

DATA USABILITY SUMMARY

On behalf of Florida Power & Light Company (FPL), Ecology and Environment, Inc. (E & E) reviewed two data packages from Test America Laboratories, Inc. (Test America) and subcontract labs for the analysis of groundwater and surface water samples collected during the September 2010 Quarterly Sampling event at the Turkey Point facility in Homestead, Florida. Data were reviewed for conformance to the requirements of the guidance document, *Florida Power & Light Company, Inc. Turkey Point Monitoring Plan Quality Assurance Project Plan (QAPP), April and August, 2010 (FPL Turkey Point Monitoring Plan QAPP) and modifications provided by FPL to the South Florida Water Management District during the November 2010 Quarterly meeting.*

Intended Use of Data: To provide current data on the environmental conditions of the groundwater and surface waters in the monitoring area and to assess chemicals of concern levels in groundwater and surface waters and to guide future monitoring actions, if necessary.

Analyses requested included:

- EPA Method 200.7 – Metals, Total, by Inductively Coupled Plasma / Atomic Emission Spectroscopy (ICP/AES) - Ba and Fe
- SW-846-6010 - Metals, Total, by ICP/AES - Ca, Mg, K, Na, B, and Sr
- EPA Method 300 – Anions by Ion Chromatography (bromide, chloride, fluoride, sulfate)
- SM 4500-S2 F – Sulfides
- SM 2320B - Alkalinity
- SM 2540C – Total Dissolved Solids (TDS)
- SW-846-9060 – Dissolved Inorganic Carbon
- Non-standard method - $^{18}\text{O}/^{16}\text{O}$
- Non-standard method - $^2\text{H}/^1\text{H}$
- Non-standard method - $^{13}\text{C}/^{12}\text{C}$
- Non-standard method - $^{87}\text{Sr}/^{86}\text{Sr}$
- Non-standard method - ^3H

Carbon isotope analysis was performed by to the University of Miami, Stable Isotope Laboratory, Rosenstiel School of Marine Atmospheric Science. Hydrogen and Oxygen isotope analyses were performed by the University of Miami, Laboratory of Stable Isotope Ecology. The samples for these analyses were shipped to Test America who forwarded them to the respective labs for analysis. The tritium and strontium isotope samples were shipped directly to United States Geologic Survey (USGS), Menlo Park, California for analysis.

Data were reviewed and validated as described in the *FPL Turkey Point Monitoring Plan QAPP* and the results of the review/validation are discussed in this Data Usability Summary (DUS). The following laboratory submittals and field data were examined:

- the reportable data and the results of supporting quality control (QC) analyses;
- the case narratives;
- the chain of custody (COC) and sample receipt checklist; and
- sampling logs and field logbooks.

Table 1 lists sample and laboratory identifications, methods requested, quality control (QC) performed, and identification corrections. Table 2 lists method and laboratory quality control acceptance criteria. Tables 3a, 3b, 3c summarize field duplicate results. Table 4 summarizes the data qualified as a result of this validation. Table 5 lists the qualifier codes and definitions used to qualify data in this validation.

Corrective actions are noted throughout this DUS in bold print and bulleted. Data qualified as unusable are in bold print.

Introduction

A total of 90 samples were received. Forty-two groundwater samples, 1 groundwater duplicate sample, 5 Biscayne Bay surface water samples, 6 Interceptor Ditch surface water samples, 12 canal surface water samples, 1 canal surface water duplicate sample, 10 Cooling Canal System (CCS) surface water samples, 12 field blanks, and 1 equipment blank were analyzed for one or more of the analyses listed above. Table 1 below lists the sample identifications (IDs) cross-referenced to laboratory identifications and the analyses selected. Also any corrections for the sample ID are noted.

“Level 4 Mini Final Reports” along with the subcontract isotope data were submitted to FPL on December 13, 2010. A revision to the Level 4 reports was submitted to FPL on January 11, 2011. The revision was due to reporting of carbonate versus bicarbonate.

Data Review / Validation Results

Analytical Results

All results were evaluated against the method detection limit (MDL), defined as the minimum concentration of an analyte reported with 99% confidence that the analyte concentration is greater than zero. The reporting limit (RL) or practical quantitation limit (PQL), is defined as the lowest non-zero standard concentration in the calibration curve. Results are reported with an “I” flag if less than the RL but greater than the MDL. Non-detected results are reported as less than the value of the MDL.

