the nearer-term record to the extended record that captures the variability of the hydrologic and WWTP operational conditions that the river reach experiences.

Recognizing that the dilution from Beaver Lake influences the minerals concentrations at WR-03, the criteria for the lower reach should be computed from all data regardless of the Beaver Lake pool elevation. From the ongoing discussion with ADEQ, the Department expressed the preference for deriving site-specific WQC for the segment from WR-02 to Richland Creek using the 95th percentile concentrations from data collected from April 2009 through April 2014, which is nearer to the date when biological sampling was conducted for the UAA (Fall of 2011 and Spring of 2012). The concentrations derived from this data set are: 30 mg/L chloride; 40 mg/L sulfate; and, 237 mg/L TDS; which are about 10 percent lower than the values derived from the longer-term data set.

1.3 Conclusion

The re-evaluation of data conducted pursuant to the public comments supports revision of the originally proposed instream site-specific criteria (60 mg/L chloride, 100 mg/L sulfate, and 440 mg/L TDS) as follows:

[2] An analysis period beginning January 2000 was chosen to accurately and consistently reflect the minerals contribution from the WWTP operations since the Noland WWTP discontinued the use of chlorine gas and dechlorination (dechlorination resulted in added sulfate to the wastewater) at the end of 1999, and switched to ultra-violet (UV) disinfection. The plant currently uses ozone for disinfection with UV as a back-up, which does not impact minerals concentrations.

- Revised criteria for the segment from Noland WWTP-001 to WR-02: 44 mg/L chloride; 79 mg/L sulfate; and, 362 mg/L TDS
- Revised criteria for the segment WR-02 to Richland Creek: 30 mg/L chloride; 40 mg/L sulfate; and, 237 mg/L TDS

If adopted, these criteria will result in achievable NPDES permits for the Noland Wastewater Treatment Plant and should allow the river to be removed from the State's impaired waterbodies list based on future monitoring of the river.

1.4 Reference

CH2M HILL and FTN Associates, 2013. *White River Use Attainability Analysis – Fayetteville, Arkansas*. Submitted to ADEQ May 21, 2013.

Tables

TABLE 1

UAA Sampling Stations: Drainage Area and Distance from Noland WWTP Outfall-011

Sampling Station	Drainage Area (mi^2)	Distance from Outfall-001 (mi)
WR-01	400	1.0 (upstream)
WWTP-001	-	-
WR-02	403	0.4 (downstream)
WR-2.5	405	2.7 (downstream)
WR-03	412	5.5 (downstream)

TABLE 2

White River and Noland WWTP Outfall-001 Minerals Concentrations measured for the UAA

	Chloride (mg/L)					Sulfate (mg/L)					TDS (mg/L)				
Date*	WR-01	WWTP-001	WR-02	WR-2.5	WR-03	WR-01	WWTP-001	WR-02	WR-2.5	WR-03	WR-01	WWTP-001	WR-02	WR-2.5	WR-03
5/19/2011	2.4	37.1	5.1		3.4	9.0	40.9	11.5		9.8	67	296	94		77
6/17/2011	2.9	42.8	7.2		6.3	15.2	79.5	20.2		15.7	105	366	131		114
7/19/2011	5.8	46.2	35.3		11.3	22.7	103.6	71.0		20.1	151	376	305		148
8/16/2011	3.9	47.0	11.5		5.9	20.4	79.5	33.3		32.1	132	372	176		147
9/13/2011	5.1	59.8	50.9	46.3	31.4	16.6	50.5	48.6	44.5	38.3	130	357	342	287	240
10/11/2011	5.3	55.1	37.6	37.2	33.3	25.1	44.6	40.0	39.7	39.6	138	368	288	268	270
11/15/2011	3.8	46.7	5.6	6.2	6.3	21.1	49.8	23.5	22.8	23.1	113	336	138	133	129
12/13/2011	3.1	48.1	5.6	4.2	4.0	11.3	58.1	14.8	12.3	11.5	63	347	92	74	71
1/10/2012	3.1	50.4	6.0	4.7	4.7	11.9	60.1	15.1	13.8	13.8	64	363	89	76	77
2/14/2012	2.7	43.8	5.1	3.5	3.5	10.8	62.7	14.0	11.9	11.7	61	328	86	73	67
3/7/2012	3.0	53.9	7.8	4.9	5.4	12.3	54.8	17.0	15.4	15.6	78	370	111	96	98
4/3/2012	2.2	52.4	5.5	3.6	3.8	10.0	54.5	13.2	11.1	11.4	74	358	94	84	77
5/3/2012	3.0	50.2	6.4	6.1	6.4	14.3	48.1	18.0	19.1	18.7	86	357	108	110	111
6/12/2012	4.6	52.2	25.1	19.2	11.8	21.2	53.8	37.1	31.9	28.5	131	362	252	207	160
7/5/2012	4.2	47.9	27.7	36.8	21.9	12.3	49.4	28.2	34.3	25.5	125	354	200	226	186
8/22/2012	5.9	54.9	49.5	19.3	46.4	20.9	47.3	52.1	35.6	39.3	127	366	340	211	282
9/12/2012	5.4	52.6	39.7	19.5	29.2	30.5	39.3	42.0	47.7	36.3	139	375	301	228	224
10/30/2012	3.9	55.0	18.4	17.1	16.8	15.9	44.9	25.9	26.0	23.3	105	378	181	183	167
11/15/2012	5.8	54.7	21.2	19.4	18.1	25.9	45.0	37.3	45.9	25.6	123	384	219	225	173
12/13/2012	6.2	54.5	6.8	6.9	23.9	31.7	54.4	33.5	23.5	35.8	140	408	151	130	227

TABLE 2

White River and Noland WWTP Outfall-001 Minerals Concentrations measured for the UAA

	Chloride (mg/L)					Sulfate (mg/L)					TDS (mg/L)				
Date*	WR-01	WWTP-001	WR-02	WR-2.5	WR-03	WR-01	WWTP-001	WR-02	WR-2.5	WR-03	WR-01	WWTP-001	WR-02	WR-2.5	WR-03
1/17/2013	3.9	51.6	7.1	5.6	6.0	14.1	56.2	16.6	14.8	14.7	61	376	81	72	75
4/9/2013	2.7	41.1	3.5	2.7	2.6	11.4	65.8	3.9	11.1	11.2	62	352	67	56	63
7/18/2013	5.3	56.0	6.2	26.0	16.8	30.1	73.6	26.7	36.5	30.0	160	381	160	198	170
10/29/2013	3.1	67.0	7.5	10.6	9.6	16.4	60.4	19.8	21.4	20.5	91	409	109	125	130
1/24/2014	3.5	53.8	3.7	4.5	5.0	12.1	67.0	12.3	13.0	13.4	72	352	74	79	96
4/23/2014	2.7	51.4	7.7	4.3	4.2	9.2	60.6	13.9	10.3	10.1	35	340	65	84	67
7/21/2014	2.6	49.7	7.8	6.3	4.3	6.8	51.8	11.7	10.0	8.2	61	375	97	82	77
10/30/2014	3.7	57.7	6.8	7.1	7.7	13.4	51.7	15.7	15.8	17.5	76	397	20	94	104
95th Percentile	5.9	59.0	46.0	37.1	32.7	30.4	79.5	50.9	45.7	39.0	147	404	328	262	259
Min	2.2	37.1	3.5	2.7	2.6	6.8	39.3	3.9	10.0	8.2	35	296	20	56	63
Avg	3.9	51.2	15.3	13.4	12.5	16.9	57.4	25.6	23.7	21.5	99	364	156	142	137
Median	3.7	51.9	7.3	6.6	6.3	14.8	54.5	20.0	20.2	19.4	98	366	121	117	121
Max	6.2	67.0	50.9	46.3	46.4	31.7	103.6	71.0	47.7	39.6	160	409	342	287	282

* Shaded cells indicate days when there was no effluent flow from the Noland WWTP; and, samples collected after May 3, 2012, were not included in the May 21, 2013 UAA report.

