3. QUARTERLY GROUNDWATER AND SURFACE WATER SAMPLING RESULTS

The Monitoring Plan (SFWMD 2009a) and QAPP (FPL 2010) for this project outline the locations and analytes for the groundwater and surface water sampling and the analyses for quarterly and semi-annual events. Tables 3.0-1 and 3.0-2 provide a summary of the sampling locations and analyses. Each groundwater location is a cluster of three wells at different depth intervals. The groundwater wells are designated by depth and defined as "S" for shallow wells (-15.3 to -34.7 ft NAVD 88 to bottom of screen elevation), "M" for intermediate wells (-32.8 to -85.7 ft NAVD 88 to bottom of screen elevation), and "D" for deep wells (-46.4 to -122.2 ft NAVD 88 to bottom of screen elevation). Surface water samples are also designated by depth, i.e., "T" for top (1 ft below surface) and "B" for bottom (1 ft above bottom).

With a few exceptions, samples were collected quarterly at all locations from June 2010 through June 2012 and were analyzed for the parameters as required in the Monitoring Plan. Samples were collected and analyzed for ions and trace elements every quarter in both groundwater and surface water (Tables 3.0-1 and 3.0-2). Semi-annually, samples were collected from a subset of station locations and analyzed for additional parameters such as nutrients, trace elements, silica, and gross alpha (first year only); this is referred to as a semi-annual event. The first sampling event in June/July 2010 (wet season) was designated as a semi-annual event since it was conducted halfway into the calendar year. The September 2010 event was designated as a quarterly event and FPL envisioned that every June and December would be semi-annual events and every September and March would be quarterly events. However, following the September 2010 sampling effort, the Agencies requested that FPL switch the quarterly and semi-annual events. The Agencies wanted a complete semi-annual suite of parameters collected during the wet (September) and dry seasons (March) rather than in the transitional months of December and June. Therefore, the December 2010 event was changed to a quarterly event, and March 2011 was designated as a semi-annual event. Subsequently, June 2011, December 2011, and June 2012 were designated as quarterly events and September 2011 and March 2012 were designated as semi-annual events.

Samples also were collected from several of the historical wells that have been monitored as part of the ID operations. Monitoring wells L-3, L-5, G-21, G-28, and G-35 were initially sampled during their regularly scheduled events in October 2010 and January 2011, offset from the above monitoring for the Uprate project by one month. Based on discussions with the Agencies, the schedule for ID operation was adjusted after January 2011 to coincide with the Uprate monitoring. Thus, starting with the March 2011 Uprate monitoring event and quarterly thereafter, groundwater samples were collected from monitoring wells L-3, L-5, G-21, G-28, and

G-35. Since the historical wells are screened across the entire aquifer, samples were collected from two depths (18 ft and 58 ft below top of casing).

The majority of the samples were analyzed by TestAmerica; however, more specialized analyses were conducted by the following laboratories:

- University of Miami Rosenstiel School of Marine & Atmospheric Science Laboratory: carbon isotopes ($\delta^{13}C$);
- University of Miami L7 Isotope Laboratory: hydrogen (δD) and oxygen isotopes ($\delta^{18}O$);
- USGS Tritium Laboratory: tritium; and
- USGS Strontium Laboratory: strontium isotopes ($^{87}Sr/^{86}Sr$).

Details of the analytical methodologies for each analyte are provided in the project QAPP (FPL 2011c). The following subsections provide a brief overview of the methods used to collect the samples; notable exceptions in data collection methodology, sample collection, and/or laboratory analysis also are discussed. A summary of the field parameters and analytical results is included. Details regarding the sampling methodologies and laboratory procedures are described in the December 2, 2011, Agency-approved project QAPP (FPL 2011c).

3.1 GROUNDWATER QUALITY

3.1.1 Sample Collection and Analysis

Groundwater samples were collected in accordance with the QAPP using a peristaltic pump and dedicated Teflon® tubing that extended to the middle of each well screen interval. Figure 3.1-1 shows a typical setup for the groundwater sampling. Three equipment volumes were purged before stability readings were taken. Sampling was initiated when three consecutive readings were recorded after FDEP criteria for parameter stabilization had been met. Groundwater and surface water sampling logs from the March and June 2012 sampling events are provided in Appendix H of this report; sampling logs from previous events were provided in the previous semi-annual reports (February 2011 and March 2012) and the 2011 Annual Report for this project.

3.1.2 Results and Discussion

Much of the discussion during the certification of the Uprate project was related to the potential effects of hypersaline marine water from the CCS as a result of the temperature and salinity changes predicted from the Uprate. Some of the key indicator constituents and parameters of interest are chloride, sodium, and specific conductance. Additional parameters had been included for various reasons as discussed in the Monitoring Plan (SFWMD 2009a).

As saltwater intrusion has been documented in south Miami-Dade County since the early 1900s and was far inland in the 1950s (Klein 1957), the challenge is determining the source of saltwater today. A number of other constituents are being analyzed to better understand the geochemistry of the water from different sources and to determine whether the water from the CCS can be

fingerprinted. These analyses includes tritium and stable isotopes of water ($^{18}O/^{16}O$), hydrogen ($^{3}H/^{2}H$), carbon ($^{13}C/^{12}C$), strontium ($^{87}Sr/^{86}Sr$), and dissolved inorganic carbon (DIC), as well as ions listed in Table 3.0-2 of this report, barium, and iron.

Tables 3.1-1 through 3.1-9 provide a summary of the groundwater analytical results from the June 2010 through June 2012 sampling events. Results for the sampling events from the historical monitoring wells L-3, L-5, G-21, G-28, and G-35 during the same time period are provided in Tables 3.1-10 and 3.1-17. DUS Reports for all events are provided in Appendix I, and the detailed Level IV laboratory reports from TestAmerica are included in Appendix J.

3.1.2.1 Chloride, Sodium, and Specific Conductance

Figures 3.1-2, 3.1-3 and 3.1-4 show the chloride, sodium, and specific conductance values respectively, for the sampling events from June 2010 through June 2012. The concentrations at most wells remained relatively consistent for the entire sampling period.

Chloride concentrations in the CCS wells (TPGW-13S, TPGW-13M, and TPGW-13D) ranged from 26,000 to 38,000 mg/L during the pre-Uprate period from June 2010 through June 2012. The highest concentration was consistently in the shallow well (average of 35,666 mg/L), but there was limited change in concentration (less than 10%) with depth for all sampling events except for September 2011 when a much lower concentration of 26,000 mg/L was recorded at the deep interval. An analysis of variance (ANOVA) showed that there was no difference among the three well depths ($F_{1,24} = 5043.15$, $P > 0.05$), but there was a difference across seasons ($F_{1,18} = 12534.78$, $P < 0.001$), with September 2011 having the lowest average chloride values (average: 30,000 mg/L) and the highest values observed in March 2011 (average: 37,333 mg/L).