Table 1: Sample Listing

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37075	GW	090910-TPGW-13D	660-37169-1	9/9/2010	300,2320,2540,4500S, 9060,200.7,6010	200.7-LD, MS/MSD, PDS, 2320B-LD, 2540C-LD	None
37075	GW	090910-TPGW-13M	660-37169-2	9/9/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	090910-TPGW-13S	660-37169-3	9/9/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091510-TPGW-6S	660-37257-1	9/15/2010	300,2320,2540,4500S, 9060,200.7,6010	200.7-LD, MS/MSD, PDS, 245.1-MS/MSD,SD, 300- MS/MSD, 2320B-LD	None
37075	GW	091510-TPGW-6M	660-37257-2	9/15/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091510-TPGW-6D	660-37257-3	9/15/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091510-TPGW-9S	660-37257-4	9/15/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091510-TPGW-9M	660-37257-5	9/15/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091510-TPGW-9D	660-37257-6	9/15/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091510-FB1	660-37257-7	9/14/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091410-TPGW-1S	660-37260-1	9/14/2010	300,2320,2540,4500S, 9060,200.7,6010	300-MS/MSD	None
37075	GW	091410-TPGW-1M	660-37260-2	9/14/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091410-TPGW-1D	660-37260-3	9/14/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091410-TPGW-5S	660-37260-4	9/14/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091410-TPGW-5M	660-37260-5	9/14/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091410-TPGW-5D	660-37260-6	9/14/2010	300,2320,2540,4500S, 9060,200.7,6010	2540C-LD	None
37075	GW	091710-FB1	660-37307-1	9/17/2010	300,2320,2540,4500S, 9060,200.7,6010		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37075	GW	091710-TPGW-7D	660-37307-2	9/17/2010	300,2320,2540,4500S, 9060,200.7,6010	300-MS/MSD	None
37075	GW	091710-TPGW-7M	660-37307-3	9/17/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091710-TPGW-7S	660-37307-4	9/17/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091710-TPGW-4D	660-37307-5	9/17/2010	300,2320,2540,4500S, 9060,200.7,6010	2320B-LD	None
37075	GW	091710-TPGW-4M	660-37307-6	9/17/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091710-TPGW-4S	660-37307-7	9/17/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091610-TPGW-12S	660-37308-1	9/16/2010	300,2320,2540,4500S, 9060,200.7,6010	2320B-LD	None
37075	GW	091610-TPGW-12M	660-37308-2	9/16/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091610-TPGW-12D	660-37308-3	9/16/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	091610-FB1	660-37308-4	9/16/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092010-FB1	660-37378-1	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092010-TPGW-8S	660-37378-2	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010	2320B-LD	None
37075	GW	092010-TPGW-8M	660-37378-3	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092010-TPGW-8D	660-37378-4	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092010-TPGW-2S	660-37378-5	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092010-TPGW-2M	660-37378-6	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092010-TPGW-2D	660-37378-7	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092010-TPGW-3S	660-37378-8	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092010-TPGW-3M	660-37378-9	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092010-TPGW-3D	660-37378-10	9/20/2010	300,2320,2540,4500S, 9060,200.7,6010		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37075	GW	092310-FB1	660-37429-1	9/23/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092310-TPGW-11M	660-37429-2	9/23/2010	300,2320,2540,4500S, 9060,200.7,6010	200.7-LD, MS/MSD, PDS, SD, 2320B-LD	None
37075	GW	092310-TPGW-11S	660-37429-3	9/23/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092310-DUP1	660-37429-5	9/23/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092210-TPGW-10S	660-37431-3	9/22/2010	300,2320,2540,4500S, 9060,200.7,6010	200.7- LD,MS/MSD,PDS,SD, 2320B-LD	None
37075	GW	092210-TPGW-10M	660-37431-4	9/22/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092210-TPGW-10D	660-37431-5	9/22/2010	300,2320,2540,4500S, 9060,200.7,6010	2540C-LD	None
37075	GW	092710-TPGW-14S	660-37462-1	9/27/2010	300,2320,2540,4500S, 9060,200.7,6010	200.7- LD,MS/MSD,PDS,SD, 2320B-LD	None
37075	GW	092710-TPGW-14M	660-37462-2	9/27/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092710-TPGW-14D	660-37462-3	9/27/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37075	GW	092710-TPGW-11D	660-37462-4	9/27/2010	300,2320,2540,4500S, 9060,200.7,6010		None
37076	SW	090810-TPSWID-1B	660-37123-1	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010	200.7-MS/MSD,PDS,SD, 300-MS/MSD,	None
37076	SW	090810-TPSWCCS- 1B	660-37123-2	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010	200.7-LD, 2320-LD	None
37076	SW	090810-TPSWID-1T	660-37123-3	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090810-FB1	660-37123-4	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090810-TPSWCCS- 7B	660-37123-5	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090810-TPSWID-2B	660-37123-6	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090810-TPSWID-3T	660-37123-7	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090810-TPSWID-2B	660-37123-8	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37076	SW	090810-TPSWID-2T	660-37123-9	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010	9060-LD	None
37076	SW	090810-TPSWCCS-3B	66037123-10	9/8/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090710-TPSWC-3B	660-37125-1	9/7/2010	300,2320,2540,4500S,9060,200. 7,6010	200.7-LD, 2320-LD	None
37076	SW	090710-TPSWC-3T	660-37125-2	9/7/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090710-TPSWC-2B	660-37125-3	9/7/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090710-TPSWC-2T	660-37125-4	9/7/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090710-TPSWC-1B	660-37125-5	9/7/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090710-TPSWC-1T	660-37125-6	9/7/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090710-FB1	660-37125-7	9/7/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090910-EB1	660-37170-1	9/9/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090910-TPSWC-5T	660-37170-2	9/9/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090910-TPSWC-4T	660-37170-3	9/9/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090910-TPSWC-4B	660-37170-4	9/9/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090910-TPSWC-5B	660-37170-5	9/9/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	090910-TPSWCCS-2B	660-37170-6	9/9/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	091110-FB1	660-37198-1	9/11/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	091110-TPSWCCS-5B	660-37198-2	9/11/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	091110-TPSWCCS-5T	660-37198-3	9/11/2010	300,2320,2540,4500S,9060,200. 7,6010		None
37076	SW	091110-TPSWCCS-4B	660-37198-4	9/11/2010	300,2320,2540,4500S,9060,200. 7,6010	300-MS/MSD	None
37076	SW	091110-TPSWCCS-4T	660-37198-5	9/11/2010	300,2320,2540,4500S,9060,200. 7,6010		None