TABLE 3

UAA Data used to Correlate WR-02 and WR-03 Minerals Concentrations

Sample Date	Chloride (mg/L)		Sulfate (mg/L)		TDS (mg/L)	
	WR-02	WR-03	WR-02	WR-03	WR-02	WR-03
5/19/2011	5.1	3.4	11.5	9.8	94	77
6/17/2011	7.2	6.3	20.2	15.7	131	114
8/16/2011	11.5	5.9	33.3	32.1	176	147
9/13/2011	50.9	31.4	48.6	38.3	342	240
10/11/2011	37.6	33.3	40.0	39.6	288	270
11/15/2011	5.6	6.3	23.5	23.1	138	129
12/13/2011	5.6	4.0	14.8	11.5	92	71
1/10/2012	6.0	4.7	15.1	13.8	89	77
2/14/2012	5.1	3.5	14.0	11.7	86	67
3/7/2012	7.8	5.4	17.0	15.6	111	98
4/3/2012	5.5	3.8	13.2	11.4	94	77
5/3/2012	6.4	6.4	18.0	18.7	108	111
6/12/2012	25.1	11.8	37.1	28.5	252	160
8/22/2012	49.5	46.4	52.1	39.3	340	282
9/12/2012	39.7	29.2	42.0	36.3	301	224
10/30/2012	18.4	16.8	25.9	23.3	181	167
11/15/2012	21.2	18.1	37.3	25.6	219	173
1/17/2013	7.1	6.0	16.6	14.7	81	75
10/29/2013	7.5	9.6	19.8	20.5	109	130
1/24/2014	3.7	5.0	12.3	13.4	74	96
4/23/2014	7.7	4.2	13.9	10.1	65	67
7/21/2014	7.8	4.3	11.7	8.2	97	77
10/30/2014	6.8	7.7	15.7	17.5	20	104
Synthetic sample	17.0	19.3	27.4	27.8	180	178

TABLE 4

Coefficient of Determination, R^2, Values for WR-03 and WR-02 Correlation*

Data Type	Chloride	Sulfate	TDS
Untransformed	**0.90**	0.92	**0.87**
Transformed**	0.78	**0.93**	0.68

*Bolded values represent the highest R^2 values and the datasets used in the correlation (see Figures 20 through 22).

**The equations associated with the transformed sulfate dataset shown in Figure 21 are:

$Y = [a (Y_T + 1)] ^{(1/a)}$
$Y_T = 0.1689 X_T + 0.3066$
$X_T = [(X^{b}) - b] / b$
a = - 0.6474436
b = - 0.0943154

where

Y = sulfate concentration at WR-02
Y_T = transformed sulfate concentration at WR-02
X = sulfate concentration at WR-03
X_T = transformed sulfate concentration at WR-03
a = - 0.6474436
b = - 0.0943154

TABLE 5

UAA Whole Effluent Toxicity Test Results

Mineral	No Observed Effect Concentration (mg/L)		Lowest Observed Effect Concentration (mg/L)		Inhibition Concentration 25 Percent* (mg/L)
	Reproduction	Survival	Reproduction	Survival	
Chloride	243	396	306	533	327
Sulfate	276	451	347	596	371
TDS	1,200	1,929	1,557	2,429	1,643

*Also known as the IC25: a statistical calculation of the concentration which causes a 25 percent reduction in growth or reproduction of test organisms.

TABLE 6

Statistics of WR-03 Minerals Database

	WR-03 All Data			WR-03 when Beaver Lake ≤ EL 1121.43		
	Chloride	**Sulfate**	**TDS**	**Chloride**	**Sulfate**	**TDS**
April 1, 2009 - October 30, 2014						
Average (mg/L)	10	19	120	12	21	128
Median (mg/L)	6	16	104	8	18	111
Standard deviation (mg/L)	9	10	56	10	10	60
95th percentile (mg/L)	29	39	229	31	40	242
Count	325	325	109	242	242	79
January 1, 2000 - October 30, 2014						
Average (mg/L)	11	21	126	12	23	135
Median (mg/L)	6	16	99	7	18	110
Standard deviation (mg/L)	11	15	74	12	16	79
95th percentile (mg/L)	33	46	273	36	54	294
Count	529	530	309	405	406	239

