March 5, 2013

Bob Steed
Idaho Department of Environmental Quality
2110 Ironwood Parkway
Coeur d'Alene, ID 83814

Subject: Spokane River Hydroelectric Project, FERC Project No. 2545
Submittal of the 2012 TDG Monitoring at Post Falls HED Technical Memorandum

Dear Mr. Steed:

The Federal Energy Regulatory Commission's (FERC) June 18, 2009 Spokane River Hydroelectric Project (No. 2545) License, Ordering Paragraph H, included the Total Dissolved Gas Control and Mitigation Program, excluding the funding provision, for Avista's Post Falls Hydroelectric Development (HED). Avista subsequently developed a Total Dissolved Gas (TDG) Control and Mitigation Program (Program) for the Post Falls HED and began implementing it following approval from the Idaho Department of Environmental Quality (IDEQ), which was received on June 10, 2010. In accordance with the Program, Avista is required to monitor TDG at the HED for five years while operating under interim spill gate protocols. Following the five-year monitoring, Avista is then required to submit a report to IDEQ that summarizes the monitoring data and evaluates the effectiveness of the interim spill gate protocols.

Avista completed its second year of TDG monitoring at the Post Falls HED in 2012 between March 19 and April 5, and between June 7 and June 27. During this time, flows ranged from 7,970 cubic feet per second (cfs) to 28,600 cfs. The results of the monitoring are summarized in the enclosed 2012 TDG Monitoring at Post Falls HED Technical Memorandum.

During the summer and fall of 2014, Avista plans to replace and automate the HED's South Channel Spill Gates. This will provide Avista with more control of the South Channel Spill Gates, allowing them to be more easily put into service before the North Channel sector gate for high-flow spill events, or in accordance with Option A under the current Program.

While the Program states that Avista will conduct monitoring for a five-year time period, the Program was written prior to Avista's need to replace the South Channel Spill Gates. As such, Avista believes it would be better to postpone further TDG monitoring until after the spill gates are replaced and the data that is collected is representative of the new gates. Avista would resume monitoring in accordance with the Program during the first TDG season following the spill gates return to operations. We base this on the following:

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- TDG monitoring completed in 2003 and 2004, as part of Avista's relicensing process already indicated using the South Channel to pass flows in excess of the powerhouse capacity can slightly reduce downstream TDG levels in the Spokane River as compared to passing the same water through the North Channel.
- Additional monitoring of TDG in 2013 and 2014, during the interim of construction of the new and automated gates, will not provide any additional information relative to gas abatement.

With this, Avista would like to meet with IDEQ to discuss its request to postpone TDG monitoring until the South Channel Spill Gates are replaced and operational, which we expect to be in 2015. If you have any questions regarding our request to postpone the monitoring or about the enclosed document, please feel free to contact me at (509) 495-4998.

Sincerely,

Speed Fitzhugh

Elvin "Speed" Fitzhugh
Spokane River License Manager

Enclosure (1)

cc: Dan Redline, IDEQ
Tom Herron, IDEQ
Meghan Lunney, Avista

TECHNICAL MEMORANDUM

Date:	February 26, 2013	**Project No.:**	073-93081-05.480
To:	Meghan Lunney	**Company:**	Avista Corporation
From:	Brian Mattax		
cc:		**Email:**	bmattax@golder.com
RE:	**2012 TDG MONITORING AT POST FALLS HED**		

Avista Corporation (Avista) owns and operates Post Falls Hydroelectric Development (HED) under the Spokane River Project (Project) license issued by the Federal Energy Regulatory Commission (FERC). Post Falls HED is the upstream-most of the Project's five HEDs and is located on the Spokane River in northern Idaho (Kootenai and Benewah counties). The Spokane River originates at the outlet of Coeur d'Alene Lake in Idaho and flows westerly approximately 111 miles to the confluence with the Columbia River in eastern Washington (which is now within Lake Roosevelt, the impoundment created by Grand Coulee Dam). Post Falls HED is located 9 miles downstream of Coeur d'Alene Lake at river mile 102.

During the Project's relicensing process, preferential use of the south channel was identified as a potential means to reduce naturally high total dissolved gas (TDG) production below the Post Falls HED. To facilitate this, Avista developed conceptual Interim Spill Gate Operating Protocols to maximize the use of the South Channel to the degree reasonably practical, given the requirements for manual operation of the gates. A team of Avista engineers, operators, and license implementation staff refined the Post Falls HED Interim Spill Gate Operating Protocols as described in Figure 1, which include Options A and B. The North Channel tainter gates, which offer much more versatile control than either the sector gate or South Channel gates, are the first spill gates placed into operation. After the North Channel tainter gates reach capacity, the South Channel gates and the North Channel sector gates are used. Under Option A, the South Channel gates are placed into service before the North Channel sector gate during forecasted prolonged high-flow spill events. Option B is chosen for spill events forecasted to be of moderate flow or short duration. This choice utilizes the North Channel sector gate when the tainter gates reach capacity. Specific procedures for operation of these gates are found in Appendix A of the Total Dissolved Gas (TDG) Control and Mitigation Program[1].

[1] Golder Associates Inc. 2010. Post Falls Hydroelectric Development Total Dissolved Gas Control and Mitigation Program, Ordering Paragraph H, Spokane River Hydroelectric Project FERC Project No. 2545. Prepared for Avista Corporation. June.