Biscayne Bay wells had lower chloride concentrations than those found in TPGW-13 wells. The typical range of chloride concentrations in the Biscayne Bay wells was between 19,000 mg/L and 24,000 mg/L, with the exception of TPGW-14M (21,000 to 27,000 mg/L) and TPGW-14D (29,000 to 32,000 mg/L). These values in the deep well at TPGW-14 are above the concentrations reported in Biscayne Bay surface water samples. Well clusters immediately to the west of the CCS (TPGW-1, TPGW-2, L-3, and L-5) had chloride levels in the intermediate and deep zones that were between 27,000 and 34,000 mg/L.

Farther to the west, shallow wells located near the northern half of Tallahassee Road (TPGW-5, TPGW-6, and G-21) had chloride levels consistently less than 250 mg/L (only one value above 250 mg/L), while the intermediate and deep wells ranged from 4,600 to 12,000 mg/L. Historical well G-28 and TPGW-4, which are located along the southern half of Tallahassee Road, were more saline in the shallow zone than wells to the north. The chloride concentration in those wells ranged from 420 to 3,300 mg/L. It is not yet clear if the occasionally high chloride concentrations in the Card Sound Road Canal surface water are affecting the shallow groundwater in the vicinity of G-28 and TPGW-4. The well clusters TPGW-7, TPGW-8, and TPGW-9 had chloride concentrations of less than 51 mg/L at all depths, which indicates freshwater throughout the water column.

Chloride levels from the historical wells (L and G series wells) were compared to chloride levels in nearby "new" Monitoring Plan wells to assess the potential differences between wells that are screened across the entire water column (broad screen interval) versus those screened at a discrete depth interval. During the development of the Monitoring Plan, the SFWMD expressed some reservations about the water quality data collected from the historical wells since the well screens extend from the surface to the base of each well for most of the wells with the exception of G-28 (which was screened from 16 ft belowground). Since there are potentially discrete flow zones, the question was raised regarding whether samples collected from historical broad-screened wells are diluted from other zones or affected in some other fashion. Based on discussions with the Agencies, the wells that were subsequently installed as part of the Monitoring Plan were screened in high flow zones with only 2 to 6 ft of screen; thus, each well only intersects one zone and reflects the concentration in that zone.

Table 3.1-18 shows the differences between L-3 and TPGW-1 (S, M, and D), L-5 and TPGW-2 (S, M, and D), G-21 and TPGW-5 (S, M, and D), and G-28 and TPGW-4 (S, M, and D). While a direct comparison is not possible since the well samples are collected from slightly different depths and are not adjacent to each other, a general assessment whether the results from the historical wells appear to be representative of groundwater quality conditions can be made. While there are some differences, the data reviewed from the L and G series wells are plausible when viewed in context of their depths and locations in the landscape.

Figure 3.1-5 shows the average chloride concentrations at each well and how these concentrations compare to average surface water concentrations in Biscayne Bay, Card Sound Road Canal, and the CCS for the period from June 2010 through June 2012. Wells with average chloride concentrations in excess of Biscayne Bay concentrations may need to be reviewed in conjunction with the tracer.

In nearly all instances, high specific conductance groundwater values (greater than 1,275 µS/cm) in the study area are attributable to marine water and high chlorides. The SFWMD and FPL have historically used a relationship with specific conductance to calculate chloride. In the case of TPGW-8, the specific conductance in the shallow zone ranged from 2,051 to 2,570 µS/cm, but the chloride values are much less than would be calculated. The specific conductance reading at this location appears to be influenced by calcium. This well also has a high pH (11.72) and may not necessarily be influenced by grout contamination and has been previously discussed with the Agencies. Note that the intermediate and deep zones at TPGW-8 have a pH around 7 and specific conductance values below 1,275 µS/cm.

Sodium results for sampling events from June 2010 through June 2012 ranged from 6.0 to 19,000 mg/L. The highest concentrations were in TPGW-13 at 16,000 to 19,000 mg/L, and the values were fairly consistent with depth. Biscayne Bay wells TPGW-10 and TPGW-11 ranged from 9,900 to 13,000 mg/L, and TPGW-14 had values that ranged from 11,000 to 17,000 mg/L. For comparison, the sodium value in Biscayne Bay surface water during the sampling period ranged from 7,500 to 14,000 mg/L. The intermediate and deep wells in TPGW-1, all depths at TPGW-2 and TPGW-3, as well as the deep depths at L-3 and L-5 had sodium concentrations that ranged from 14,000 to 21,000 mg/L, with the shallow well concentrations being much lower in

L-3 and L-5 since they intersect a fresher water lens. Sodium concentrations in TPGW-4, TPGW-5, TPGW-6, and G-21 at depth ranged from 2,000 to 9,000 mg/L, while the shallow wells had concentrations ranging from 15 to 360 mg/L. The concentrations in shallow wells TPGW-5, TPGW-6, and G-21 were all below 160 mg/L while the clusters TPGW-7, TPGW-8, and TPGW-9 had sodium concentrations below 31 mg/L at all depths.

The chloride, specific conductance, and sodium values typically did not vary by more than 10% between sampling events. The most notable exception was an increase in one or more parameters in the shallow, predominantly freshwater samples (as defined by FDEP) in L-3 and L-5 in September 2011 and June 2011, respectively. For example, the chloride concentration at L-5 increased from an average of 114 mg/L from the previous three quarters to 1,500 mg/L in June 2011, which was towards the end of the very dry period. The samples at the L-3 and L-5 wells are collected close to the freshwater (as defined by <1,275 µS/cm) and saltwater interface. Drought or rainfall conditions can impact where that interface may lie. It is suspected that the extreme drought in 2012 caused the thickness/depth of the freshwater zone to shrink, thereby raising the saltwater interface.

In reviewing the results, it is important to understand where the wells are actually screened since all wells of the same classification (shallow, intermediate, or deep) are not at the same elevation (Figure 3.1-6). For example, the bottom of the well screen in the deep well at TPGW-10 is at -122 ft NAVD 88, while the bottom of the well screen in the deep well at TPGW-5 is at -66.8 ft NAVD 88. It is equally important to understand that the placement of the well screen was based on lithology (at or near contacts between the Miami Limestone and Fort Thompson Limestone Formations and the Fort Thompson Limestone and Tamiami Formations), presence of flow zones and geophysics, and knowledge that the base of the Biscayne Aquifer is shallower to the west. Figures 3.1-7 through 3.1-10 show cross-sections of the aquifer, selected wells at the three depth intervals, and associated chloride concentrations. The results typically show higher levels of chlorides/saltwater at depth and the highest levels in wells at or in close proximity to the CCS and Biscayne Bay. However, none of the newly installed shallow wells are screened less than 20 ft below ground surface. Based on the monitoring results from the historical L and G series wells (Golder Associates Inc. 2005, 2006, 2007, 2008, 2009, 2010, and 2011b) and supported by induction logs conducted by the USGS for this project (JLA Geosciences, Inc. 2010), it appears that the upper 10 to 20 ft of the aquifer is much fresher west of the ID, and this freshwater zone generally increases in depth towards Tallahassee Road. Saltwater is beneath the freshwater lens. The Agencies commented that specific conductance values indicating more marine water were noted in TPGW-28 at 4 ft below the ground surface. Again, knowing where the wells are screened is important; that particular well is hard-cased down to 16.6 ft below the top of casing. Water measured from the surface to the downward extend of the hard casing is predominantly reflective of the water quality at 16.6 ft below the top of casing, thus not capturing the fresher overlying lens.