Figures

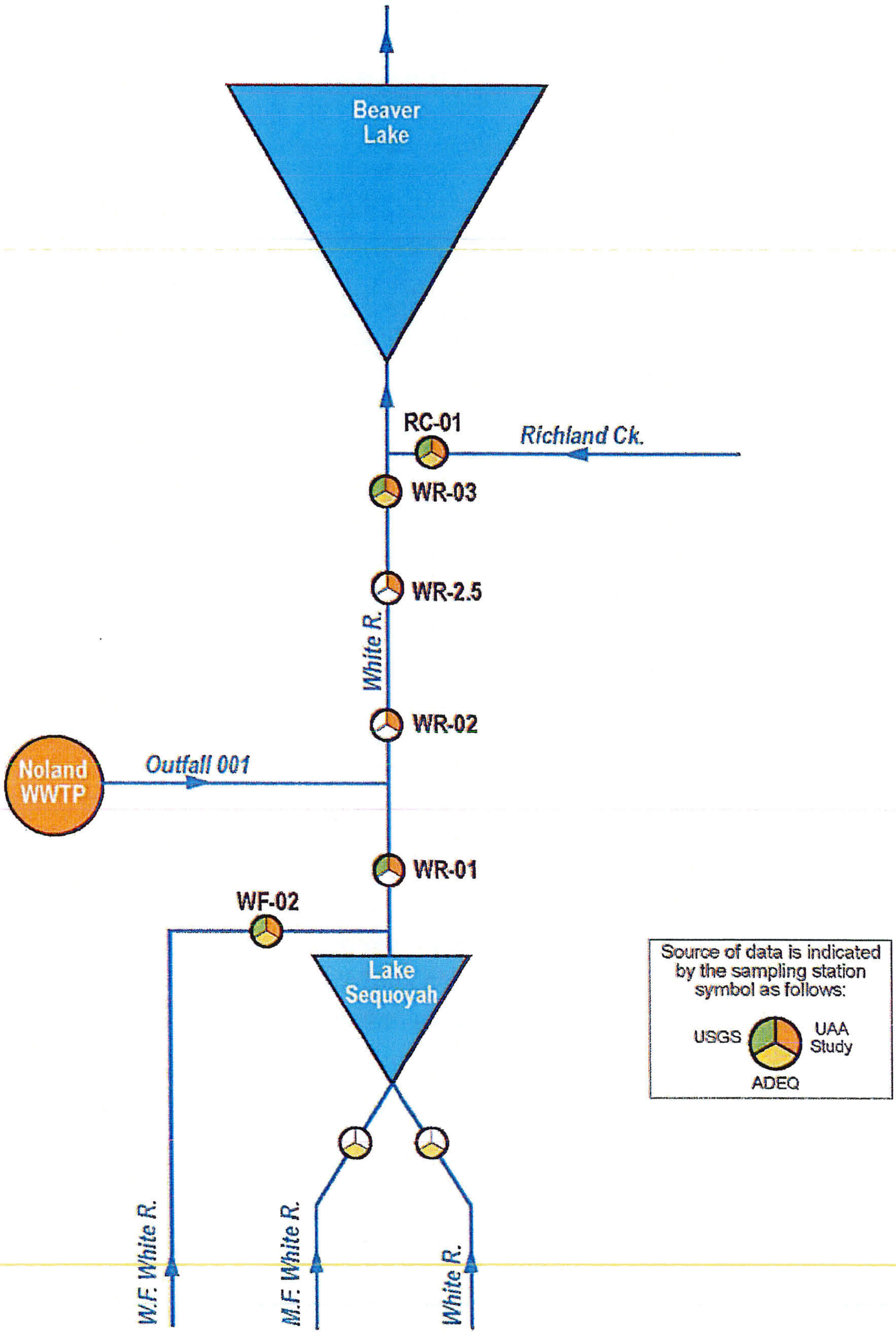

Figure 1. Sampling station schematic (from: CH2M HILL and FTN, 2013)

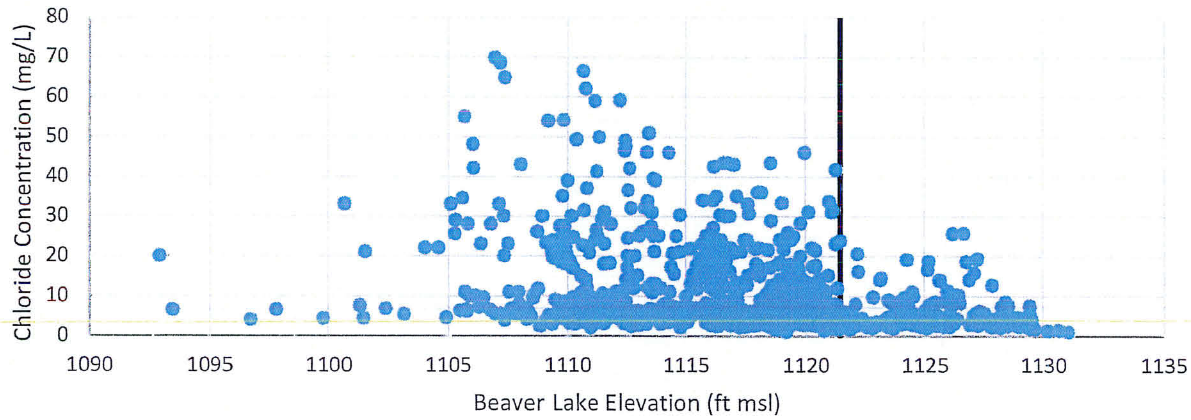

Figure 2. Beaver Lake elevations and WR-03 chloride concentrations July 1969 through October 2014

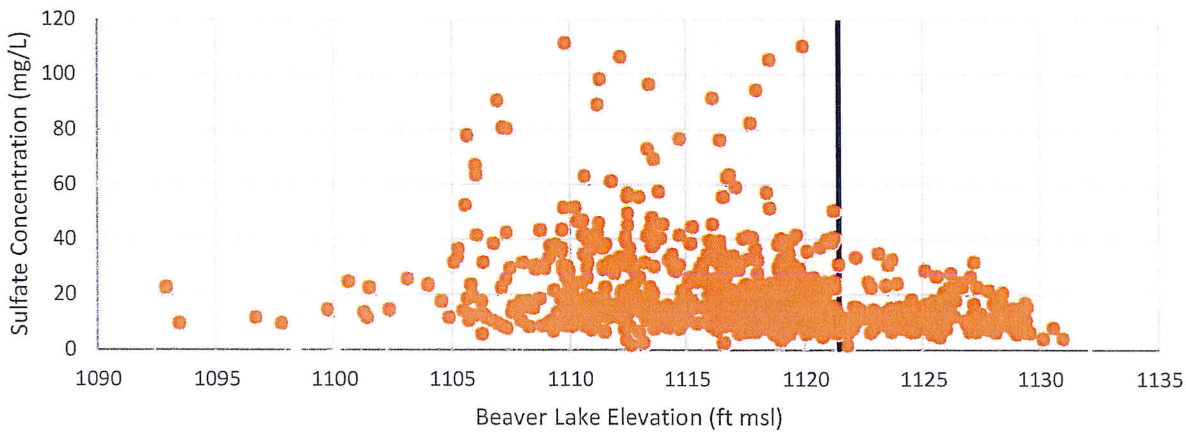

Figure 3. Beaver Lake elevations and WR-03 sulfate concentrations July 1969 through October 2014

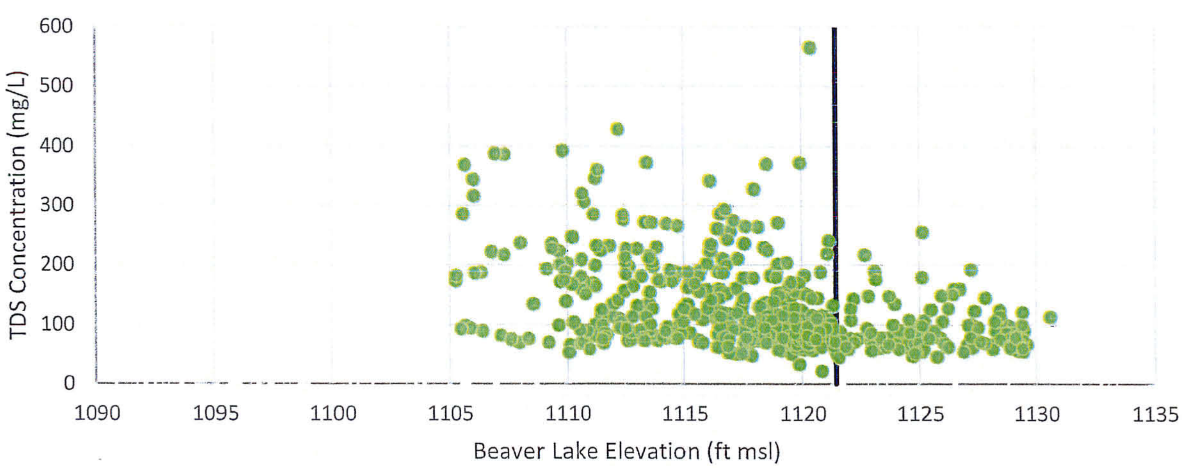

Figure 4. Beaver Lake elevations and WR-03 TDS concentrations July 1969 through October 2014