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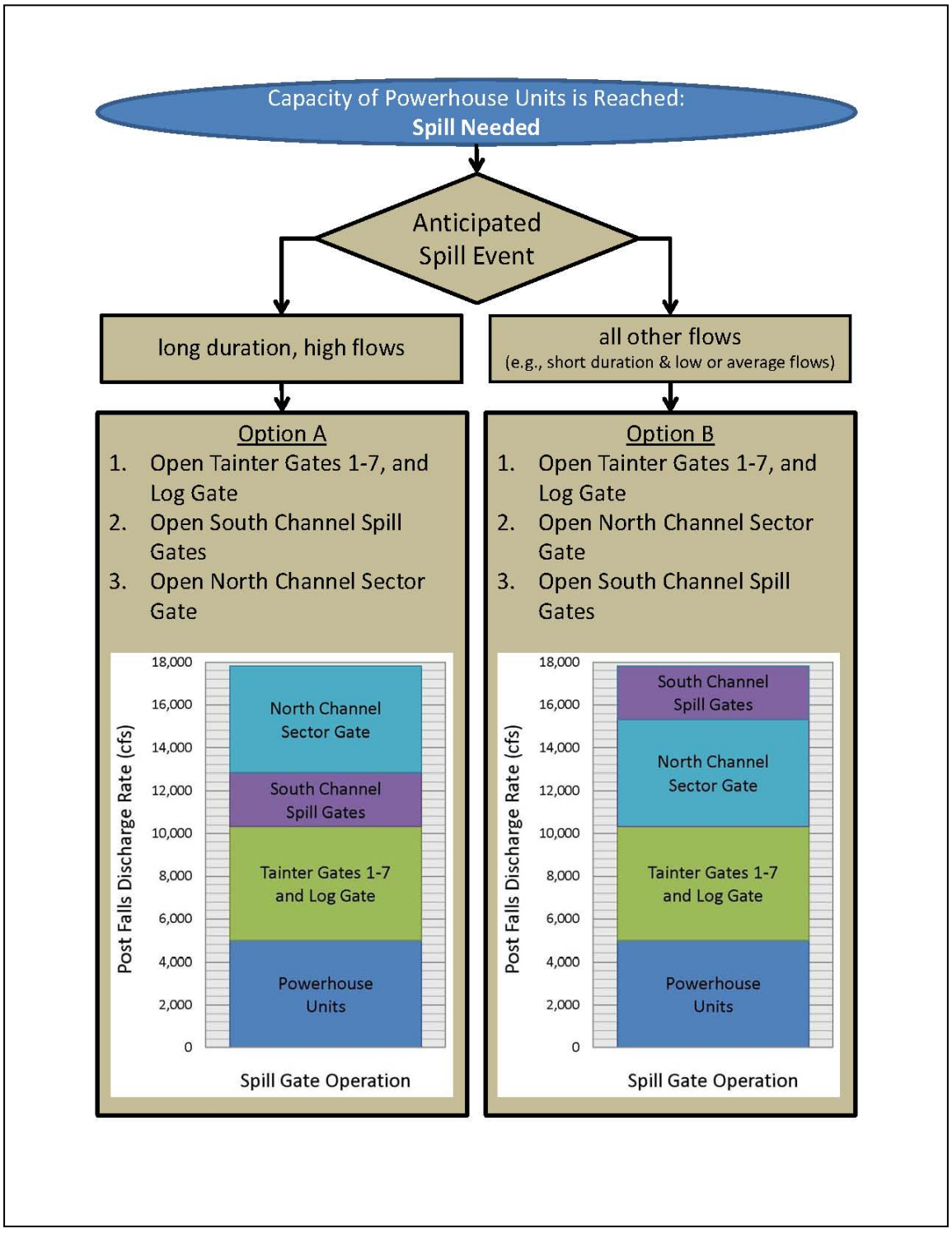

Figure 1: Interim Spill Gate Operating Protocols

The monitoring plan for the Post Falls HED TDG Control and Mitigation Program has an objective to:

- Confirm that the Interim Spill Gate Operating Protocols are effective at reducing TDG levels as compared to typical operations, which preferentially use the North Channel for spills.

During 2011 and 2012, TDG monitoring targeted total discharges of 11,000 to 17,500 cubic feet per second (cfs), and prioritized Option A spill gate operations following procedures described in the Post Falls HED TDG Control and Mitigation Program. Spot TDG measurements taken in 2011 are documented in a technical memorandum.[2]

During 2012, continuous (15-minute intervals) TDG monitoring was conducted in the Post Falls HED forebay and at the US Geological Survey (USGS) Gage No. 12419000 near Post Falls, Idaho (Table 1) to obtain a more comprehensive understanding of TDG conditions. Post Falls TDG monitoring was conducted from March 19 to April 5 and from June 7 to June 27 of 2012. Spot measurements were taken during site visits to confirm the representativeness of data collected continuously. USGS 15-minute discharge data for the "Near Post Falls" gage was acquired from the USGS for the duration of the TDG monitoring season. Avista provided Post Falls HED operations data for both TDG monitoring periods.

Table 1: Post Falls HED TDG Monitoring Stations

Station Code	Description	Latitude / Longitude (NAD83)	Monitoring Type
PFFB	Post Falls HED Forebay	47°42'33" / 116°57'38"	Continuous Monitoring
PFTR	Spokane River Near Post Falls, Idaho USGS gage station 12419000	47°42'11" / 116°58'40"	Continuous Monitoring

1.0 DATA SUMMARY AND CONCLUSIONS

TDG and other *in situ* water quality measurements were conducted on 39 days during the 2012 Post Falls HED spill season. Table 2 summarizes measurements for each of the two monitoring periods along with the cumulative dataset. A complete dataset for barometric pressure data was obtained from the barologger deployed at PFFB. TDG data were successfully obtained for 90 percent of the PFFB continuous monitoring periods and 96 percent of the PFTR continuous monitoring periods.

[2] Mattax, Brian and Dana Schmidt. 2011. Personal communication (technical memorandum) from Brian Mattax (Senior Aquatic Scientist, Golder Associates Inc.) and Dana Schmidt (Senior Fisheries Biologist/Limnologist, Golder Associates Ltd.) to Hank Nelson (Water Resources Lead, Avista) regarding: 2011 TDG Monitoring at Post Falls HED, November 8.