3.1.2.2 Ions

Ion (calcium, magnesium, potassium, sodium, boron, strontium, bromide, chloride, fluoride, and sulfate) concentrations at the TPGW sites appeared to correspond with specific conductance

values in most of the wells. Freshwater sites had low concentrations of ions, while marine-influenced sites generally had higher values. The range of values remained consistent for most of the sites during this monitoring period. The patterns and trends of ions were similar to the trends observed for specific conductance. Ionic concentrations in the marine stations (TPGW-10, TPGW-11, and TPGW-14) were similar to the values observed by Reich et al. (2006) from a well in the middle of Biscayne Bay (Mid-Bay: well GW-MB). The well cluster in the CCS, TPGW-13, had higher ionic concentrations than those of the marine stations.

Table 3.1-19 shows the range of all the ions for the entire period. Groundwater stations have been grouped based on whether the groundwater would be characterized as predominantly marine or predominantly fresh with TPGW-13 included separately. For comparison, refer to Table 3.2-10 for the range of ions in surface water.

To assess the differences of major ionic constituents in groundwater, tri-linear diagrams were generated for all quarters where completed data sets were available (Figure 3.1-11); June 2010 was omitted because the offshore wells were still under construction and not sampled that quarter. The data are consistent for the eight quarters and show that there is clear separation between the freshwater stations (TPGW-7, TPGW-8, TPGW-9) and the marine-influenced stations. The marine-influenced stations include all depths from TPGW-1, TPGW-2, TPGW-3, TPGW-10 through TPGW-14 (including TPGW-13 in the CCS), and TPGW-4, TPGW-5, and TPGW-6 at medium and deep depths. The shallow stations at TPGW-4, TPGW-5, and TPGW-6, as well as the shallow depths at L-3 and L-5 plot out close to the freshwater well clusters but depending on the season, can vary across the spectrum between the freshwater and marine-influenced clusters (Figure 3.1-11).

Several ions have been problematic during chromatogram analyses because of their low concentrations compared to the other peaks. For example, fluoride has been one of the most problematic ions in meeting project MDLs due to interference by the chloride peak. A fluoride selective probe method is being reviewed as a possible analytical alternative for fluoride only. Barium is another ion that is problematic for the same reason of interference. A third analyte of issue is sulfide, for which the majority of values for most locations has been reported as non-detect at the elevated detection limit. Starting in September 2012, TestAmerica will implement revised methods for all three analytes that will help improve the detection limits of all three parameters.

3.1.2.3 Isotopes

The trends in groundwater δD and $\delta^{18}O$ values were consistent and did not differ among seasons ($P > 0.05$), although there was a difference among sites within each season ($P < 0.001$). The groundwater well within the CCS, TPGW-13, had the highest values followed by the nearby wells (TPGW-1, TPGW-2, TPGW-3, TPGW-12), L-3, L-5 and the marine wells. The samples with the lowest isotopic signatures were the brackish (TPGW-4, TPGW-5, TPGW-6), freshwater (TPGW-7, TPGW-8, TPGW-9) and G-series (G-21, G-28, G-35) wells. The highest isotopic values indicate significant evaporative enrichment while the lowest values are representative of water with limited evaporation, reflecting water that has percolated into the groundwater after

precipitating as rainfall. These patterns remained consistent throughout the two years of monitoring, indicating consistency in water source over time.

The $^{87}Sr/^{86}Sr$ values were only available from June 2010 to March 2012. These signatures ranged from 0.70906 to 0.70923 but there were no differences among the sites or seasons ($P > 0.05$). All water is of modern-day origin and do not indicate any Floridan aquifer water (0.708236) (Reich et al. 2006) which is of a significantly lower isotopic signature than any of the groundwater well data from this project.

The $\delta^{13}C$ of a sample is the function of the processes that have influenced the DIC pool. Geophysical processes within the aqueous carbonate bedrock, biogenically derived uptake and release of carbon dioxide (CO_2), the exchange of the water with atmospheric CO_2, or mixing of carbon from various sources can all influence the $\delta^{13}C$ value observed. Sources that can influence the $\delta^{13}C$ samples include limestone dissolution (0‰), atmospheric CO_2 (-8‰), carbonate weathering by soil CO_2 in Florida aquifers which results in a $\delta^{13}C$ of -13‰ (Sackett et al. 1997), and terrestrially derived C_3 carbon (-26‰).

Carbon isotopes ($\delta^{13}C$) in the groundwater were more negative in the freshwater sites compared to the marine sites or TPGW-13 (Table 3.1-20). For most of the quarters, the well cluster with the highest $\delta^{13}C$ values was TPGW-10, indicating that this well water is likely from the carbonate dissolution of the bedrock. The marsh sites had the lowest $\delta^{13}C$ signatures indicating carbonate weathering as the water travelled through the limestone bedrock; of notable interest is TPGW-8S, which has the highest pH values (discussed in Section 3.1.2.1 above) and lowest isotopic values among all sites. With the exception of the wells discussed above, most of the other groundwater sources had $\delta^{13}C$ between -6‰ to -10‰ for most of the seasons, indicating consistency in the mix of sources contributing to the isotopic signature. Unlike Sackett et al. (1997) and Bouillon et al. (2007), which both showed significant positive relationships between $\delta^{13}C$ and salinity, the groundwater data from the current study did not demonstrate clear patterns with salinity.

Tritium values are only available from June 2010 until December 2011 as the USGS was unable to analyze and provide the last two quarters of data in time for inclusion in this report. Groundwater tritium concentrations were highest in and around the CCS, ranging from 3,460 to 6,390 picocuries per liter (pCi/L). The TPGW-7, TPGW-8, and TPGW-9 sites, farthest away from the CCS, had the lowest tritium concentrations, averaging 10 pCi/L over the seven sampling events. While tritium concentrations varied from station to station and with depth, the levels at any given station were fairly stable over seasons. This was also applicable to the old L- and G-series wells which were uncased; for most of the quarters, the values did not vary more than 10% between seasons. The only exception was L-5, which had a value of 113 pCi/L at the end of the drought in June 2011 and a concentration of 5.3 pCi/L in the subsequent quarter after the onset of the rains (Tables 3.1-12 and 3.1-13). It is important to note that under this Monitoring Plan, tritium is being measured only as a chemical tracer in order to determine potential movement of CCS water. At the levels being measured, the tritium is not a public health concern. Figure 3.1-12 shows the tritium concentrations in groundwater samples for each quarter.