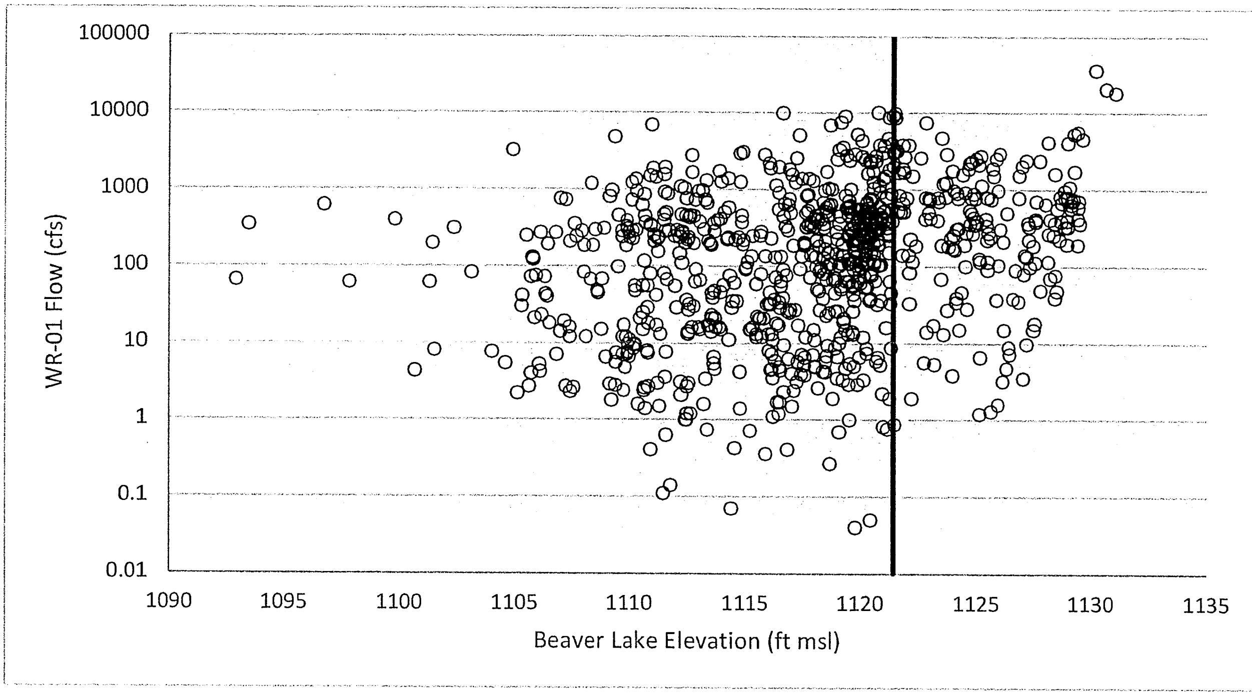

Figure 5. Beaver Lake elevations and WR-01 daily average flows July 1969 through October 2014

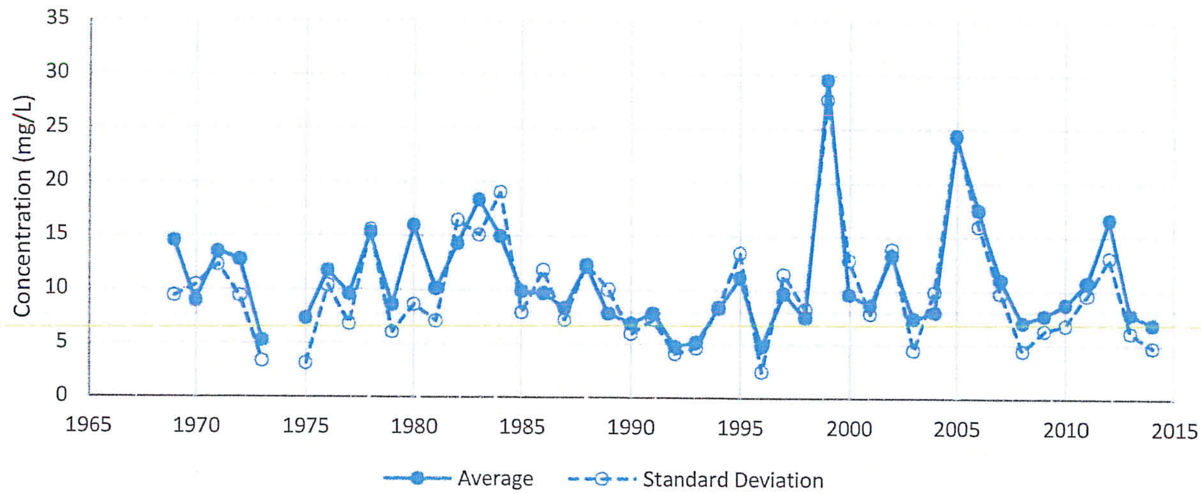

Figure 6. WR-03 annual average and standard deviation chloride concentrations July 1969 through October 2014

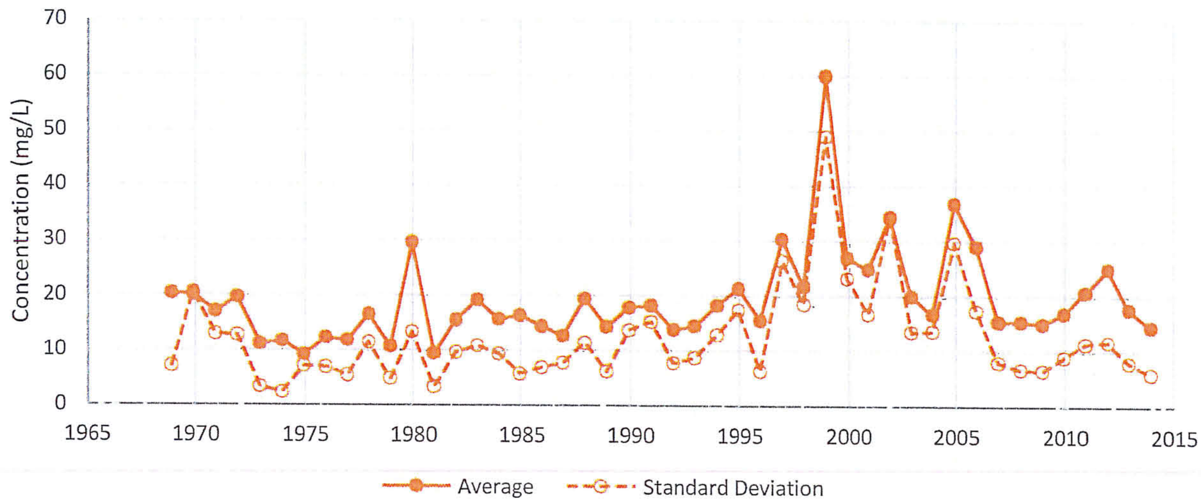

Figure 7. WR-03 annual average and standard deviation sulfate concentrations July 1969 through October 2014

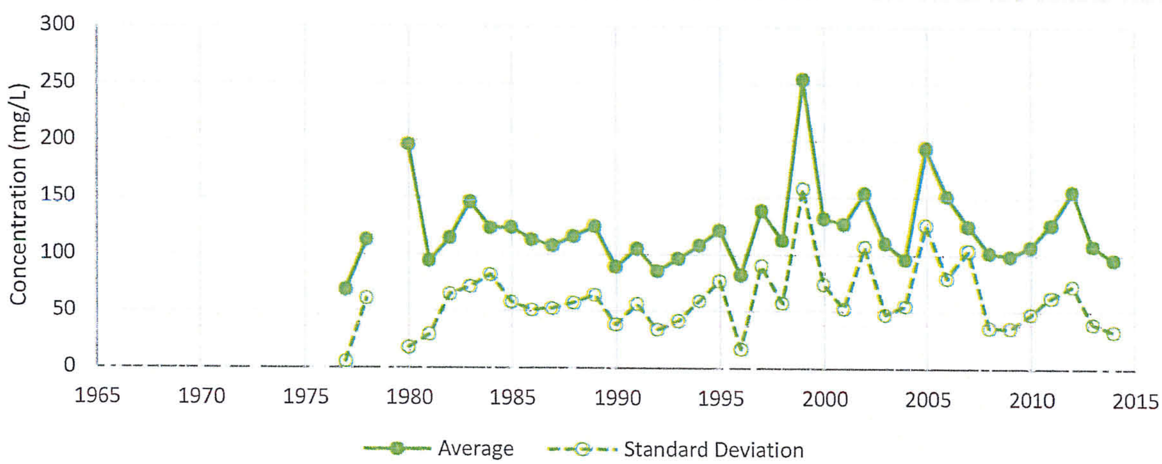

Figure 8. WR-03 annual average and standard deviation TDS concentrations July 1969 through October 2014