SDG	Matrix	Sample ID	Lab ID	Sample Date	Analyses	QC	ID Corr.
37076	SW	091110-TPSWCCS-6B	660-37198-6	9/11/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	091110-TPSWCCS-6T	660-37198-7	9/11/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	091410-FB1	660-37259-1	9/14/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	091410-DUP1	660-37259-2	9/14/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	091410-TPSWC-6B	660-37259-3	9/14/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	091410-TPSWC-6T	660-37259-4	9/14/2010	300,2320,2540,4500S,9060,200.7,6010	2320-LD	None
37076	SW	092310-BBSW-2B	660-37429-4	9/14/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	092310-DUP1	660-37429-5	9/23/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	092410-FB1	660-37429-6	9/24/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	092410-BBSW-5B	660-37429-7	9/24/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	092410-BBSW-4B	660-37429-8	9/24/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	092710-BBSW-3B	660-37464-1	9/27/2010	300,2320,2540,4500S,9060,200.7,6010	300-MS/MSD	None
37076	SW	092810-BBSW-1B	660-37464-2	9/28/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	092710-FB1	660-37464-3	9/27/2010	300,2320,2540,4500S,9060,200.7,6010		None
37076	SW	092810-FB1	660-37464-4	9/28/2010	300,2320,2540,4500S,9060,200.7,6010		None

Quality Control (QC) Acceptance Criteria

Table 2 summarizes the analytical method and laboratory QC requirements and criteria for each method performed during this event. Criteria reviewed include initial and continuing calibration verifications (ICV/CCV), interference check standards (ICS), contract required quantitation limit (CRQL) standards, laboratory control samples (LCS), matrix spikes (MS), lab duplicates for samples, control, and matrix spikes (Dup), post digestion spikes (PDS), and serial dilutions (SD). Not all criteria are required for each method.

Table 2: Method and Laboratory QC Acceptance Criteria

Method	Source	IC/CCV	ICS	CRQL	LCS	MS	Dup	PDS	SD
200.7	Method	±5/±10	±20%	NA	±15%	±30%	NA	±15%	±10%
	Lab	±5/±10	±20%	±50%	±15%	±30%	20%	±15%	±10%
300	Method	±10/±10	NA	NA	±10%	±20%	NA	NA	NA
	Lab	±10/±10	NA	NA	±10%	±10%	30%	NA	NA
6010	Method	±10%mid ±30%low	NA	NA	±20%	±25%	20%	±20%	±10%
	Lab	±10/±10	±20%	±50%	±25%	±25%	20%	±25%	±10%
9060	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	±10/±10	NA	NA	Not listed	NA	NA	NA	NA
4500 S2F	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	NA	NA	NA	±25%	NA	25%	NA	NA
2320B	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	NA	NA	NA	±20%	NA	30%	NA	NA
2540C	Method	NA	NA	NA	NA	NA	NA	NA	NA
	Lab	NA	NA	NA	±20%	NA	20%	NA	NA
² H/ ¹ H	Lab	NA	NA	NA	±2‰	NA	NA	NA	NA
¹⁸ O/ ¹⁶ O	Lab	NA	NA	NA	±0.07‰	NA	NA	NA	NA
¹³ C/ ¹² C	Lab	NA	NA	NA	±0.1‰	NA	NA	NA	NA
⁸⁷ Sr/ ⁸⁶ Sr	Lab	NA	NA	NA	±0.001%	NA	NA	NA	NA
³ H	Lab	NA	NA	NA	NA	NA	NA	NA	NA

NA = Not applicable.

The laboratory limits either met or exceeded method requirements in all cases with one exception. The Method 6010 Laboratory Control Sample (LCS) criteria are listed as 80-120% while the laboratories' criteria is 75-125% although the laboratory is allowed by the method to establish criteria based on historical results.

Laboratory acceptance limits are used for this validation with the exception of the duplicate precision criteria (20% for aqueous samples, 40% for other matrices).

Documentation

Samples were evaluated for agreement with the COC. All samples were received in the appropriate containers and in good condition with the paperwork filled out properly with a few exceptions. In SDG 37075, strontium and tritium bottles for sample 091510-TPGW-9D were received but not on the COC. The laboratory corrected and analyzed appropriately. Hydrogen and oxygen isotope bottles for samples 092210-FB1 and 092810-BBSW-1B were received but not on the COC. The laboratory corrected and analyzed appropriately.

In SDG 37076, sample 090810-TPSWID-2B shows -3B on 200.7 and hydrogen bottle. The laboratory corrected and analyzed appropriately.

Preservation and Holding Times

Samples were shipped and received in good condition with a few exceptions. The 090910-EB1 bottles for carbon and hydrogen isotopes were received 1/3 full. The carbon isotope bottle cap for sample 091610-TPGW-12D was missing; the sample was empty upon receipt. The lab used a sample from other unpreserved bottles for analysis.

Samples were preserved in the field as specified in FPL Turkey Point Monitoring Plan QAPP with a few exceptions. In SDG 37075, one DIC bottle was received without preservation. The laboratory preserved and analyzed appropriately.

Samples were prepared and analyzed within holding times specified in the FPL Turkey Point Monitoring Plan QAPP.

Calibrations

Calibration applies to methods 200.7, 6010, 300, 245.1, 2320, and 2540C. According to the data sheets, initial calibration and continuing calibration data met method requirements. No samples were qualified based on calibration results.

MDL/RL/CRQL

All MDLs are below the Florida Department of Environmental Protection (FDEP) Class 2 Groundwater criteria. Sulfide had an MDL of 1.0 mg/L in all analyses, above the Department of Environmental Resource Management (DERM) criterion of 0.2 mg/L.

The CRQL, or Contract Required Quantitation Limit, is the low level calibration standard analyzed as a sample. This standard is required for methods 200.7 and 6010. The standard must be analyzed during each run and must have a percent recovery within 50-150% of the true value. No samples were qualified based on CRQL results.