Table 3.1-20 shows the range of all the isotopes. Groundwater stations have been grouped based on whether the groundwater would be characterized as predominantly marine or predominantly fresh with TPGW-13 included separately. For comparison, refer to Table 3.2-11 for the range of isotopes in surface water.

3.1.2.4 Nutrients

Figures 3.1-16 and 3.1-17 show nutrient results for the June 2010, March 2011, September 2011, and March 2012 sampling events. A brief discussion of these results is provided below.

Total nitrogen (TN) values in well clusters TPGW-1, TPGW-2, and TPGW-13 and the deep well at TPGW-14 ranged from 1.4 to 9.8 mg/L. Well cluster TPGW-10 had much lower TN levels, all below 0.68 mg/L. In most of the wells, the majority of TN (55% to nearly 100%) was comprised of ammonia which is an inorganic form of nitrogen. The exceptions include TPGW1S, TPGW-2D, and TPGW2D in March 2011 and TPGW-1S in December 2011, and TPGW-2D, TPGW-13S, TPGW-13M, and TPGW-13D in March 2012. All but two of these (wells TPGW-1D and TPGW-2D) appear to have more organic nitrogen than inorganic nitrogen. Wells TPGW-1D and TPGW-2D in March 2011 showed very high levels of nitrate/nitrite (NOx) and these two inorganic nitrogen forms comprised over 69% of the TN.

Total phosphorus (TP) concentrations ranged from 0.015 to 0.082 mg/L, with the highest value found in TPGW-2D. The results show that more than 50% of TP is orthophosphate (OP) in nearly all the wells, with concentrations ranging from 0.014 to 0.039 mg/L. There were some OP values that were higher than 0.39 mg/L, but those values are suspect since the OP was higher than the TP (OP is a subset of TP; it cannot be higher than TP). The OP values are similar to data from the USGS (Reich et al. 2006) for two wells north of the study area (onshore G3613 and Mid-Bay: SRP: 0.012 to 0.032 mg/L), although a number of the TP values obtained are higher than the USGS sites (TP: 0.012 to 0.033 mg/L).

The analysis for some of the nutrient constituents has yielded some uncertainty due in part to interferences with the high saline water; thus, care should be taken in interpreting the results. Field split samples were collected by RER in the March 2012 semi-annual sampling event and analyzed by the RER laboratory. Samples were collected from select deep wells, placed into separate containers, shipped to TestAmerica and the RER laboratory, and analyzed for ammonia, nitrate/nitrite, TKN, TP, and OP. While the number of data pairs compared (four) is too small to draw major conclusions, there are some significant differences (RPD>50%) among the results for ammonia, TKN, and OP. The two laboratories follow essentially the same methods; however, even minor differences in procedures or materials can affect the analytical results. At this point, it is unclear which set of results is more accurate of the actual groundwater conditions at the time of sampling. It should be noted that the RER results have ammonia consistently greater than TKN, which is not possible; TKN is the sum of ammonia, ammonium, and organic nitrogen. FPL/TestAmerica is reviewing the RER SOPs and is performing analysis of certified reference materials for nutrients in saline waters to aid in the evaluation of the overall sample results.

Also, for the initial nutrient sampling events, OP was higher than TP for nearly every sample. In March 2011, the OP analytical method was modified based on an FDEP Laboratory SOP (NU-070-1.8). Since the method modification, the OP/TP comparisons have been within the criteria.

3.1.2.5 Trace Elements

Per the Monitoring Plan (SFWMD 2009a), trace elements (arsenic, barium, beryllium, cadmium, hexavalent chromium, copper, iron, lead, mercury, manganese, molybdenum, nickel, selenium, thallium, vanadium, and zinc) are to be collected in TPGW-1, TPGW-2, TPGW-10, TPGW-13, and TPGW-14 during semi-annual sampling events. During the June/July 2010 event, samples were collected at TPGW-1, TPGW-3, and TPGW-13. Samples were not collected at TPGW-10 and TPGW-14 in June/July because the well infrastructure was not completed. At the direction of the Agencies, samples for trace metals at TPGW-10 and TPGW-14 only were collected during the December 2010 sampling event. In the March 2011, September 2011, and March 2012 sampling events, trace metals were collected at all five well clusters.

Most concentrations were non-detected (U) or low values between the MDL and quantitation limit and were reported as estimated values (J). While the majority of analytical detection limits have met the QAPP requirements, trace metals have been difficult to achieve due to the saline nature of the samples. The laboratory has had to dilute the saline samples to keep instruments from being overloaded with the major ion constituents (i.e., chloride, sodium). This has resulted in some data reported as non-detected but with detection limits above the QAPP requirements. In addition, these dilutions increase the uncertainty, or error, associated with a result. The laboratory is working to expand or tailor calibration ranges, within method requirements, to fit project samples and reduce the frequency of dilutions needed.

To achieve the required MDLs, the laboratory began adding preparatory EPA Method 1638 (Determination of Trace Elements in Ambient Waters by Inductively Coupled Plasma-mass Spectrometry) for manganese and molybdenum and EPA Method 1640 (Determination of Trace Metals by Pre-concentration and ICP-MS) for the other trace metals listed above in September 2012. The added step will selectively concentrate certain metals prior to analysis to improve detection limits.

Iron was one of the few parameters that had high enough values that did not consistently require an estimated qualifier. Since iron was also identified as a potential tracer, it was analyzed at all the wells. The values are somewhat variable, but elevated levels appear to be throughout the landscape, indicating regional background conditions.

The results from this sampling effort, and more significantly the lower detection limit results of the SFWMD synoptic sampling in the CCS at five locations in February 2009 (SFWMD 2009b), do not indicate any notable influence from the CCS as it relates to these parameters. The SFWMD results (Table 3.1-21) showed non-detectable to only very low concentrations of all these constituents. Furthermore, drinking water standards are not applicable as all the samples are being collected at depths where salt water intrusion/non-potable water pre-dates the CCS.

3.2 SURFACE WATER QUALITY

3.2.1 Sample Collection and Analysis

For the purposes of this discussion, surface water includes canals, the CCS, and Biscayne Bay. Surface water samples were collected using a peristaltic pump and new Teflon® or polyethylene tubing that was affixed to rigid pipe to ensure the samples were collected at the appropriate depth. Once parameters had stabilized, water was extracted from the tubing and collected directly into the sample bottles. After each sample collection, the tubing was disposed and new tubing was used. Samples for surface water are typically collected from fixed platforms or from a boat.

Samples were collected at the surface water stations identified in Table 3.0-1. Samples were collected from 1 ft below the surface (T) and 1 ft above the bottom (B) unless the water depths in the CCS, ID, or canals were less than 3 ft. In those cases, only one sample was collected at the bottom. There was some uncertainty whether this 3-ft criteria applied in Biscayne Bay, so samples were collected at depth at all stations and at the surface and depth at TPBBSW-1, TPBBSW-4, and TPBBSW-5 in June 2010. After the first sampling event, it was clarified to the field team that all Biscayne Bay samples were to be collected only at the bottom to coincide with the placement of the automated water quality probes; thus, for the subsequent events, samples were collected from the bottom only, regardless of depth.