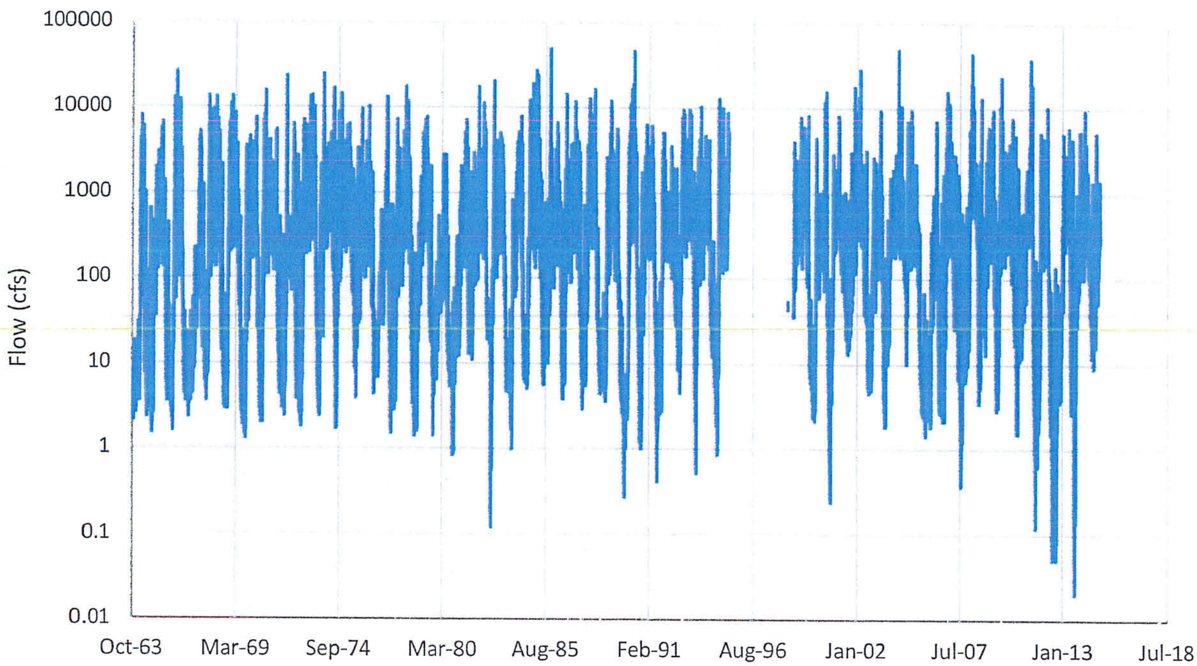

Figure 9. WR-01 daily average flow October 1963 through December 2014

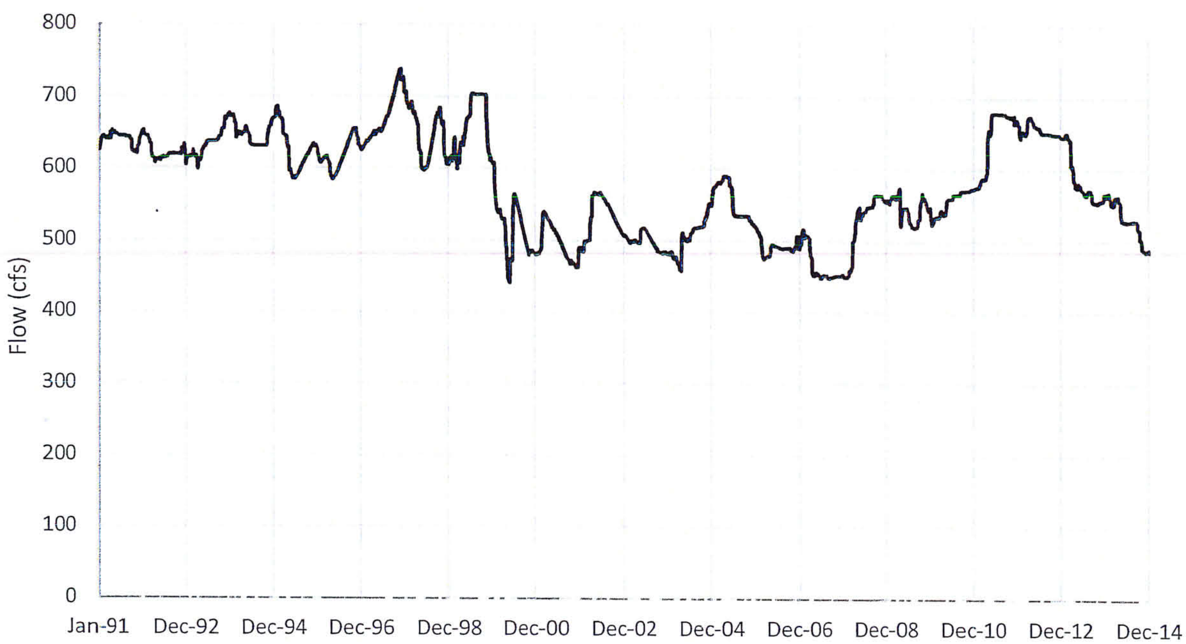

Figure 10. WR-01 moving 5-year average flow (computed from daily average flows) January 1991 through December 2014

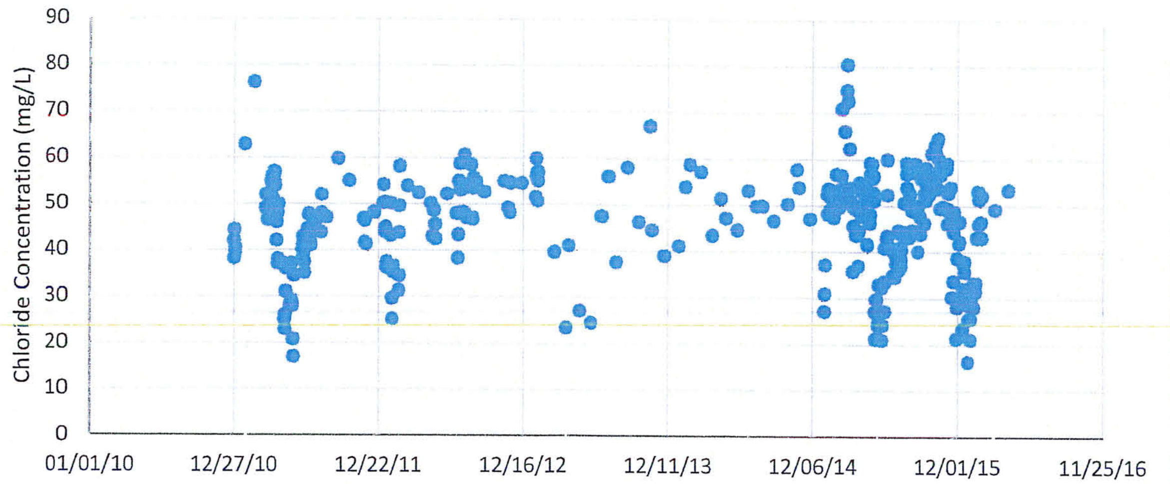

Figure 11. WWTP-001 chloride concentrations period of record through April 7, 2016 (n = 348)