Interference Check Standards

Interference Check Standards (ICS) are required in Methods 6010 and 6020. The ICS consists of two solutions: A and AB. Solution A contains the possible interferents and solution AB contains the analytes and interferents. ICS results must fall within the acceptance recovery criteria of 80-120%. No samples were qualified based on ICS results.

Blanks

The laboratory performs calibration and preparation (method) blanks if required by the analytical method. Sample results for analytes detected in an associated method or preparation blank at concentrations less than ten times the equivalent blank concentration will be qualified as "V" at the reported concentration. Sample results for analytes detected in all other blanks (i.e., field, equipment, calibration) at concentrations less than ten times the equivalent blank concentration shall be qualified as "J" at the reported concentration. All laboratory blanks were performed at the required frequency. For the September 2010 Quarterly Event, a total of 13 field blanks and one equipment blank were collected and submitted for analysis. With 90 samples collected, a minimum of five field QC blanks (equipment blank or field blank) should have been collected based on FDEP SOP FQ 1000. It should be noted that blank contamination can only be applied

to samples collected the same day and with the same equipment. Data from different days cannot be qualified based on the blank contamination.

Boron was detected in the field blank 090710-FB1. Boron results have been qualified as estimated (J) in samples 090710-TPSWC-1T, 1B, 2T, 2B, 3T, and 3B.

Iron, alkalinity and bicarbonate were detected in the equipment blank 090910-EB1. However, either the analyte was not detected or the concentrations detected in the associated samples were greater than 10 times the amount detected in the blanks, therefore no data was qualified.

Calcium, strontium, magnesium, sodium, alkalinity and bicarbonate were detected in the field blank 091110-FB1. However, the concentrations detected in the associated samples were greater than 10 times the amount detected in the blanks, therefore no data was qualified.

Tritium was detected in the field blank 091410-FB1. Tritium results (less than 10 times the blank concentration) have been qualified as estimated (J) in sample TPGW-5S.

Mercury, alkalinity, and carbonate were detected in the field blank 091510-FB1. However, either the analyte was not detected or the concentrations detected in the associated samples were greater than 10 times the amount detected in the blank, therefore no data was qualified. Tritium was detected in the field blank 091510-FB1. Tritium results have been qualified as estimated, J, in samples TPGW-6D and TPGW-9S.

Chloride and magnesium were detected in the field blank 091610-FB1. However, the concentrations detected in the associated samples were greater than 10 times the amount detected in the blank and therefore no data was qualified.

Barium was detected in the field blank 091710-FB1. However, either the analyte was not detected or the concentrations detected in the associated samples were greater than 10 times the amount detected in the blank, therefore no data was qualified.

Alkalinity and bicarbonate were detected in the field blanks 092010-FB1, 092310-FB1, and 092410-FB1. However, the concentrations detected in the associated samples were greater than 10 times the amount detected in the blanks, therefore no data was qualified.

Tritium was detected in the field blank 092010-FB1. Tritium results have been qualified as estimated (J) in sample TPGW-8S,

Tritium was detected in the field blank 092210-FB1. Tritium results have been qualified as estimated (J) in sample TPGW-10S and TPGW-10M.

Sulfate, alkalinity and bicarbonate were detected in the field blank 090810-FB1 and 092710-FB1. However, the concentrations detected in the associated samples were greater than 10 times the amount detected in the blanks, therefore no data was qualified.

Iron, calcium, magnesium, alkalinity and bicarbonate were detected in field blank 092810-FB1. However, the concentrations detected in the associated samples were greater than 10 times the amount detected in the blanks, therefore no data was qualified.

Strontium was detected in 090810-FB1, 090910-EB1, 091110-FB1, 091410-FB1, 091510-FB1, and 091610-FB1. The blank results were reported in parts per billion. However, the related strontium results are reported as unitless ratios. USGS states the concentrations detected in the blanks are typical. No data was qualified based on the blank results.

Barium was detected in a Method 200.7 method blank (37075-73188). Barium results have been qualified as detected in the method blank, V, in sample 091710-FB1. Iron was detected in a Method 200.7 method blank (37075-73473). However, the concentrations detected in the associated samples were greater than 10 times the amount detected in the blank, therefore no data was qualified.

Sulfate and chloride were detected in a Method 300.0 calibration blank (37075-100968). However, the concentrations detected in the associated samples were greater than 10 times the amount detected in the blank, therefore no data was qualified.

Iron was detected in the Method 200.7 method blank (37076-73473). However, the concentrations detected in the associated samples were greater than 10 times the amount detected in the blank, therefore no data was qualified.

Chloride was detected in a calibration blank. However, the concentrations detected in the associated samples were greater than 10 times the amount detected in the blank, therefore no data was qualified.

Laboratory Control Samples

Laboratory Control Samples (LCS) recoveries for all applicable analyses were within laboratory acceptance criteria and were performed at the required frequency.

Matrix Spike/Matrix Spike Duplicates

MS/MSD samples were performed at the required frequency for applicable methods. Recovery calculations are not required if the concentration added is less than 30% of the sample background concentration. MS/MSD recoveries of less than 10% are qualified as unusable due to apparent significant matrix effects. MS/MSD precision and accuracy results for all applicable analyses were within project objectives with the following exceptions.