3.2.2 Results and Discussion

Tables 3.2-1 through 3.2-9 provide a summary of the surface water analytical results from June 2010 through June 2012. DUS Reports for each event are provided in Appendix I and detailed Level IV laboratory reports from TestAmerica are included in Appendix J. Additionally, the stations have been grouped based on their general characteristics and location, and Tables 3.2-10 and 3.2-11 show the minimum, maximum, average and standard deviation of these water bodies from June 2010 through June 2012, unless otherwise explicitly stated.

3.2.2.1 Chloride, Sodium, and Specific Conductance

Figures 3.2-1, 3.2-2, and 3.2-3 detail chloride, sodium, and specific conductance values for all surface water stations for the June 2010 through September 2012 sampling events. High levels of these parameters in a coastal area are typically reflective of marine influences. For example, surface waters with chloride concentrations greater than 1,500 mg/L are defined as predominantly marine, while those with less than 1,500 mg/L are defined as predominantly fresh (F.A.C. 62-302.200). The Class I/III criteria for specific conductance in freshwater (excluding consideration of background values) is less than 1,275 µS/cm. Values higher than 1,275 µS/cm in a coastal environment are often viewed as potentially having some marine influence. Note though, other constituents not related to marine water can cause high specific conductance readings (e.g., calcium, magnesium).

Chloride concentrations in the CCS ranged from 26,000 to 46,000 mg/L based on the sampling events from June 2010 through June 2012. The average concentration was 33,922 mg/L. There was little difference (less than 10%) in concentration between samples collected near the surface or near the bottom. During the same period, Biscayne Bay chloride values ranged from 11,000 to 28,000 mg/L. Values were between 26,000 and 28,000 mg/L in June 2011 as a result of an extended dry season (refer to Section 2.4-2) and reflected the highest values recorded in the Bay since the beginning of this monitoring effort. In September 2011, with the onset of the rainy season, the chloride concentration dropped and levels ranged from 19,000 to 22,000 mg/L. In comparison, average seawater chloride levels are 19,840 mg/L at a salinity of 35 on the PSS-78 scale (Millero 1996). Chloride concentrations at TPSWC-5 (located in the deep historical outfall canal) are reflective of marine water with surface water values being similar to those found in the Biscayne Bay stations and the bottom values tending to be similar to Biscayne Bay values or higher. For three of the sampling events, the bottom chloride concentrations were 4,000 to 8,000 mg/L higher at the bottom than the top. The higher values at depth are not totally unexpected given the 20+ ft depth of this man-made canal. However, as discussed later in this section, there could be some CCS influence at this station. TPSWC-4, which is affected by both Biscayne Bay and freshwater discharges, had chloride concentrations ranging from 460 to 28,000 mg/L, with the highest values in June 2011 and the lowest values in September 2010.

Interceptor Ditch chloride concentrations varied depending, in part, on when pumping occurred; higher values were noted during periods of pumping. For example, TPSWID-2 had a maximum concentration of 27,000 mg/L in June 2011 during a period when the ID pumps were operating frequently, but concentrations were as low as 110 mg/L in December 2010 following a wetter non-pumping period.

The chloride data at the L-31E stations (TPSWC-1, TPSWC-2, TPSWC-3) show that this canal is predominantly freshwater (less than 1,500 mg/L) throughout the year with one notable exception, June 2011 near the end of an extensive drought. FPL previously reported (August 2011) that as the dry season progressed and the drought in the region continued, chloride levels in the L-31E Canal increased at all three stations. By June 2011, the values increased most notably at TPSWC-2 and TPSWC-3 to 2,500 mg/L (310 mg/L in March 2011) and 5,300 mg/L (750 mg/L in March 2011), respectively. Station TPSWC-1 showed the least increase (120 mg/L in March 2011 to 300 mg/L in June 2011). Due to the earthen plug installed by SFWMD, the segment of the canal where TPSWC-1 is located is partially blocked from portions of the canal where TPSWC-2 and TPSWC-3 are located. This explains why the chloride values are lower in this northern reach of L-31E. All the increases in chloride appear to be drought related and affected by Biscayne Bay. There was not a corresponding incremental increase in tritium and the tritium values were in line with previous sampling events. If the CCS was impacting L-31E, an increase in tritium would be expected and this was not observed. The manual monitoring station, TPSWC-6 located on the Card Sound Road Canal, had chloride levels consistently below 200 mg/L, classifying this canal as freshwater with one exception, June 2011. In this June sampling event, the chloride level at TPSWC-6 (bottom sample) was 25,000 mg/L. In September 2011, the concentration dropped to 130 mg/L. This station is about 6 miles inland, but the USGS has previously indicated that they found hypersaline conditions past this station all the way to Florida City several years ago during the last drought (Wacker 2010). This canal does not have a gate

control structure blocking inflow from Biscayne Bay southeast of the site. During drought conditions, this canal can be a contributor to groundwater salt water intrusion.

The highest sodium concentrations were in the CCS samples and were consistently between 15,000 and 22,000 mg/L. The Biscayne Bay surface water samples ranged from 5,400 to 14,000 mg/L. Average sodium levels in seawater are 11,050 mg/L (Millero 1996), but can approach 14,000 mg/L in Biscayne Bay depending on location and time of year (Reich et al. 2006). The ID samples (TPSWID-1, TPSWID-2, and TPSWID-3) had sodium levels that ranged from 290 to 14,000 mg/L and, as discussed above, the concentrations increased during periods of frequent ID pumping, with the highest values occurring in June 2011. The sodium concentrations in the L-31E Canal (TPSWC-1, TPSWC-2, and TPSWC-3) peaked in June 2011, with the highest values at TPSWC-3 (2,600 mg/L). The majority of the time, the sodium values in the L-31E were less than 100 mg/L. The sodium values in the manual station TPSWC-6 also were consistently less than 100 mg/L. However, in June 2011, a value of 12,000 mg/L was measured in the bottom probe at TPSWC-6.

The CCS is characterized as typically having hypersaline water, with values ranging between 70,000 and 90,000 µS/cm for the sampling events from June 2010 to June 2012. Biscayne Bay stations had specific conductance levels that ranged from 30,586 to 66,855 µS/cm. The highest value was recorded in June 2011 and these conditions do naturally occur in the Bay during dry conditions. At Biscayne National Park automated station BISCA6, which is located over 1 mile north of the CCS, a specific conductance value of over 66,000 µS/cm was recorded in June 2011 (Biscayne National Park, 2012). Also, at SFWMD monitoring station BBCW-10, which is several miles north of the site in Biscayne Bay, had specific conductance values over 69,000 µS/cm in the same period (SFWMD 2012c). For comparison, average seawater (salinity at 35 PSS-78 at a temperature of 25°C) has a specific conductance of 54,700 µS/cm. Lee et al. (2006) defined hypersaline conditions as salinity greater than 40 (in PSS-78 scale), which equates to a specific conductance of 61,500 µS/cm at 25°C.