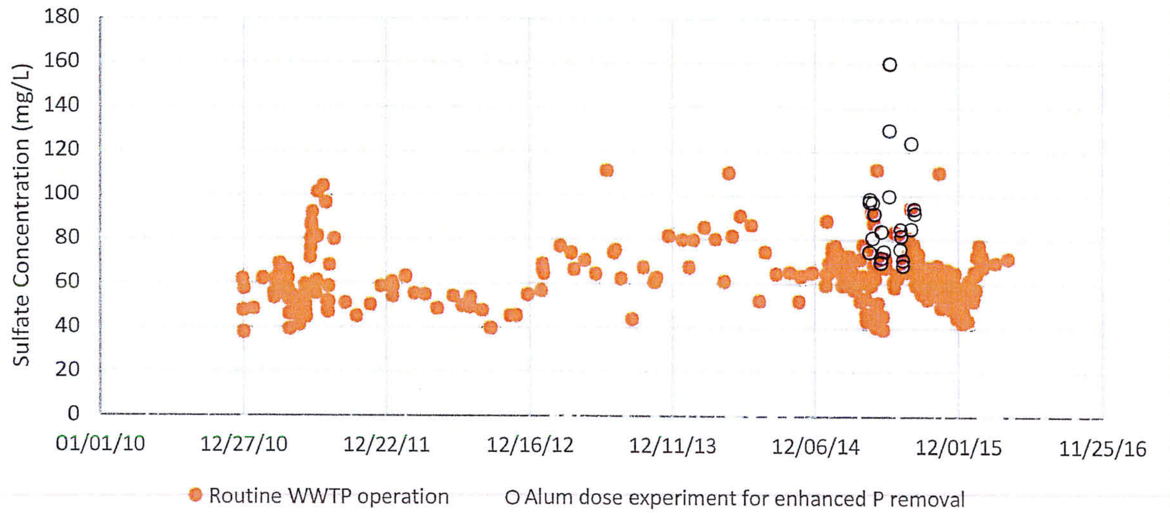

Figure 12. WWTP-001 sulfate concentrations period of record through April 7, 2016 (n = 330)

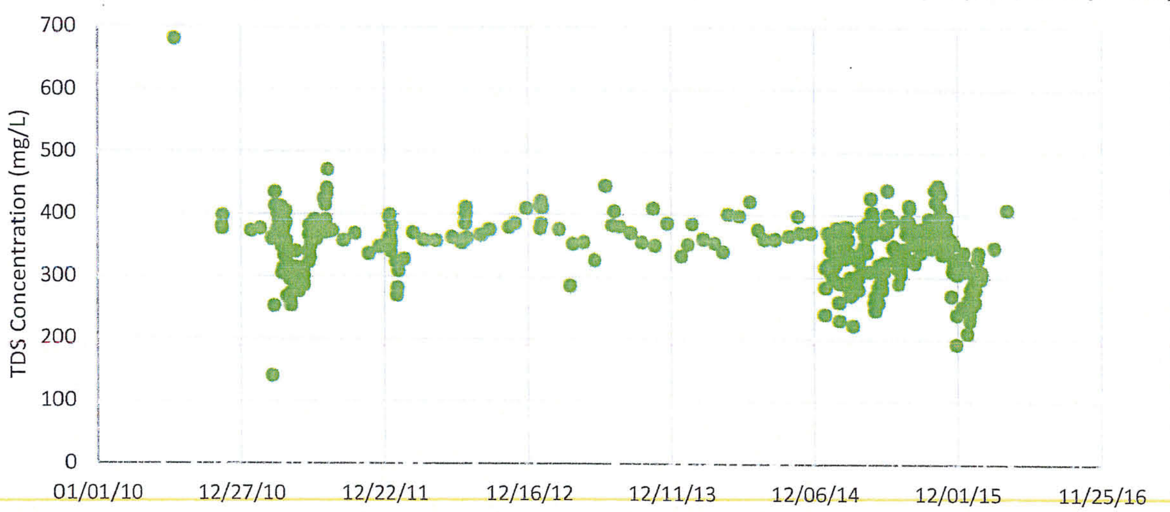

Figure 13. WWTP-001 TDS concentrations period of record through April 7, 2016 (n = 330)