In SDG 37075, the Method 300 MS/MSD recovery of bromide and sulfate were below laboratory established limits in sample 091510-TPGW-6S. These analytes have been qualified as estimated with a low bias, J-, in 091510-TPGW-6S. The Method 300 MS/MSD recovery of sulfate was below laboratory limits in sample 091410-TPGW-1S. Sulfate has been qualified as estimated with a low bias (J-) in 091410-TPGW-1S. The Method 300 MS/MSD recovery of chloride and sulfate was below laboratory limits in sample 091710-TPGW-7D. These analytes have been qualified as estimated with a low bias (J-) in 091710-TPGW-7D.

In SDG 37076, the Method 300 MS/MSD recoveries of bromide and sulfate were below laboratory established limits in sample 091110-TPSWCCS-4B. Sulfate has been qualified with a low bias (J-) in 091110-TPSWCCS-4B. Bromide was not detected in the parent sample and since the bias is high, no qualification was necessary.

The Method 300 MS/MSD recoveries of bromide and fluoride were below laboratory limits in sample 090810-TPSWID-1B. These analytes have been qualified as estimated with a low bias (J-) in 090810-TPSWID-1B.

The Method 300 MSD recovery of chloride was above laboratory limits in sample 092710-BBSW-3B. The MS/MSD recovery of sulfate was below laboratory limits. Chloride has been qualified as estimated with a high bias (J+) and sulfate has been qualified with a low bias (J-) in 092710-BBSW-3B.

Post Digestion Spike

A PDS is applicable to Methods 6010 and 200.7 If MS recoveries are outside project objectives and the sample result is < 4x the spike added, a PDS shall be performed. PDS percent recovery acceptance criteria are the same as the MS criteria, 75-125%R. No samples were qualified based upon PDS results.

Serial Dilution

Inductively coupled plasma (ICP) serial dilutions are run to help evaluate whether significant physical or chemical interferences exist due to sample matrix. When analyte concentrations are sufficiently high (the concentration in the original sample is minimally a factor of 50 above the detection limit, the results obtained for a five-fold dilution of the original sample are compared to the original results by means of a percent difference (%D). The %D is compared to a precision acceptance limit of $\pm 10\%$. If the SD does not meet the criteria, all results for that analyte in the associated sample delivery group (SDG) are qualified as estimated (flagged "J/UJ"). No samples were qualified based on SD results.

Laboratory Duplicates

Laboratories randomly select samples to perform internal duplicate analyses. The criteria for laboratory duplicate precision, as relative percent difference (RPD), is less than or equal to 20% for aqueous samples. All duplicate precision was within project objectives with the following exceptions.

In SDG 37075, the 200.7 laboratory duplicate had a high RPD for barium in sample 090910-TPGW-13D. Barium has been qualified as estimated (J) in sample 090910-TPGW-13D.

The laboratory duplicate had a high RPD for iron in sample 092310-TPGW-11M. Iron has been qualified as estimated (J) in sample 092310-TPGW-11M.

Forty-two groundwater samples, 1 groundwater duplicate sample, 5 Biscayne Bay surface water samples, 6 Interceptor Ditch surface water samples, 12 canal surface water samples, 1 canal surface water duplicate sample, 10 Cooling Canal System (CCS) surface water samples,

Field Precision

The criteria for field duplicate precision, as RPD, is less than or equal to 20% for aqueous samples, the same as for laboratory duplicate precision. The results for analytes where both values are greater than the reporting limit are given as relative percent difference. Results of analytes where one or both values are less than the reporting limit are not considered appropriate for assessing precision. Two field duplicate pairs were collected during the sampling event: 091410-TPSWC-6T & 091410- DUP1 and 092310-TPGW-11M & 092310- DUP1. With 42 groundwater samples collected, a minimum of 3 field duplicates should have been collected. With 33 surface water samples, a minimum of 2 field duplicates should have been collected. Tables 3a and 3b summarize field duplicate precision results.

In the field duplicate pair 091410-TPSWC-6T & 091410- DUP1, the hydrogen and oxygen isotope results had high RPDs. These results have been qualified as estimated (J) in both samples.

In the field duplicate pair 092310-TPGW-11M & 092310- DUP1, the tritium results had high RPDs. Tritium has been qualified as estimated (J) in both samples.

Table 3a - Field Precision

Method	Analyte	Unit	MQL	091410-TPSWC-6T	091410-DUP 1	RPD / Abs. Diff.	Rating	Samp Qual
6010	Calcium	mg/L	2.0	79	82	3.7%	Acceptable	None
6010	Magnesium	mg/L	0.32	8.0	8.6	7.2%	Acceptable	None
6010	Potassium	mg/L	50	8.0	8.1	1.2%	Acceptable	None
6010	Sodium	mg/L	100	49	53	7.8%	Acceptable	None
6010	Strontium	mg/L	0.02	0.85	0.86	1.2%	Acceptable	None
300	Bromide	mg/L	5.0	0.46	0.46	0.0%	Acceptable	None
300	Chloride	mg/L	500	87	88	1.1%	Acceptable	None
300	Fluoride	mg/L	500	0.11	0.10	9.5%	Acceptable	None
300	Sulfate	mg/L	50	33	34	3.0%	Acceptable	None
2320	Alkalinity	mg/L	1.0	160	160	0.0%	Acceptable	None
2320	Bicarbonate	mg/L	1.0	160	160	0.0%	Acceptable	None
9060	DIC	mg/L	1.0	43	42	2.4%	Acceptable	None
Non-standard	d18O	‰	NA	-0.5	-0.8	-46.2%	>20%	J
Non-standard	d2H	‰	NA	1.0	-6.0	-280.0%	>20%	J
Non-standard	d13C	‰	NA	-11.79	-11.86	-0.6%	Acceptable	None
Non-standard	dSr87/86	‰	NA	0.70917	0.70915	0.0%	Acceptable	None
Non-standard	Tritium	pCi/L	<5	17.3	15.3	12.3%	Acceptable	None