Table 2: Post Falls HED TDG Monitoring Stations

Parameter	PFFB			PFTR		
	Minimum	Maximum	Count	Minimum	Maximum	Count
First Period						
Date/Time (PDT)	3/19/2012 15:00	4/5/2012 15:30	1,635	3/19/2012 16:00	4/5/2012 14:30	1,627
BAR (mm Hg)	687	711	1,635	Used PFFB BAR		
TDG (mm Hg)	695	723	1,271	739	863	1,475
TDG (% saturation)[1]	99	104	1,271	106	123	1,475
Depth (m)	3.8	4.9	1,274	1.3	3.7	1,478
Water Temperature (°C)	3.0	4.4	1,274	3.0	4.5	1,478
Dissolved Oxygen (mg/L)	10.6	12.8	1,095	12.2	14.0	1,478
Second Period						
Date/Time (PDT)	6/7/2012 10:30	6/27/2012 14:30	1,937	6/7/2012 9:45	6/27/2012 16:45	1,949
BAR (mm Hg)	694	709	1,925	Used PFFB BAR		
TDG (mm Hg)	716	755	1,935	730	861	1,946
TDG (% saturation)[1]	102	108	1,925	104	122	1,925
Depth (m)	3.7	5.4	1,937	0.4	2.4	1,949
Water Temperature (°C)	11.3	15.5	1,937	11.4	15.5	1,949
Dissolved Oxygen (mg/L)	8.8	9.7	1,319	7.6	9.7	1,948
Cumulative						
Date/Time (PDT)	3/19/2012 15:00	6/27/2012 14:30	3,572	3/19/2012 16:00	6/27/2012 16:45	3,576
BAR (mm Hg)	687	711	3,560	Used PFFB BAR		
TDG (mm Hg)	695	755	3,206	730	863	3,421
TDG (% saturation)[1]	99	108	3,196	104	123	3,400
Depth (m)	3.7	5.4	3,211	0.4	3.7	3,427
Water Temperature (°C)	3.0	15.5	3,211	3.0	15.5	3,427
Dissolved Oxygen (mg/L)	8.8	12.8	2,414	7.6	14.0	3,426

Notes:
[1]TDG (% saturation) calculated using site-specific barometric pressure data collected at PFFB and corrected for altitude.
Definitions: °C = degrees Celsius; mg/L = milligrams per liter; mm Hg = millimeters of mercury; PDT = Pacific Daylight Time

1.1 Operations and Discharge

Post Falls HED operations and discharge are displayed in Figure 2. The HED was operated under Option A for the majority of the 2012 spill season with the following exceptions. Beginning May 30 (at 10:00 Pacific Daylight Time [PDT]), following a month of decreasing river flows Option B operations were implemented, which resulted in all spill passed through the North Channel. Option A operations commenced again on June 7, as river flows were forecasted to increase for an extended period of time.

Option B operations started again on June 25 at 11:00 PDT and continued through the termination of monitoring on June 27, because river flows had decreased below ~10,000 cfs allowing the South Channel to be closed for the recreation season, with all spill being passed through the North Channel.

Post Falls HED discharge, as measured at USGS Gage No. 12419000, ranged from 7,970 cfs to 28,600 cfs during the 2012 monitoring periods. Post Falls HED powerplant was generally operated in excess of 85 percent of its hydraulic capacity (4,590 cfs) during Option A and Option B operations. However, there was a total of 36 hours during these monitoring periods when the powerplant discharged less than 85 percent of its hydraulic capacity.

1.2 Barometric Pressure

Site-specific barometric pressures ranged from 687 to 711 millimeters of mercury (mm Hg) based on the Solonist® barologger deployed at PFFB (Figure 2).

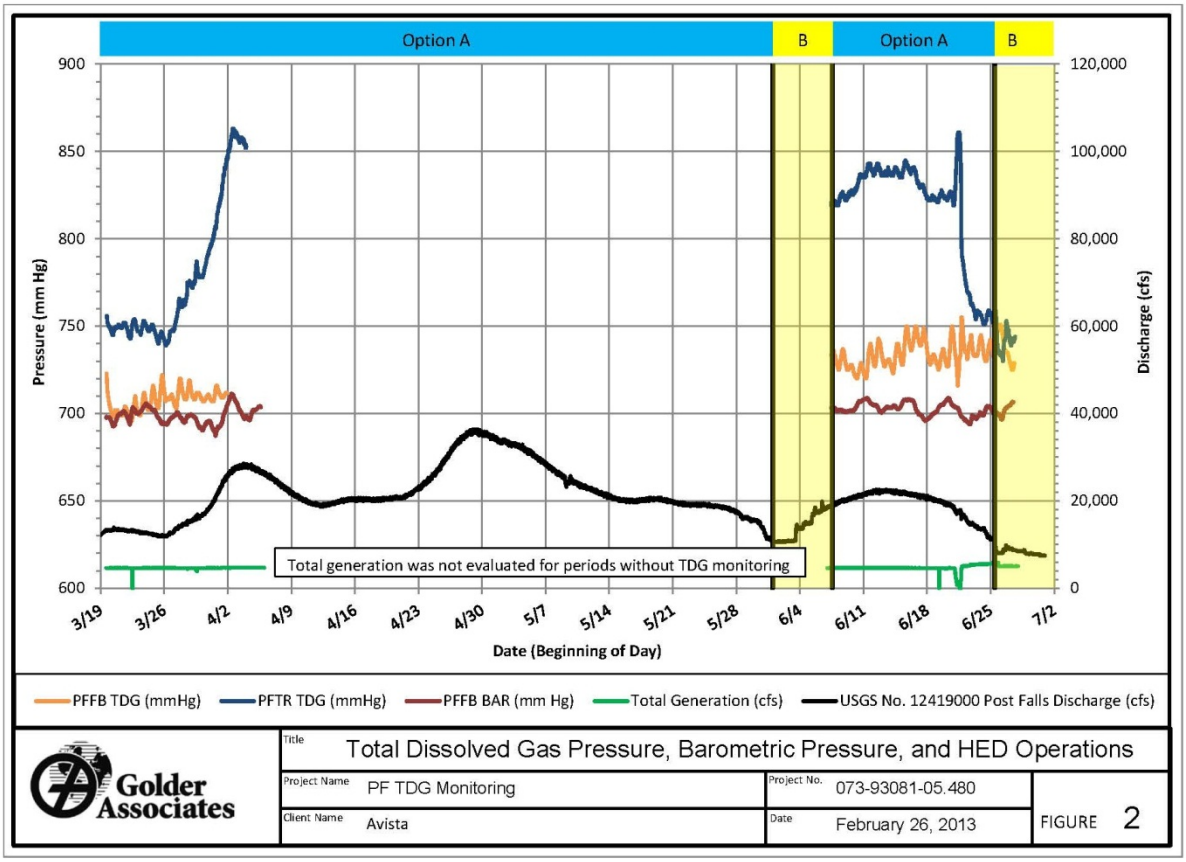

Figure 2: Total Dissolved Gas Pressure, Barometric Pressure, and HED Operations

1.3 Total Dissolved Gas

TDG pressure for PFTR was greater than corresponding values for PFFB during the two 2012 monitoring periods except June 25, 17:00 PDT to June 26 20:30 PDT when total discharge was less than 9,000 cfs under Option B operations (Figure 2). The TDG was well below 110 percent of saturation during this period (Figure 3). For the March 19 through April 5 monitoring period, TDG ranged from 99 to 104 percent of saturation for PFFB and 106 to 123 percent of saturation for PFTR (Figure 3). For the second monitoring period which extended from June 7 through June 27 (noting the June 25 to 26 exception discussed above), TDG ranged from 102 to 108 percent of saturation for PFFB and 104 to 122 for PFTR (Figure 3).[3]