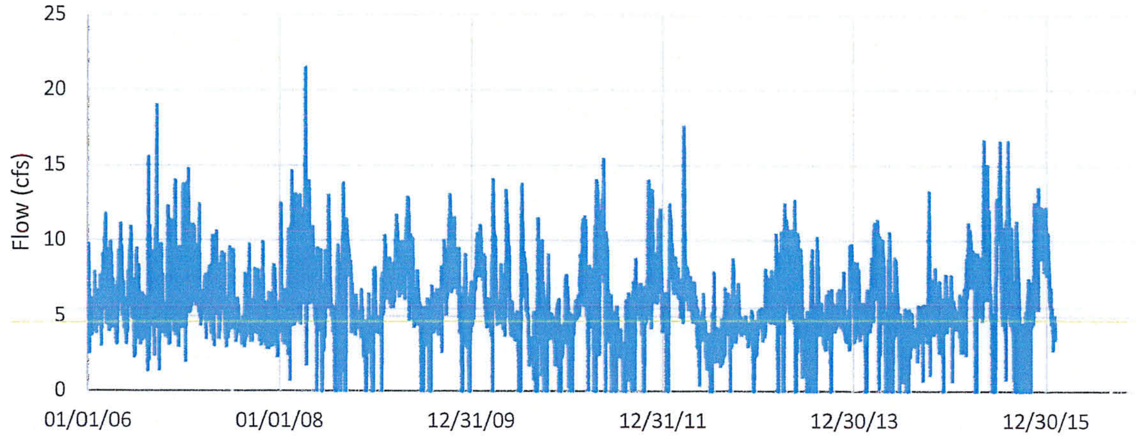

Figure 14. WWTP-001 daily average flow January 1, 2006, through February 5, 2016

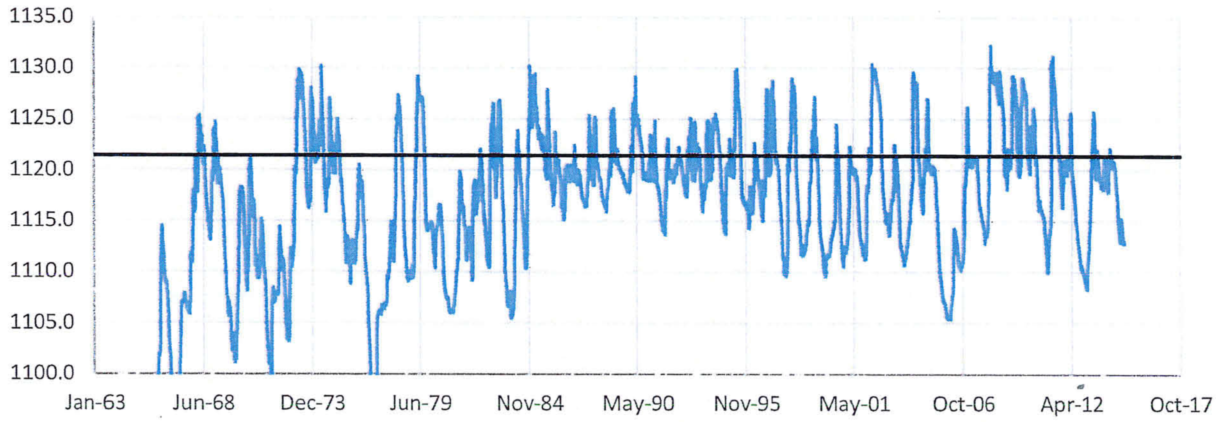

Figure 15. Beaver Lake elevation February 17, 1963, through December 17, 2014

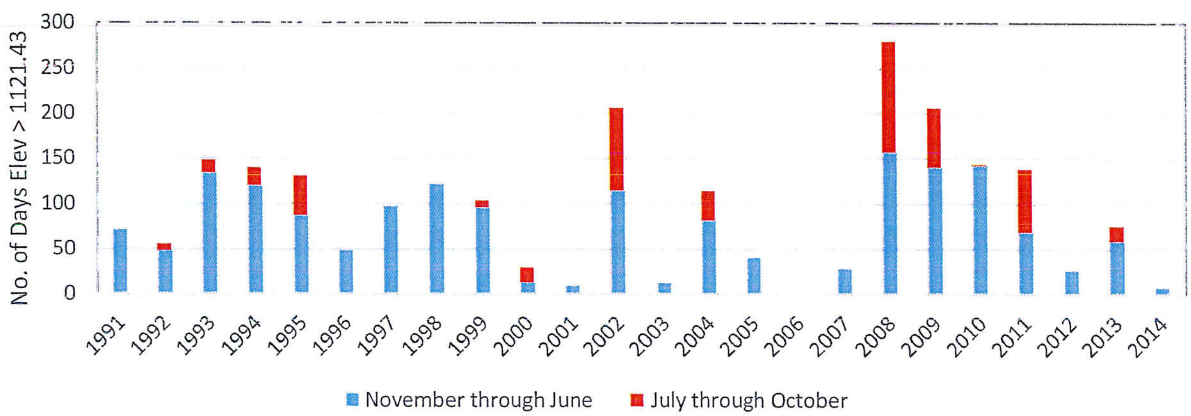

Figure 16. Number of days Beaver Lake pool elevation exceeded EL 1121.43

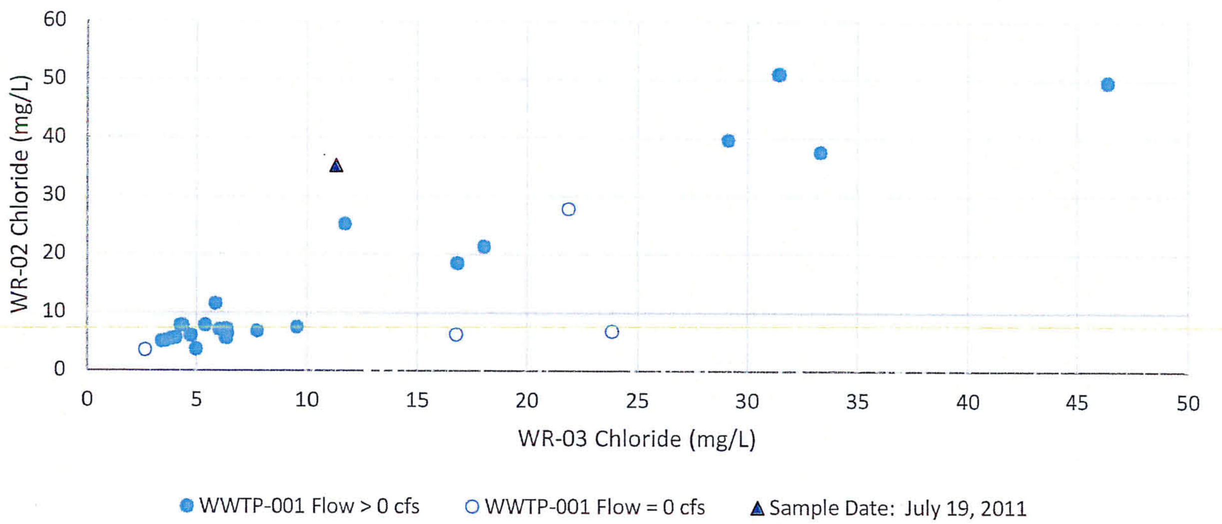

Figure 17. WR-03 and WR-02 UAA chloride data collected May 19, 2011, through October 30, 2014 (n = 28)

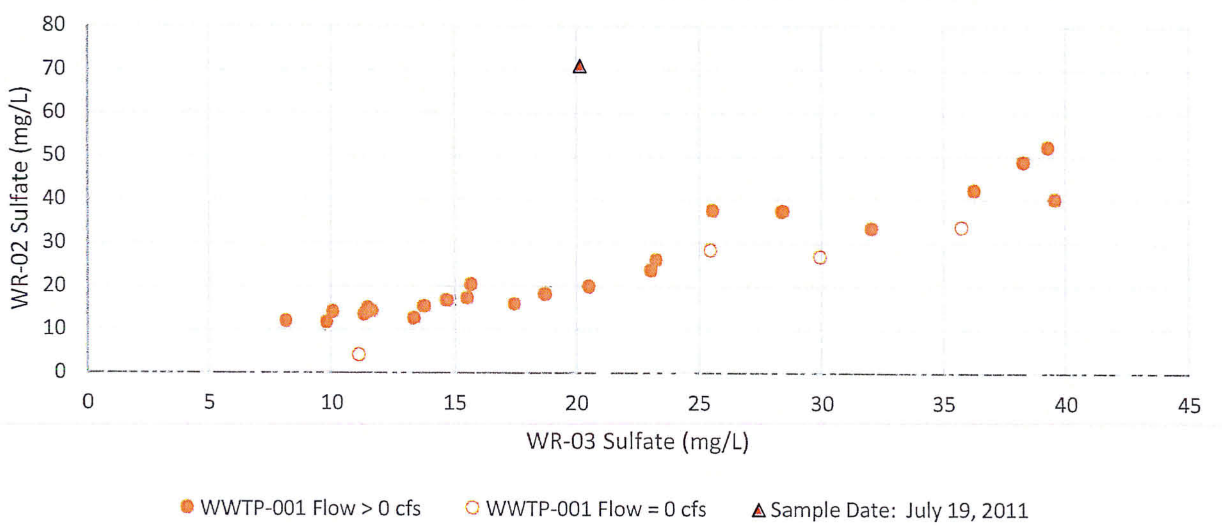

Figure 18. UAA WR-03 and WR-02 sulfate data collected May 19, 2011, through October 30, 2014 (n = 28)