Key:

- Abs. Diff -
- DUP - Duplicate
- mg/L – Milligrams per liter.
- MQL -
- NA – Not analyzed.
- NC – Not calculated.
- ND – Not detected.
- pCi/L – PicoCuries per liter.
- RPD –
- TPSWC – Turkey Point Surface Water Canal

Table 3b - Field Precision

Method	Analyte	Unit	MQL	092310-TPGW-11M	092310-DUP1	RPD / Abs. Diff.	Rating	Samp Qual
6010	Calcium	mg/L	5.0	540	530	1.9%	Acceptable	None
6010	Magnesium	mg/L	0.8	1500	1400	6.9%	Acceptable	None
6010	Potassium	mg/L	200	500	460	8.3%	Acceptable	None
6010	Sodium	mg/L	100	13000	12000	8.0%	Acceptable	None
6010	Boron	mg/L	0.5	5.2	5.2	0.0%	Acceptable	None
6010	Strontium	mg/L	0.05	9.0	9.0	0.0%	Acceptable	None
300	Bromide	mg/L	5.0	60	65	8.0%	Acceptable	None
300	Chloride	mg/L	500	22000	22000	0.0%	Acceptable	None
300	Sulfate	mg/L	500	2700	2600	3.8%	Acceptable	None
2320	Alkalinity	mg/L	1.0	320	310	3.2%	Acceptable	None
2320	Bicarbonate	mg/L	1.0	320	310	3.2%	Acceptable	None
9060	DIC	mg/L	1.0	85	84	1.2%	Acceptable	None
Non-standard	d18O	‰	NA	1.6	1.5	6.5%	Acceptable	None
Non-standard	d2H	‰	NA	17	18	5.7%	Acceptable	None
Non-standard	d13C	‰	NA	-10.88	-10.88	0.0%	Acceptable	None
Non-standard	dSr87/86	‰	NA	0.70912	0.70919	0.0%	Acceptable	None
Non-standard	Tritium	pCi/L	<5	26.6	20.1	27.8%	>20%	J

Automated Data Processing Tool (ADaPT)

The laboratory submitted electronic data deliverables (EDDs) for each SDG in the ADaPT format. These EDDs were run through the ADaPT EDD Error Check by the laboratory against the FDEP generated library “DWM_Library_20100722” before submission. Any critical errors noted in the EDD Error Check are corrected by the laboratory before submission. Comments are provided by the laboratory for the remaining errors noted.

Several Points should be noted concerning the ADaPT files. The library provided to FPL and TestAmerica has acceptance criteria that do not conform to the analytical methods or the project.

A section specifically for CRQL, serial dilution, post digestion spike, and interference check sample data is not provided in ADaPT. The “overall result qualifier” is utilized to adjust qualifiers and add reasons to the files.

ADaPT automatically applies data qualifier codes (Table 5) to all samples from a batch based on duplicate (laboratory control spike duplicates, matrix spike duplicates, and laboratory duplicates) data. While the LCSD data should be applied to all samples of a batch, the matrix spikes and laboratory duplicate results should be applied to the original sample only, unless the samples are sufficiently similar. The qualifiers are removed from all samples except the parent.

All qualifiers presented in Table 4 have been added to the ADaPT files and saved. The EDDs have been signed as “Reviewed” and uploaded to the FPL database.

Technical Consistency

Certain technical comparisons are performed on data to ensure validity. The comparisons to be made and the acceptance criteria for each are defined FDEP-QA-002/02, Requirements for Field and Analytical Work. The values for the charge balance determination and the cation and anion calculated conductivity are provided in the ADaPT files. The following is a list of the technical comparisons made and the results of

those comparisons. Technical comparison calculations are provided in the results summary table provided with this DUS.

- *The total anion charge must be within 80% - 110% of the total cation charge.* TPGW-12S, TPGW-2S, BBSW-2B, BBSW-4B, TPSWC-4B, TPSWCCS-4T, TPSWCCS-5T, and TPSWCCS-6T anion charge was greater than 110% of the cation charge based on values calculated in ADaPT.
- *The measured specific conductivity (uS/cm) must be within 80% - 120% of the conductivity estimated from major cation concentrations. **This is only required when the initial charge balance calculation does not pass the criterion.*** The conductivity versus cation concentration results were within criteria for each sample except TPSWCCS-4T and TPSWCCS-6T. Calcium, magnesium, sodium, and potassium data were qualified as estimated, J/UJ, in samples TPSWCCS-4T and TPSWCCS-6T based on technical comparisons
- *The measured specific conductivity (uS/cm) must be within 80% - 120% of the conductivity estimated from major anion concentrations. **This is only required when the initial charge balance calculation does not pass the criterion.*** The conductivity was lower than 80% of the anion concentration in TPGW-12S, TPGW-2S, BBSW-4B and TPSWCCS-5T. Alkalinity, bromide, sulfate, chloride, and fluoride analyses have been qualified as estimated, J/UJ, in samples TPGW-12S, TPGW-2S, BBSW-4B and TPSWCCS-5T based on technical comparisons.

Summary

No results have been qualified as unusable. Groundwater and surface water analytical data are usable for the purpose of determining current conditions in groundwater and surface waters at the affected property. Qualified data is summarized in Table 4 below. Qualifier codes and definitions are summarized in Table 5.

Some results for tritium have been qualified as estimated not detected (UJ) because the sample result was less than the stated uncertainty for the associated measurement.