[3] Minimum depth for the PFFB continuous MS5 was 3.7 meters, indicating that the MS5s remained below the compensation depth during both monitoring periods. However, the compensation depth was not met on June 21, 25, and 26 at PFTR for 132 (4 percent) of the 3,400 overall TDG% values (Figure 3).

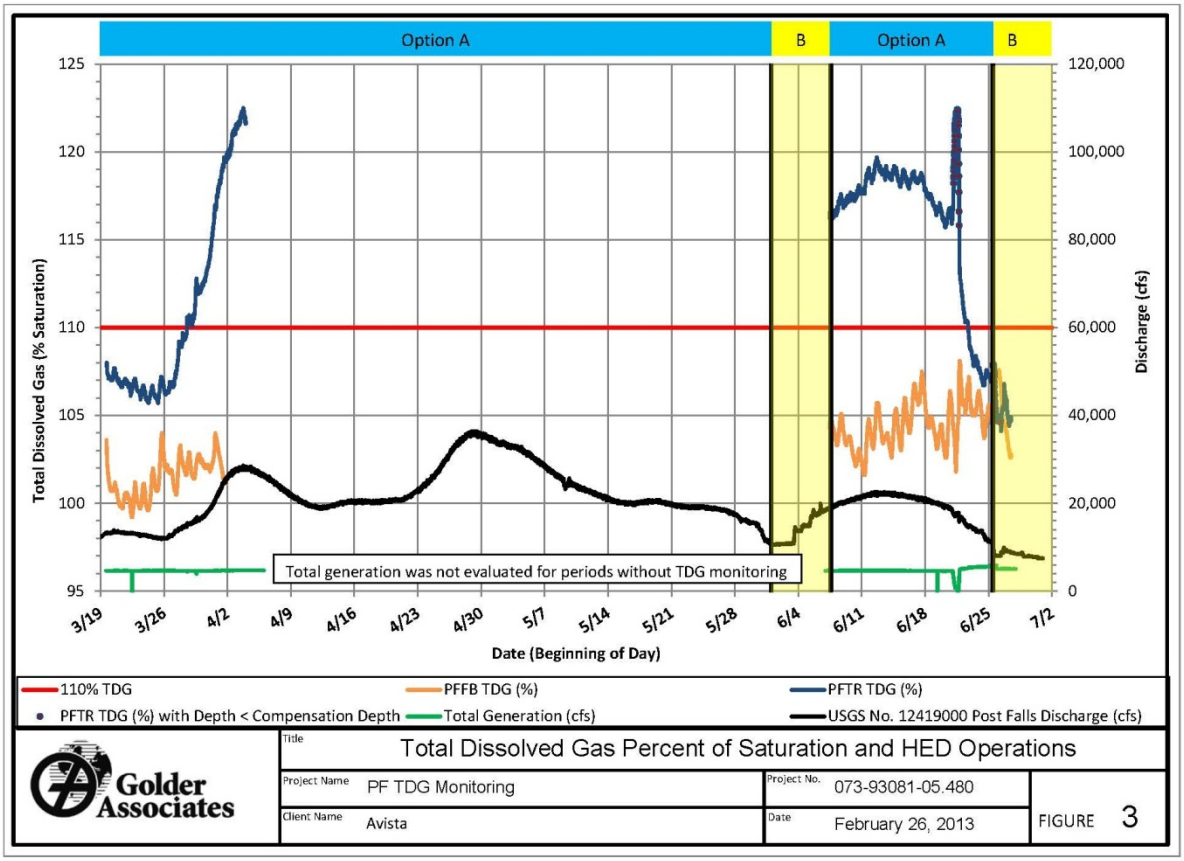

Figure 3: Total Dissolved Gas Percent of Saturation and HED Operations

Figure 4 displays TDG production in the spill channels between the Post Falls HED dams and PFTR, based on values corresponding in time. This figure presents a regression for the 2012 Option A dataset for all paired PFTR and PFFB TDG data when the HED powerplant's discharge was at least 85 percent of its hydraulic capacity. TDG production under Option B is not included, since measurements in 2012 were limited to total discharge of 7,990 to 9,900 cfs and spills of 2,920 to 4,790 cfs through the North Channel tainter gates and are therefore representative of identical operations under Options A and B (refer to Figure 1). Therefore, we were unable to distinguish differences between the two operations during the 2012 monitoring period.