3.2.2.2 Ions and Silica

Ion (calcium, magnesium, potassium, sodium, boron, strontium, bromide, chloride, fluoride, and sulfate) concentrations at the Biscayne Bay surface water sites were similar in range to the values observed in Biscayne Bay by Reich et al. (2006). Ion concentrations in the CCS were significantly higher than those of Biscayne Bay, while the TPSWC and TPSWID ions were generally lower in concentration but varied seasonally with freshwater influence.

The tri-linear diagram for each season starting in September 2010 revealed that there was distinct separation between the freshwater L-31E stations (TPSWC-1, -2, -3) and the marine-influenced (TPBBSW, TPSWCCS, TPSWC-4, and TPSWC-5) stations. These clusters remained consistent for each quarter; the only variability in ionic concentrations was observed at the TPSWID stations where the values along this canal would either be separated along the axis between the freshwater and marine stations (e.g., in September 2010 or December 2011) when conditions were wet, or cluster with the marine-influenced stations during the drier sampling events (e.g., June 2011, September 2011) (Figure 3.2-4).

Similar to the groundwater, surface water barium, iron, fluoride, and sulfide were extremely low and virtually undetectable in most of the samples. Few inferences could be made from those datasets due to the limited detectable values available.

Silica was only measured in the CCS. For three of the four quarters when silica was measured, concentrations ranged from 0.25 to 5.20 mg/L; TPSWCCS-2, TPSWCCS-3, and TPSWCCS-7 were consistently higher than the other sites for June 2010, March 2011, and September 2011. However, in March 2012, due to slightly higher pH within the CCS, silica values were between 8.1 and 8.5 mg/L.

3.2.2.3 Isotopes

Isotopic values (δD and $\delta^{18}O$) were higher during the drier months with greater separation in signatures among the water bodies, compared to the wetter months (FPL 2011b). The seasonal patterns are a consequence of evaporative enrichment and limited rainfall at the end of the dry season. After the rainy season begins, values start to drop and the isotopic signature of the water bodies converge towards values reflecting significant rainfall (Florida: $\delta D \approx 6‰$ and $\delta^{18}O \approx 0‰$) input. Despite this seasonal shift, a consistent pattern was observed; TPSWC, TPSWID, and TPBBSW showed overlap, but TPSWCCS had the highest values among all the water bodies sampled, regardless of season (Figure 3.2-6). The CCS values reflect recirculating, highly enriched water indicative of continued evaporation unlike the Biscayne Bay (TPBBSW), canal (TPSWC), or ID (TPSWID) stations which are more reflective of seasonal rainfall inputs.

The $^{87}Sr/^{86}Sr$ signatures ranged from 0.70907 to 0.70921 from June 2010 to December 2011, with no difference ($P > 0.05$) between the different water bodies among seasons. These surface water values, like the groundwater values (discussed in Section 3.1.2.3) are indicative of shallow, geologically recent water sources, and not from the Floridan Aquifer.

Carbon isotopes ($\delta^{13}C$) can provide insight into the hydrologic influences on the water (see Section 3.1.2.3 for discussion). Values ranged from -16.1‰ to 3.0‰ over the two-year period, with the broadest range observed within the CCS. Both seasonal and spatial differences were observed among the water bodies. September had the lowest $\delta^{13}C$ values for most sites with the lowest values (average less than -7‰) being observed at the TPSWID and TPSWC. The TPSWCCS and TPBBSW locations had higher $\delta^{13}C$ values which averaged around -3.5‰. The negative values indicate a predominantly limestone carbonate-derived source of $\delta^{13}C$ in the waters while the more positive values indicate a greater equilibration to atmospheric carbon, indicating in part, longer mean water residence time.

Tritium values are only available through the December 2011 sampling event, as the USGS had not completed the analyses for the March and June 2012 quarters at the time this report was prepared. Values from all sites ranged from -1.5 to 14,280 picocuries per liter (pCi/L). Average tritium concentrations were lowest in TPBBSW (16.7 pCi/L), followed by TPSWC (L-31E; 50 pCi/L), the TPSWID sites (688 pCi/L), and TPSWCCS (5,336 pCi/L). The tritium concentrations for all water bodies around the CCS appeared to be driven primarily by seasonal precipitation

patterns and atmospheric influences, with lower values observed during the rainy season compared to the dry season. The tritium concentrations in the CCS are controlled by the amount of tritium allowed to be released into the CCS as a result of plant operation. Surface water CCS values were seasonally more variable compared to the groundwater values at TPGW-13. It is important to note that under this monitoring plan, tritium is being measured only as a chemical tracer in order to determine potential movement of CCS water. At the levels being measured, the tritium is not a public health concern.

The Gross Alpha collected in June 2010 and March 2011 from the CCS did not indicate a seasonal difference (paired t-test: $T_{9,10} = 0.09$, $P > 0.5$).

3.2.2.4 Nutrients

Figures 3.2-7 and 3.2-8 show nutrient surface water results for ammonia, nitrate/nitrite, TN, and TP for June 2010 and March 2011 and September 2011 and March 2012 respectively. A brief discussion of these results is provided below.

In Biscayne Bay, the TN values in September 2011 ranged from 0.25 to 0.65 mg/L, with the highest concentrations at the southerly reference station (TPBBSW-5). The highest average concentration (0.42 mg/L, TN) is also at the southerly reference station. In most of the Biscayne Bay stations, more than two-thirds of the TN appears to be organic nitrogen. At TPBBSW-4 in March 2012, however, a larger percentage of the TN was ammonia but this appears to be an outlier. All inorganic nitrogen forms were low in Biscayne Bay, similar to observations by Reich et al. (2006) and the analytical data from the Florida International University Water Quality Monitoring (FIU-WQMN; FIU 2012) Network. Stations in the L-31E Canal (TPSWC-1, TPSWC-2, and TPSWC-3) had higher TN values in comparison to the marine stations with values that ranged from 0.47 to 1.60 mg/L. The majority of the nitrogen (greater than 65%) at the L-31E stations was organic nitrogen. A few L-31E samples had nitrate/nitrite values that were higher (up to 0.55 mg/L) which reduced the percent of organic nitrogen; however, organic nitrogen still made up the majority of the nitrogen. TPSWC-4 tends to have more inorganic nitrogen at times than the other canal station and for two events, the inorganic nitrogen (ammonia) made up the majority of the TN. The background canal station (TPSWC-6) had variable nitrogen levels that ranged from 0.25 to 3.42 mg/L with the upper value being the highest of all concentrations in the freshwater canal and Biscayne Bay stations.