Corrective actions to discuss with the field sampling crew include:

- Samplers should review sample identification requirements and review all paperwork for completeness and accuracy.
- Samplers should be sure to verify and document proper sample bottle preservation and storage in the field.
- Samplers should be sure to collect the appropriate number of field duplicate samples for each matrix.

Other notations include:

- Samples were collected for a few analytes that were not required. This data is not reported in the summary tables.
- A carbon isotope result is not reported in the lab EDD for sample TPSWCCS-3B. Sample was collected and submitted to Test America.
- A tritium result for sample 091110-FB1 is not reported. Sample was collected and submitted to USGS.
- Hydrogen and oxygen isotope results for sample 092710-FB1 is not reported. Sample was collected and submitted to TA.
- A TDS sample was not collected for samples 092310-DUP1 and 092310-FB1.
- TPSWCCS-1T, 2T, 3T, and 7T not sampled due to depth of water.

Data Quality Indicators

Precision and accuracy results are discussed throughout this DUS with a summary of exceptions noted in Table 4. Based on the number of usable or missed data points compared to the total submitted for analysis, the project met the completeness goal of 95% for the water quality quarterly sampling event. Comparability was met based on sampling procedures and analytical method selection, and the use of consistent reporting units.

Table 4 - Summary of Qualified Data

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
37075	200.7	090910-TPGW-13D	Barium	0.110 mg/L	J	GW	High LD RPD
37075	200.7	091710-FB1	Barium	0.001 mg/L	V	AQ	Detected in MB 73188
37075	200.7	092310-TPGW-11M.	Barium	0.820 mg/L	J	GW	High LD RPD
37075	300	091510-TPGW-6S	Bromide	0.00079 mg/L	J-	GW	Low MS/MSD %R
37075	300	091510-TPGW-6S	Sulfate	13 mg/L	J-	GW	Low MS/MSD %R
37075	300	091410-TPGW-1S	Sulfate	1400 mg/L	J-	GW	Low MS/MSD %R
37075	300	091710-TPGW-7D	Chloride	41 mg/L	J-	GW	Low MS/MSD %R
37075	300	091710-TPGW-7D	Sulfate	25 mg/L	J-	GW	Low MS/MSD %R
37075	Non-standard	091410-TPGW-5S	Tritium	20.4 pC/L	J	GW	Detected in FB
37075	Non-standard	091510-TPGW-6D	Tritium	17.9 pC/L	J	GW	Detected in FB
37075	Non-standard	091510-TPGW-9S	Tritium	6.9 pC/L	J	GW	Detected in FB
37075	Non-standard	092010-TPGW-8S	Tritium	12.6 pC/L	J	GW	Detected in FB
37075	Non-standard	092010-TPGW-8M	Tritium	11.6 pC/L	J	GW	Detected in FB
37075	Non-standard	092210-TPGW-10S	Tritium	21.5 pC/L	J	GW	Detected in FB
37075	Non-standard	092210-TPGW-10M	Tritium	7.8 pC/L	J	GW	Detected in FB
37075	Non-standard	091510-TPGW-6S	Tritium	2.6 pC/L	UJ	GW	Result<uncertainty
37075	Non-standard	091510-TPGW-6M	Tritium	4.7 pC/L	UJ	GW	Result<uncertainty
37075	Non-standard	091710-TPGW-7S	Tritium	3.2 pC/L	UJ	GW	Result<uncertainty
37075	Non-standard	091710-TPGW-7D	Tritium	4.0 pC/L	UJ	GW	Result<uncertainty
37075	Non-	092010-TPGW-	Tritium	-2.1 pC/L	UJ	GW	Result<uncertainty

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
	standard	8D					
37075	Non-standard	091510-TPGW-9M	Tritium	-2.7 pC/L	UJ	GW	Result<uncertainty
37075	Non-standard	091510-TPGW-9D	Tritium	-0.6 pC/L	UJ	GW	Result<uncertainty
37075	Non-standard	092210-TPGW-10D	Tritium	2.4 pC/L	UJ	GW	Result<uncertainty
37075	Non-standard	092310-TPGW-11M	Tritium	26.6 pC/L	J	GW	High FD RPD
37075	Non-standard	092310-TPGW-DUP1	Tritium	20.1 pC/L	J	GW	High FD RPD
37076	6010	090710-TPSWC-1T	Boron	0.055 mg/L	J	SW	Detected in FB
37076	Non-standard	090710-TPSWC-1T	Tritium	8.4 pC/L	UJ	SW	Result<uncertainty
37076	6010	090710-TPSWC-1B	Boron	0.057 mg/L	J	SW	Detected in FB
37076	6010	090710-TPSWC-2T	Boron	0.046 mg/L	J	SW	Detected in FB
37076	6010	090710-TPSWC-2B	Boron	0.043 mg/L	J	SW	Detected in FB
37076	6010	090710-TPSWC-3T	Boron	0.044 mg/L	J	SW	Detected in FB
37076	6010	090710-TPSWC-3B	Boron	0.045 mg/L	J	SW	Detected in FB
37076	300	091110-TPSWCCS-4B	Sulfate	4300 mg/L	J-	SW	Low MS/MSD %R
37076	300	090810-TPSWID-1B	Bromide	3.2 mg/L	J-	SW	Low MS/MSD %R
37076	300	090810-TPSWID-1B	Sulfate	83 mg/L	J-	SW	Low MS/MSD %R
37076	300	092710-BBSW-3B	Chloride	16000 mg/L	J+	SW	High MS/MSD %R
37076	300	092710-BBSW-3B	Sulfate	2200 mg/L	J-	SW	Low MS/MSD %R
37076	Non-standard	090810-FB1	Tritium	6.8 pC/L	UJ	SW	Result<uncertainty
37075	300	092010-TPGW-2S	Bromide	97 mg/L	J	GW	Charge Balance
37075	300	092010-TPGW-2S	Chloride	30000 mg/L	J	GW	Charge Balance
37075	300	092010-TPGW-2S	Fluoride	0.10 mg/L	UJ	GW	Charge Balance
37075	300	092010-TPGW-2S	Sulfate	3400 mg/L	J	GW	Charge Balance
37075	2320	092010-TPGW-2S	Alkalinity	170 mg/L	J	GW	Charge Balance
37075	2320	092010-TPGW-2S	Bicarbonate	170 mg/L	J	GW	Charge Balance