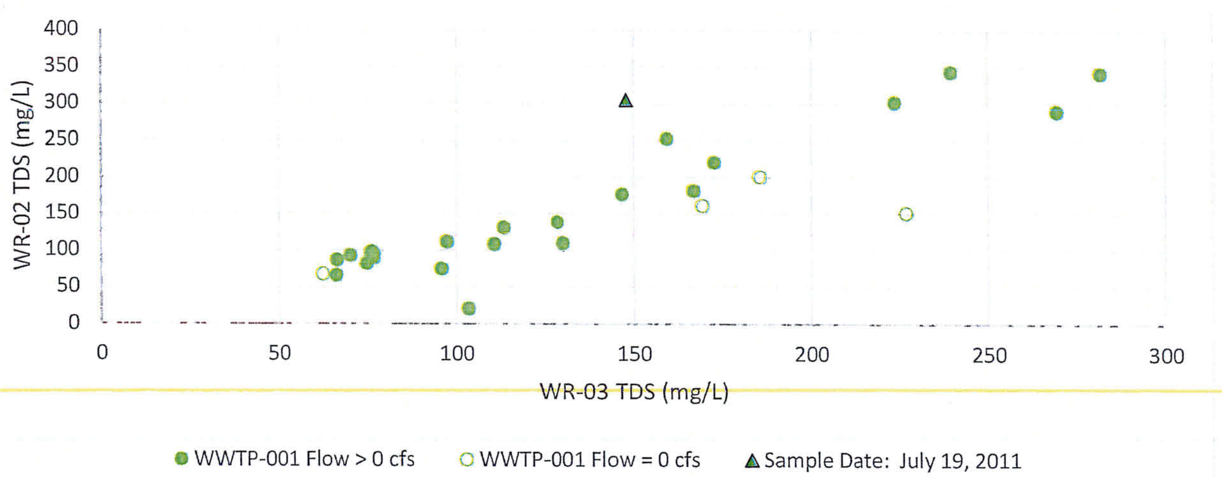

Figure 19. UAA WR-03 and WR-02 TDS data collected May 19, 2011, through October 30, 2014 (n = 28)

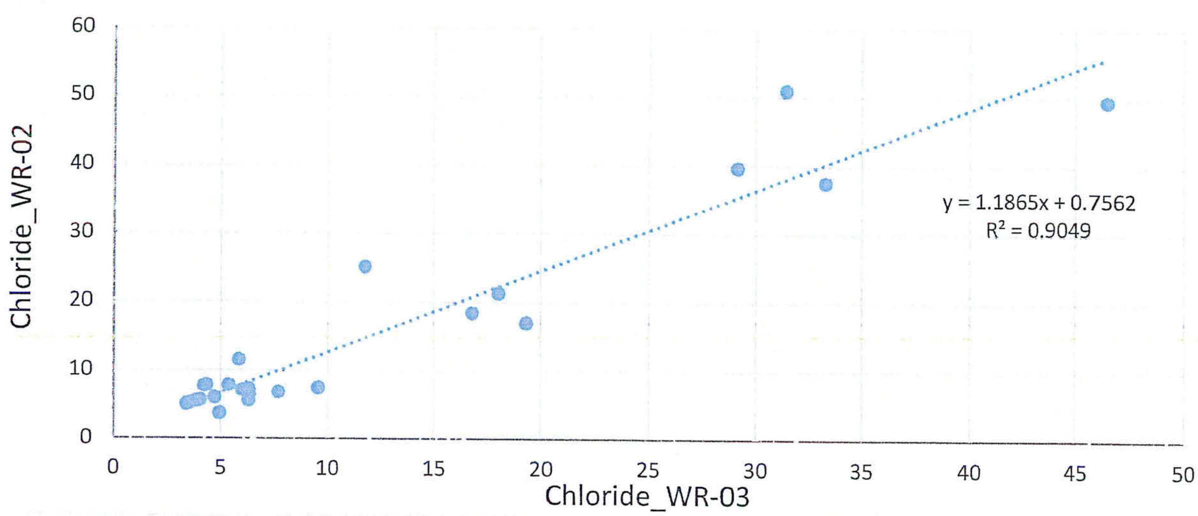

Figure 20. UAA WR-03 and WR-02 chloride correlation data collected May 19, 2011, through October 30, 2014 (n = 24)

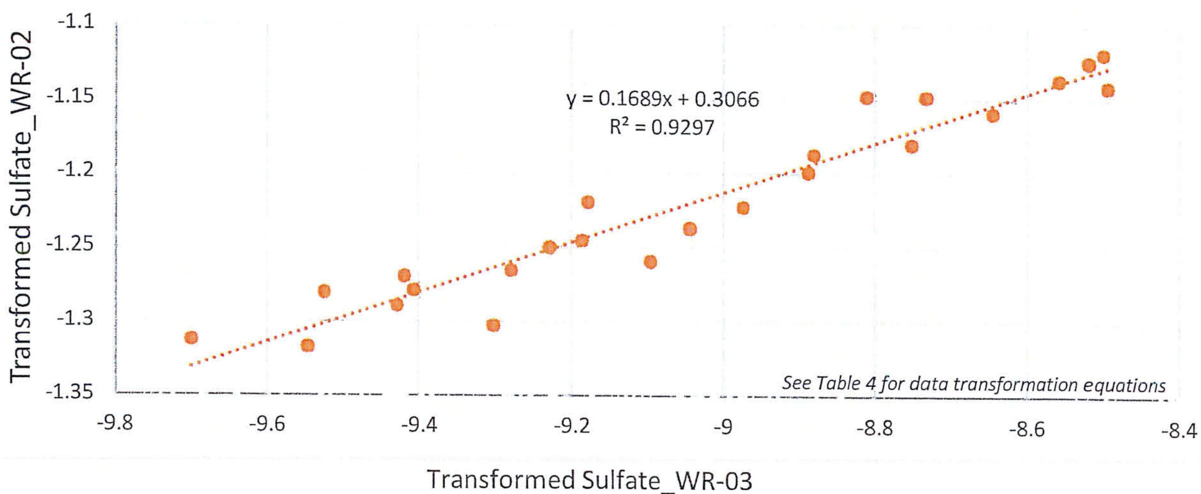

Figure 21. UAA WR-03 and WR-02 sulfate correlation data collected May 19, 2011, through October 30, 2014 (n = 24)

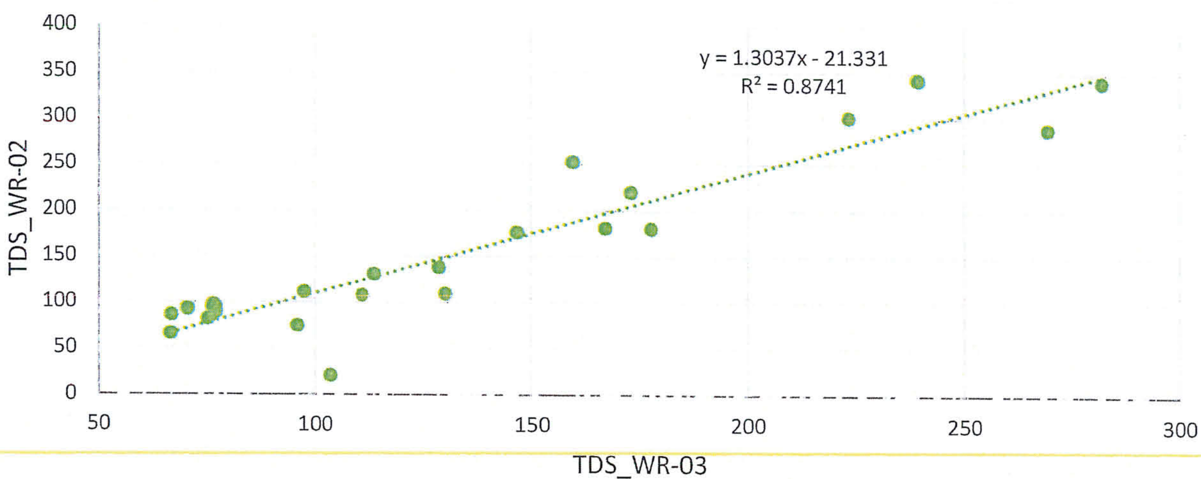

Figure 22. UAA WR-03 and WR-02 TDS correlation data collected May 19, 2011, through October 30, 2014 (n = 24)