In the CCS, TN values were highest and ranged from 1.7 to 5.3 mg/L. The highest TN concentrations in the CCS were measured at all stations in March 2012, which coincides with higher turbidities and pH in the CCS. Nonetheless, the 10-year (1992-2001) mean nitrate and nitrite discharges reported at the SFWMD canals C-102 (at S21A) and C-103 (at S20F) which were within 5 miles north of Turkey Point, often exceeded values reported in the CCS (Graves et al. 2005).The majority of the nitrogen in the CCS appears to be in organic form (typically over 80% to 90%). In September 2011, one station (TPSWCCS-2) had uncharacteristically high NOx values (1.0 mg/L, which results in only 67% of the nitrogen being in an organic form). The maximum value of NOx in all of the CCS samples collected since the beginning of monitoring is

only 0.13 mg/L, and the average value is less than 0.06 mg/L; therefore, the 1.0 mg/L value may be questionable.

Total phosphorus values in Biscayne Bay ranged from 0.016 to 0.020 mg/L for three of the four nutrient sampling events. In September 2011, the TP values were higher and ranged from 0.022 to 0.052 mg/L, with the highest values at the station just north of the CCS (TPBBSW-1) and the reference station (TPBBSW-5). The average TP value for the Biscayne Bay stations fronting the CCS (TPBBSW-1, TPBBSW-2, TPBBSW-3, TPBBSW-4) over the four sampling periods was 0.024 mg/L, and the average for the reference stations was similar (0.025 mg/L). The TP in all the L-31 Canal stations was typically below 0.010 mg/L. However, in March 2011, the top and bottom samples at TPSWC-1 were higher (0.033 and 0.042 mg/L, respectively). The background canal station (TPSWC-6) had TP concentrations that ranged from 0.001 to 0.014 mg/L and were similar to values typically found in the L-31E Canal stations. The highest TP concentration of all surface water sites was recorded at the bottom sample at the S-20 canal discharge station (TPSWC-4) with a concentration of 0.140 mg/L. This value is an outlier since it is over five times the next highest value at this station and is nearly twice as high as the next highest concentration of any surface water station. The total phosphorus levels in the CCS ranged from 0.004 to 0.073 mg/L, with an overall average concentration of 0.036 mg/L. These values are however similar or less than those reported in the SFWMD C-3 Canal located approximately 15 miles north of the CCS.

As discussed in Section 3.1.2.4, a new method was applied to orthophosphate in March 2011 since the majority of the previous results showed OP being higher than TP which is not possible. OP was typically very low at all sites and comprised only a small percentage of TP, with the most common value being 0.001 mg/L following the application of the new method. At four of the Biscayne Bay stations, OP ranged from 0.001 to 0.006 mg/L. The highest value was recorded at the other Biscayne Bay station, TPBBSW-1 (0.011 mg/L). The CCS orthophosphate values are typically low; however, on occasion, values up to 0.087 mg/L have been reported. Those higher values are often higher than TP values, thus bringing into question the validity of the results. The OP concentration at TPSWC-4 (which had the highest TP value as discussed above) was only 0.002 mg/L.

As a point of comparison, TP concentrations in Biscayne Bay were reported by Reich et al. (2006) in the mid-Bay area to range from 0.005 to 0.045 mg/L, while the FIU-WQMN reported an average value of <0.01 mg/L over a 13-year period (1993 to 2005) at Site 122, offshore and southwest of Turkey Point. Also, the FIU-WQMN data showed a range of 0 to 0.008 mg/L just offshore Turkey Point for OP, while Reich et al. (2006) observed a wider range, from about 0.020 to 0.041 mg/L north of Turkey Point in the middle of the Bay.

3.3 TRACER SUITE ASSESSMENT

No additional assessment of potential tracers was conducted, as FPL previously concluded that stable isotope and ion data were unable to clearly distinguish CCS water from Biscayne Bay and fresh water, especially at lower values and concentrations. FPL previously concluded that

tritium, as it is present in the CCS, may be more useful than other potential tracers in determining the presence of CCS water, even at low values of specific conductance.

The Agencies have selected tritium as a tracer for the CCS water. The Agencies have also established a threshold value of 20 pCi/L for which concentrations below 20 pCi/L are presumed not to be affected by the CCS. Concentrations in excess of 20 pCi/L may or may not reflect CCS influence from a groundwater pathway. FPL does not concur with the selection of 20 pCi/L as a threshold or background for surface water, porewater, or shallow groundwater. FPL has demonstrated that multiple factors can influence tritium levels in the region. When tritium values are above 20pCi/L FPL may, where appropriate, provide reasonable evidence and justification why 20 pCi/L is not a valid threshold and the values do not indicate a CCS groundwater pathway (i.e., atmospheric deposition/vapor exchange, laboratory issue, error band for results). To account for variability in sample results and laboratory precision, an average value for tritium is being used as directed by the Agencies. The application of tritium as a tracer is discussed further in Section 5.

3.4 RAINFALL SAMPLE RESULTS

As part of the monitoring effort, rainfall samples are collected and analyzed for tritium, once per quarter, from each of seven rainfall collectors located throughout the project area (Figure 1.1-3). As discussed in the previous section and identified in the Monitoring Plan, tritium is being used as a tracer to assess the extent of CCS water via a groundwater pathway. However, since tritium is present in rainfall, its concentration contribution via atmospheric deposition needs to be assessed.

3.4.1 Sample Collection and Analysis

The rainfall collectors were one of the last monitoring network components to be installed. These collectors were completely installed in late January 2011. Unfortunately, due to extremely dry conditions in the area, there was not enough water in the rainfall collectors until later in the year. Tritium samples were initially collected in late July/early August 2011, and then again in September 2011, December 2011, March 2012, and June 2012. The collectors at several stations were stolen, resulting in less data for those stations. Table 3.4-1 provides a summary of the samples collected from each rainfall collector and the status of sample receipt. Sample results since March 2012 are still pending from the USGS laboratory at the time of writing this report.

3.4.2 Results and Discussion

The tritium results from July 2011 through December 2011are included in Table 3.4-2 and on Figure 3.4-1. The results show tritium concentrations ranged from 4.4 pCi/L (1 sigma of 4.8 pCi/L) to 42.2 pCi/L (1 sigma of 8.6 pCi/L). While the highest concentration was reported close to the CCS at TPRC-2, the second highest value was reported over 3 miles west of the CCS with a concentration of 37.3 pCi/L. The distribution of tritium in the rainfall does not follow a consistent pattern regarding proximity to the CCS (Figure 3.4-2). It is important to note that under this monitoring plan, tritium is being measured only as a chemical tracer in order to

determine potential movement of CCS water. At the levels being measured, the tritium is not a public health concern. Results from the March 2012 and June 2012 sampling effort will be forwarded to the Agencies once they are received by FPL.

3.5 EVAPORATION PANS

Following development of the Monitoring Plan (SWFMD 2009a), FPL identified that, in addition to rainfall, there is a likely an exchange of tritium between water vapor in the atmosphere and water in its liquid form, in the environment. The rainfall collectors discussed above are designed to capture rain and prevent its evaporation. The layer of mineral oil (approximately 1-inch thick) that floats on top of the rainfall collectors essentially reduces or eliminates vapor exchange. Therefore, it does not monitor the input of vapor-phase tritium. As a result, FPL installed evaporation pans at different distances from the CCS to assess the extent of vapor exchange.