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
37075	300	091610-TPGW-12S	Bromide	0.14 mg/L	UJ	GW	Charge Balance
37075	300	091610-TPGW-12S	Chloride	16000 mg/L	J	GW	Charge Balance
37075	300	091610-TPGW-12S	Fluoride	0.020 mg/L	UJ	GW	Charge Balance
37075	300	091610-TPGW-12S	Sulfate	1700 mg/L	J	GW	Charge Balance
37075	2320	091610-TPGW-12S	Alkalinity	480 mg/L	J	GW	Charge Balance
37075	2320	091610-TPGW-12S	Bicarbonate	480 mg/L	J	GW	Charge Balance
37076	6010	091110-TPSWCCS-4T	Calcium	680 mg/L	J	SW	Charge Balance
37076	6010	091110-TPSWCCS-4T	Magnesium	2200 mg/L	J	SW	Charge Balance
37076	6010	091110-TPSWCCS-4T	Potassium	670 mg/L	J	SW	Charge Balance
37076	6010	091110-TPSWCCS-4T	Sodium	17000 mg/L	J	SW	Charge Balance
37076	300	091110-TPSWCCS-4T	Bromide	100 mg/L	J	SW	Charge Balance
37076	300	091110-TPSWCCS-4T	Chloride	37000 mg/L	J	SW	Charge Balance
37076	300	091110-TPSWCCS-4T	Fluoride	0.02 mg/L	UJ	SW	Charge Balance
37076	300	091110-TPSWCCS-4T	Sulfate	4800 mg/L	J	SW	Charge Balance
37076	2320	091110-TPSWCCS-4T	Alkalinity	130 mg/L	J	SW	Charge Balance
37076	2320	091110-TPSWCCS-4T	Bicarbonate	130 mg/L	J	SW	Charge Balance
37076	6010	091110-TPSWCCS-6T	Calcium	670	J	SW	Charge Balance
37076	6010	091110-TPSWCCS-6T	Magnesium	2100	J	SW	Charge Balance
37076	6010	091110-TPSWCCS-6T	Potassium	650	J	SW	Charge Balance
37076	6010	091110-TPSWCCS-6T	Sodium	17000	J	SW	Charge Balance
37076	300	091110-TPSWCCS-6T	Bromide	110 mg/L	UJ	GW	Charge Balance
37076	300	091110-TPSWCCS-6T	Chloride	34000 mg/L	J	GW	Charge Balance
37076	300	091110-TPSWCCS-6T	Fluoride	0.02 mg/L	UJ	GW	Charge Balance
37076	300	091110-TPSWCCS-6T	Sulfate	4600 mg/L	J	GW	Charge Balance
37076	2320	091110-TPSWCCS-6T	Alkalinity	130 mg/L	J	GW	Charge Balance
37076	2320	091110-TPSWCCS-6T	Bicarbonate	110 mg/L	J	GW	Charge Balance
37076	300	092410-BBSW-4B	Bromide	79 mg/L	J	GW	Charge Balance
37076	300	092410-BBSW-4B	Chloride	18000 mg/L	J	GW	Charge Balance

SDG	Method	Sample ID	Analyte	Result	Val Qual	Matrix	Reason for Qualification
37076	300	092410-BBSW-4B	Fluoride	0.20 mg/L	UJ	GW	Charge Balance
37076	300	092410-BBSW-4B	Sulfate	3300 mg/L	J	GW	Charge Balance
37076	2320	092410-BBSW-4B	Alkalinity	120 mg/L	J	GW	Charge Balance
37076	2320	092410-BBSW-4B	Bicarbonate	120 mg/L	J	GW	Charge Balance
37076	300	091110-TPSWCCS-5T	Bromide	110 mg/L	J	GW	Charge Balance
37076	300	091110-TPSWCCS-5T	Chloride	33000 mg/L	J	GW	Charge Balance
37076	300	091110-TPSWCCS-5T	Fluoride	0.02 mg/L	UJ	GW	Charge Balance
37076	300	091110-TPSWCCS-5T	Sulfate	4200 mg/L	J	GW	Charge Balance
37076	2320	091110-TPSWCCS-5T	Alkalinity	130 mg/L	J	GW	Charge Balance
37076	2320	091110-TPSWCCS-5T	Bicarbonate	130 mg/L	J	GW	Charge Balance

Table 5: Data Qualifier Codes

Code	Definition
U	The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.
J	Estimated value. A "J" value shall be accompanied by a detailed explanation to justify the reason(s) for designating the value as estimated. A bias is assigned if discernable.
Q	Holding Time exceeded.
V	Indicates that the analyte was detected at or above the method detection limit in both the sample and the associated method blank and the value of 10 times the blank value was equal to or greater than the associated sample value. Only for method blank and J qualifier for other blanks.
I	Value detected between the MDL and the reporting limit.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
Code	Bias
+	Bias is high.
-	Bias is low.

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