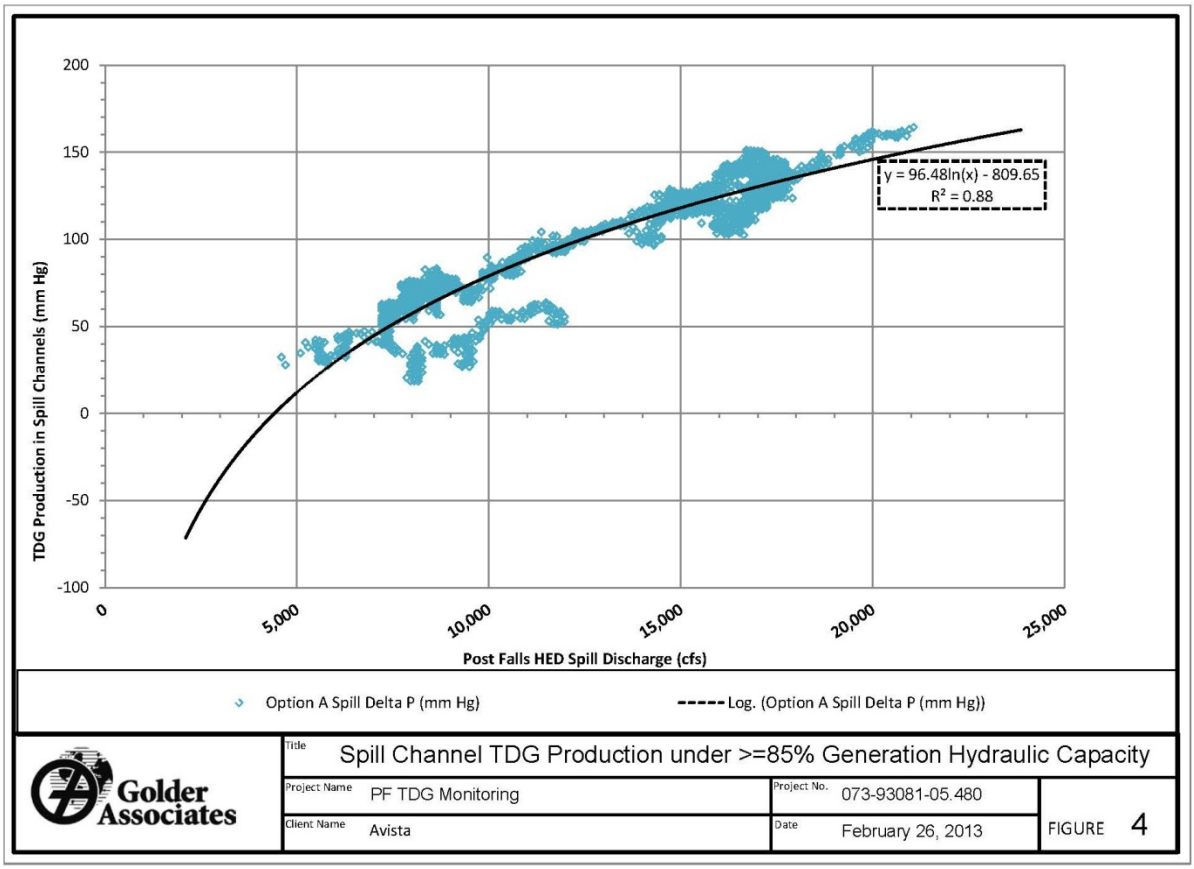

Figure 4: TDG (mm Hg) Production under Option A

The basis for the regression of Option A TDG production is a wide range of spill discharges (4,600 to 21,060 cfs). Preference of Option A operations to reduce TDG levels in the Spokane River resulted in TDG data collection under Option B operations being limited to spill discharges of less than 5,000 cfs. These data were not included in Figure 4, because they would not enable a comparison of TDG production under the Option A to Option B.

1.4 Temperature and Dissolved Oxygen

Water temperatures at PFFB and PFTR were approximately 4°C in late March and approximately 11 to 16°C in the June monitoring period (Figure 5). Corresponding temperatures measured at PFFB and PFTR were within 0.3°C of one another.

Measured dissolved oxygen (DO) concentrations were 8.8 to 12.8 mg/L for PFFB and 7.6 to 14.0 mg/L for PFTR (Figure 6). The greatest DO concentrations occurred in March and April, when temperature was its coolest during the 2012 monitoring periods.

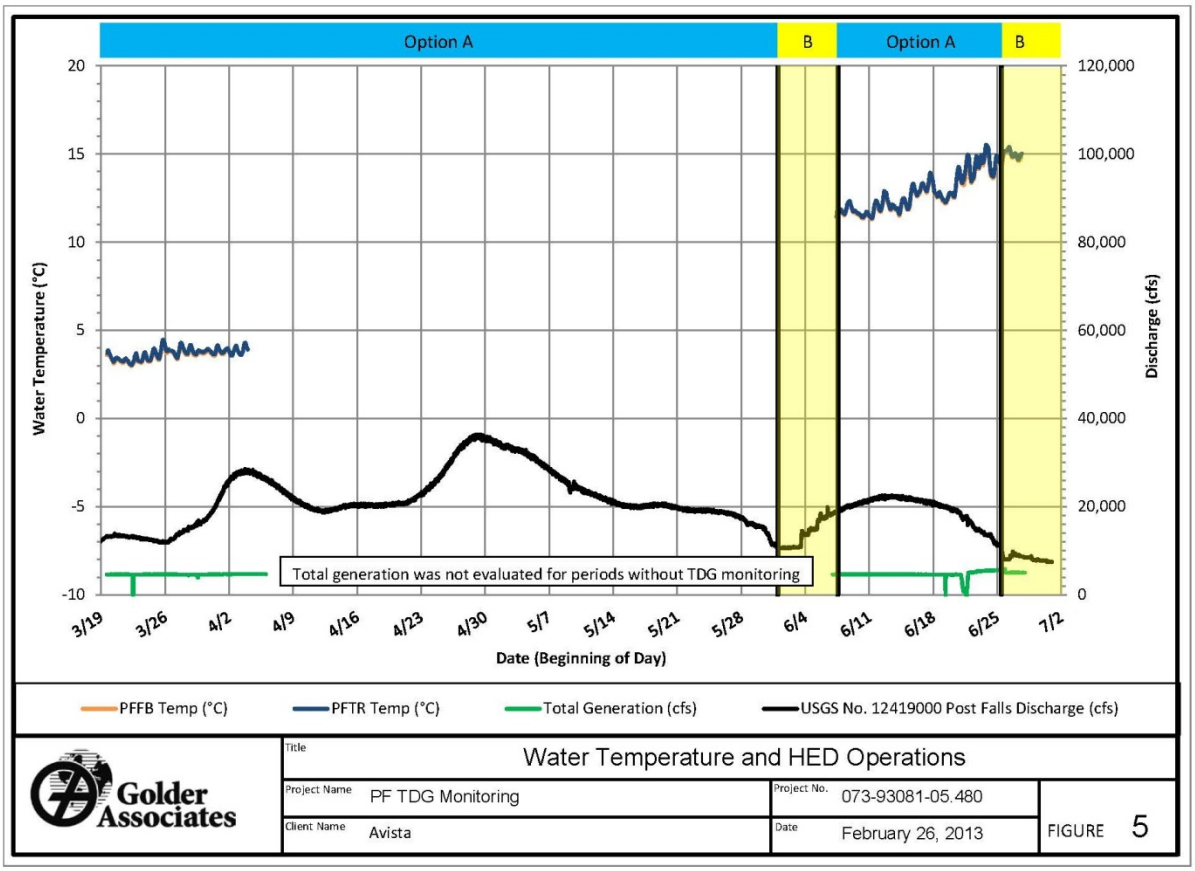

Figure 5: Water Temperature and HED Operations

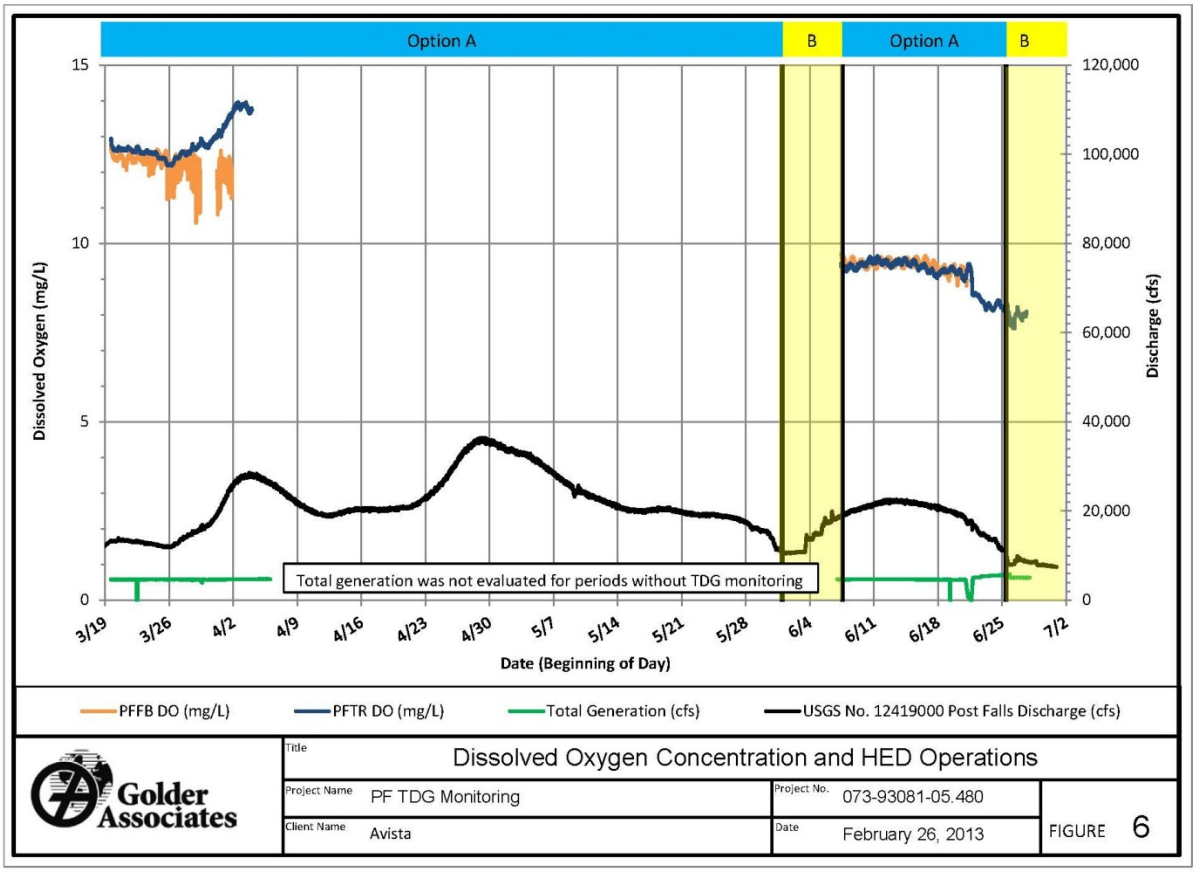

Figure 6: Dissolved Oxygen Concentration and HED Operations

2.0 DATA QUALITY SUMMARY

Data Quality Objectives (DQOs) and Measurement Quality Objectives (MQOs) are the quantitative and qualitative terms used to specify how good the data need to be to meet the project's specific monitoring objectives. DQOs for measurement data, also referred to as data quality indicators, include measurement range, accuracy, precision, representativeness, completeness, and comparability. The range, accuracy, and resolution for each measured parameter are provided in Table 3.

Table 3: Range, Accuracy, and Resolution of Parameters Recorded

Parameter	Range	Accuracy	Resolution
Total Dissolved Gas	400 to 1300 mm Hg	±0.1 % of span	1.0 mm Hg
Dissolved Oxygen	0 to 30 mg/L	± 0.01 mg/L for 0 to 8 mg/L ± 0.02 mg/L for >8mg/L	0.01 mg/L
Temperature	-5 to 50°C	±0.10°C	0.01°C
Depth (0-25 meters)	0 to 25 meters	±0.05 meter	0.01 meter

Notes:
Definitions: °C = degrees Celsius; mg/L = milligrams per liter; mm Hg = millimeters of mercury
Source: Hach's MS5 User Manual[4]

MQOs are the performance or acceptance thresholds or goals for the project's data, based primarily on the data quality indicators precision, bias, and sensitivity. Table 4 presents MQOs selected during preparation of the Post Falls HED TDG Control and Mitigation Program along with the same MQO for dissolved oxygen as used for the Long Lake HED tailrace DO monitoring plan.[5] The station-specific root mean squared error (RMSE) of the calibration corrections applied after each calibration, and an overall RMSE for all stations compared to MQOs are shown in Table 5.

Table 4: Measurement Quality Objectives (MQOs)

Parameter	MQOs
Barometric Pressure	2 mm Hg
Temperature	0.5°C
Total Pressure	1% (5 to 8 mm Hg)
TDG%	1%
Dissolved Oxygen	0.5 mg/L

Notes:
Definitions: °C = degrees Celsius; mg/L = milligrams per liter; mm Hg = millimeters of mercury
Source: Hach's MS5 User Manual[4]

[4] Hach Corporation. 2006. Hydrolab DS5X, DS5, and MS5 Water Quality Multiprobes User Manual. February 2006, Edition 3. Catalog Number 003078HY.
[5] Golder Associates, Inc. 2010. Detailed Dissolved Oxygen Phase II Feasibility and Implementation Plan, Washington 401 Certification, Section 5.6(B), Spokane River Hydroelectric Project FERC Project No, 2545. Prepared for Avista Corporation. June 11.

Table 5: Difference between RMSE and MQOs by MS5

Table Part 1: Barometric Pressure (BAR), Total Pressure, Total Dissolved Gas (TDG)

PF TDG Monitoring	RMSE [1]				MQO			RMSE - MQO (positive shaded values denote exceedance of MQO)			
Meter and Site IDs	BP[2]	Total Pressure[3]	TDG-cal[4]	TDG-spot[5]	BP	Total Pressure	TDG	BP	Total Pressure	TDG-cal	TDG-spot
	mm Hg	%	%	%	mm Hg	%	%	mm Hg	%	%	%
48762 (PFFB 3/19 - 4/5)	1.00	0.14	0.14	1.00	2	1	1	-1.00	-0.86	-0.86	0.00
48763 (PFTR 6/7 - 6/27)	2.00	0.28	0.28	N/A	2	1	1	0.00	-0.72	-0.72	N/A
48765 (PFTR 3/19 - 4/5)	1.00	0.14	0.14	1.00	2	1	1	-1.00	-0.86	-0.86	0.00
60375 (PFFB 6/7 - 6/27)	3.00	0.42	0.42	1.00	2	1	1	1.00	-0.58	-0.58	0.00
Overall RMSE	2.19	0.31	0.31	1.00	2	1	1	0.19	-0.69	-0.69	0.00

Notes:

[1] RMSE calculated for each meter during calibration checks and spot measurements from multiple meters.

[2] RMSE calculated from BP measured during calibration compared to the TDG in air uncorrected reading.

[3] RMSE calculated as the difference in TDG in air uncorrected measured during calibration minus the BP, then divided by the TDG and multiplied by 100%.

[4] RMSE calculated as TDG in air uncorrected measured during calibrations divided by the BP and multiplied by 100%.

[5] RMSE calculated as the measured TDG in air uncorrected divided by the group average measured TDG.

N/A - Not available, measurement not taken

Root mean squared error (RMSE) = $\sqrt{\frac{\sum_{i=1}^{n}(x_{1,i} - x_{2,i})^2}{n}}$.

Table 5: Difference between RMSE and MQOs by MS5

Table Part 2: Temperature and Dissolved Oxygen (DO)

PF TDG Monitoring	RMSE				MQO		RMSE - MQO (positive shaded values denote exceedance of MQO)			
	Temperature[1]		Dissolved Oxygen[2]		Temp	DO	Temperature[1]		Dissolved Oxygen[2]	
Meter and Site IDs	Calibration	Spot	Calibration	Spot			Calibration	Spot	Calibration	Spot
	ºC	ºC	mg/L	mg/L	ºC	mg/L	ºC	ºC	mg/L	mg/L
48762 (PFFB 3/19 - 4/5)	0.06	0.02	0.60	0.18	0.5	0.5	-0.44	-0.48	0.10	-0.32
48763 (PFTR 6/7 - 6/27)	0.11	N/A	1.36	N/A	0.5	0.5	-0.39	N/A	0.86	N/A
48765 (PFTR 3/19 - 4/5)	0.11	0.02	0.81	0.18	0.5	0.5	-0.39	-0.48	0.31	-0.32
60375 (PFFB 6/7 - 6/27)	0.19	0.01	0.67	0.18	0.5	0.5	-0.31	-0.49	0.17	-0.33
Overall RMSE	0.14	0.02	0.87	0.18	0.5	0.5	-0.36	-0.48	0.37	-0.33

Notes:

[1] For Calibration, RMSE calculated from the difference between the meter and calibration thermometer at all calibration checks. Spot differences are differences between measured values from group average.

[2] Calibration RMSE as difference of the pre-calibration measurement and calculated 100% saturation. Spot RMSE calculated as difference between measured values from group average.

N/A - Not available, measurement not taken

Root mean squared error (RMSE) = $\sqrt{\frac{\sum_{i=1}^{n}(x_{1,i}-x_{2,i})^2}{n}}$,

2.1 Measurement Range

The measurement range, range of reliable readings of an instrument or measuring device, specified by the manufacturer is displayed in Table 3 for each measured parameter. Maintenance of field sampling equipment was conducted in a manner consistent with the corresponding manufacturer's recommendations to provide reliable readings within each instrument's reported measurement range.

2.2 Bias

TDG meters, like other field monitoring instruments, are subject to bias due to systematic errors introduced by calibration, equipment hardware or software functioning, or field methods. Bias was generally minimized by following standard protocols for calibration and maintenance, and by following field protocols for stabilization of meter readings.

2.3 Precision

Precision refers to the degree of variability in replicate measurements. Instrument precision was evaluated through the calibration and maintenance activities. The MQO for total pressure, TDG-cal, TDG-spot, temperature calibration, temperature spot, and DO spot was met for all meters used; whereas one of the MS5s slightly exceeded the MQO for BP and each of the MS5s used exceeded the MQO for DO based on pre-calibration values.

Discharge data were obtained from Avista and USGS, both of which use well-established monitoring programs. Golder reviewed the variability of discharge data to determine whether it was appropriate based on expected values. All discharge data were deemed acceptable.

2.4 Accuracy

Accuracy is a measure of confidence that describes how close a measurement is to its "true" value, or the combination of high precision and low bias. Throughout this seasonal TDG monitoring study, the MS5s underwent verification procedures. All differences between TDG pressure, DO, temperature, depth, and barometric pressure were recorded and these differences were discussed above.

2.5 Representativeness

Representativeness qualitatively reflects the extent to which sample data represent a characteristic of actual environmental conditions. For this project, representativeness was addressed through proper design of the sampling program to ensure that the monitoring locations were properly located and sufficient data were collected to characterize TDG at that location. The compensation depth was not met on June 21, 25, and 26 at PFTR for 132 (4 percent) of the 3,400 overall TDG percent of saturation values, although the depth was within 0.5 meter of the corresponding compensation depth for all of these periods.

2.6 Comparability

Comparability is the degree to which data can be compared directly to previously collected data. Comparability was achieved by consistently monitoring the same monitoring stations that had been monitored in the past.

2.7 Completeness

Completeness is the comparison between the quantity of data planned to be collected and how much usable data was actually collected, expressed as a percentage. Data collection was planned for two monitoring periods for each monitoring station. With the exception of DO, the overall datasets for each monitoring station had at least 90 percent completeness. At PFFB, erratic DO measurements, likely caused by water under the DO cap, reduced completeness to 68 percent of anticipated usable data (Table 6). Table 7 summarizes the number of specific DQ Codes applied to PFFB and PFTR data.

Table 6: Project Completeness

	PFFB		PFTR	
Parameter	**Count**	**Completeness**	**Count**	**Completeness**
Monitoring Period	3,572	n/a	3,576	n/a
BAR (mm Hg)	3,560	100%	used PFFB BAR	
TDG (mm Hg)	3,206	90%	3,421	96%
Water Temperature (°C)	3,211	90%	3,427	96%
Dissolved Oxygen (mg/L)	2,414	68%	3,426	96%
Depth (m)	3,211	90%	3,427	96%

Table 7: DQCodes during Monitoring Period

DQ Code	DQ Code Description	PFFB							PFTR				
		Temp (°C)	TDG (mmHg)	Depth (meters)	DO (mg/L)	Batt (volts)	Level (m H2O)	ATemp (°C)	Temp (°C)	TDG (mmHg)	Depth (meters)	DO (mg/L)	Batt (volts)
997	Equilibrating after deployment	0	5	0	1	0	0	0	0	6	0	0	0
996	No data reported by instrument even though programmed correctly	361	361	361	361	361	0	0	149	149	149	149	149
995	No instrument deployed	0	0	0	0	0	9	9	0	0	0	0	0
992	Moved instrument; it is not at standard station or is out of water	0	0	0	0	0	3	3	0	0	0	0	0
302	Extreme variability, likely water under DO cap	0	0	0	796	0	0	0	0	0	0	0	0
-102	Between "minimum operating voltage" (<9 volts) and 7 volts, but other data appear reliable	0	0	0	0	0	0	0	514	514	514	514	514
-889	Power loss/ late probe turn on, but data appear reliable	0	0	0	0	0	0	0	1	1	1	1	1
-1002	Corresponds with spot measurement	1	1	1	1	1	0	0	0	0	0	0	0
0	No data qualifiers	3,210	3,205	3,210	2,413	3,210	3,560	3,560	2,912	2,906	2,912	2,911	2,912
Monitoring Period[1]		3,572	3,572	3,572	3,572	3,572	3,572	3,572	3,576	3,576	3,576	3,576	3,576

Notes:
1. Monitoring period for PFTR was from 3/19/2012 16:00 to 4/05/2012 14:30 along with 6/07/2012 09:45 to 6/27/2012 16:45. Monitoring period for PFFB was from 3/19/2012 15:00 to 4/05/2012 15:30 along with 6/07/2012 10:30 to 6/27/2012 14:30.

3.0 ACKNOWLEDGEMENTS

This technical memorandum was prepared with the assistance of Dana Schmidt, Senior Fisheries Biologist, under subcontract to Golder Associates Ltd. (GAL).

4.0 CLOSING

I trust this technical memorandum meets your needs. If you have any questions, please contact me at (206) 316-5572.

GOLDER ASSOCIATES INC.

Brian L. Mattax
Senior Aquatic Scientist

BLM/tp

List of Tables (in text)

List of Figures (in text)

From: Robert.Steed@deq.idaho.gov
To: Lunney, Meghan;
cc: Daniel.Redline@deq.idaho.gov; Thomas.Herron@deq.idaho.gov; Fitzhugh, Speed (Elvin); Goloborodko, Yelena;
Subject: RE: Avista"s 2012 TDG Monitoring at Post Falls HED Technical Memorandum
Date: Monday, March 11, 2013 12:15:08 PM

Meghan, I have received and reviewed the Technical Memorandum for the 2012 TDG Monitoring for the Post Falls HED. I have contacted you and Brian Mattax with the questions that I had about the Technical Memo. The 2012 monitoring and the 2012 Technical Memo clearly follow and are appropriate for what was outlined in the Post Falls TDG program. I am concerned that we will not be able to make a decision from the data we are currently collecting.

IDEQ would like to meet with Avista to discuss the request to postpone TDG monitoring until the South Channel Spill Gates are replace and operational as well as future monitoring.

I will be sending you and cc'd individuals a "Meeting Wizard" request for a meeting sometime between March 27, and April 2. Please check your junk folder if the request doesn't show up shortly, or feel free to reply with other times and dates.

Bob-

Robert Steed
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Idaho Department of Environmental Quality
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From: Lunney, Meghan [mailto:Meghan.Lunney@avistacorp.com]

Sent: Tuesday, March 05, 2013 3:40 PM
To: Robert Steed
Cc: Daniel Redline; Thomas Herron; Fitzhugh, Speed (Elvin); Goloborodko, Yelena
Subject: Avista's 2012 TDG Monitoring at Post Falls HED Technical Memorandum
Importance: High

Bob,

In accordance with the Total Dissolved Gas (TDG) Control and Mitigation Program (Program) for the Post Falls HED, Avista completed its second year of TDG monitoring at the Post Falls HED. I've attached a cover letter along with the 2012 TDG Monitoring at Post Falls HED Technical Memorandum, which summarizes the results of the TDG monitoring conducted in 2012. I have also placed a paper copy in the mail to your attention.

As indicated in the cover letter, Avista plans to replace and automate the HED's South Channel Spill Gates during the summer and fall of 2014. We would like to meet with you, at your convenience, to discuss our recommendation to postpone TDG monitoring until the South Channel Spill Gates are replaced and operational, which we expect to be in 2015.

Please feel free to contact me at (509) 495-4643 or Speed Fitzhugh at 509-495-4998 if you have any questions regarding our request to postpone monitoring, or about the enclosed Technical Memorandum.

Thanks,

Meghan Lunney
Aquatic Resource Specialist
Avista Utilities
(509) 495-4643