3.5.1 Sample Collection and Analysis

Evaporation pans were installed adjacent to well clusters TPGW-2, TPGW-3, TPGW-5, and TPGW-12 (TPEVP-2, TPEVP-3, TPEVP-5, and TPEVP-12), and water was initially added to them in early February 2011. A fifth evaporation pan was deployed in proximity to TPGW-13 (TPEVP-13 which is also referred to as TPEVP-GC since it is adjacent to the Grand Canal) in May 2011. The first samples were collected in March 2011 and generally have been collected every month since. The methodology used to collect and analyze the samples was included in the August 2011 Annual Report (FPL 2011b, Appendix C). Table 3.5-1 provides a summary of the samples collected from each evaporation pan and the status of sample receipt.

3.5.2 Results and Discussion

Analytical results from March 2011 through June 2012 are included in this report. Table 3.5-2 and Figure 3.5-1 reflect the tritium concentrations in the evaporation pans each month after approximately 30 to 45 days of being exposed to tritium vapor in the atmosphere. The concentrations range from non-detect to 647 pCi/L (1 sigma of 42.0 pCi/L) and are highly dependent upon distance from the CCS and the time of year. Figure 3.5-2 shows the relationship of vapor exchange with distance from the CCS. The highest values are always recorded at the station located on a berm in the CCS (TPEVP-13A). The second highest concentrations are typically found at TPEVP-2 which is less than 1,000 ft away from the CCS. The maximum value at TPEVP-2 is 361 pCi/L (1 sigma of 24.0 pCi/L). At station TPEVP-5, which is located over 3 miles west of the CCS, the tritium values have ranged from 11.0 pCi/L (1 sigma of 7.3 pCi/L) to 49.6 pCi/L (1 sigma of 7.0 pCi/L). The source water used to fill the pans has had tritium concentrations ranging from 0.3 pCi/L (1 sigma of 6.8 pCi/L) to 23.5 pCi/L (1 sigma of 5.5 pCi/L).

Tritium concentration of water vapor in the atmosphere, the amount and timing of rainfall, and the tritium concentration in rain influence the values observed in the evaporation pan. After monthly samples are collected from the evaporation pans, the water level is adjusted to a

prescribed level by adding tap water which has a low tritium concentration (approximately 13 to 23 pCi/L). The results shown in Table 3.5-2 reflect the tritium concentration in the pan before source water is added. The tritium concentration drops immediately once the source water is added since, in most instances, the tritium source water is lower in concentration than that in the evaporation pans. In the days that follow, the tritium concentration in the pan can increase due to exchange with the atmosphere and at the same time the water level declines due to evaporation. In the absence of rain, the tritium concentration in the pan would eventually reach equilibrium with atmospheric water vapor. However, if a rain event occurs during the equilibration period, the tritium concentration in the pan can decline as a result of dilution by low tritium water. After the rain event, the tritium concentration in the pan will once again start moving towards the equilibrium concentration. Thus, the concentration of tritium in the pan is dynamic during the equilibration period and can change dramatically after rain events. This dynamic behavior is likely to be similar to surface water, such as marsh water near the CCS, as tritium vapor exchange and dilution by rainwater continuously affect the tritium concentration. In this regard, the pan tritium measurements represent the dynamic nature of tritium in surface water that is influenced by vapor exchange; however, it does not necessarily reflect the upper bound of tritium concentration that might be measured in the environment. The highest tritium concentrations in the evaporation pans tend to be recorded in the dry season with lower values in the wet season.

In comparison to the rainfall data, the evaporative data indicate that vapor phase exchanges of tritium are more significant than rainfall effects, however, both rainfall and evaporative exchanges can result in tritium concentrations in excess of 20 pCi/L particularly in the surface water, porewater, and shallow groundwater where wells that are screened just below the surface (i.e., L-3 and L-5). Atmospheric influences of tritium could exceed 200 to 300 pCi/L within 1 mile of the CCS and be around 50 pCi/L at distances over 3 miles from the CCS. These influences must be considered when assessing whether the tritium concentrations observed in a particular media are the result of a groundwater pathway or an atmospheric pathway.

It is important to note that under this monitoring plan, tritium is being measured only as a chemical tracer in order to determine potential movement of CCS water. At the levels being measured, the tritium is not a public health concern. Results from the March 2012 and June 2012 sampling efforts will be forwarded to the Agencies once they are received by FPL.

TABLES

Table 3.0-1. Groundwater and Surface Water Sampling Locations and Events

Event	Locations (Refer to Figure 1.1-1)	Analytes[1]
Quarterly	TPGW–1, -2, -3, -4, -5, -6, -7, -8, -9, -10, -11, -12, -13, -14; L-3, -5; G-21, -28, -35	GW
	TPBBSW – 1, 2, 3, 4, 5 TPSWC – 1, 2, 3, 4, 5, 6 TPSWID – 1, 2, 3	SW
	TPSWCCS – 1, 2, 3, 4, 5, 6, 7 and 8 (anomaly)[2]	CCS
Semi-annual	TPGW–3, 4, 5, 6, 7, 8, 9, 11, 13, L-3, L-5, G-21, G-28, G-35	GW
	TPGW – 1, 2, 10, 13, 14	GW - quarterly analytes plus nutrients and trace elements
	TPBBSW – 1, 2, 3, 4, 5 TPSWC – 1, 2, 3, 4, 5, 6 TPSWID – 1, 2, 3	SW - quarterly analytes plus nutrients
	TPSWCCS – 1, 2, 3, 4, 5, 6, 7	CCS - quarterly analytes plus nutrients and gross alpha[3]

Notes:
[1] = Analytes from Table 3.0-2 plus field parameters (temperature, specific conductivity, DO, percent oxygen saturation, pH, ORP, and salinity) at all stations.
[2] = TPSWCCS-8 sampled first event only, as directed by the Agencies.
[3] = Gross Alpha sampling performed for one year (2 semi-annual events).

Key:
CCS – Cooling Canal System.
GW – Groundwater.
ORP = Oxidation reduction potential.
SW – Surface Water.
TPBBSW – Biscayne Bay Surface Water.
TPGW – Turkey Point Groundwater.
TPSWC – Turkey Point Surface Water Canal.
TPSWID – Turkey Point Surface Water Interceptor Ditch.
TPSWCCS – Turkey Point Surface Water Cooling Canal System.

Table 3.0-2. Analytes Measured in Groundwater, Surface Water, and the Cooling Canal System

Analyte	Monitoring Plan (Table 2-1) Label	GW	SW	CCS
Metals, Total Recoverable (Ar, Be, Cd, Cr (VI), Cu, Pb, Hg, Mn, Mb, Ni, Se, Th, Vn, Zn) [1]	Elements	SA	-	-
Iron and Barium [1]	Elements/Tracer	Q / SA	Q / SA	Q / SA
Anions (Cl^-, SO_4^{2-}, F^-, Br^-)	Ions	Q / SA	Q / SA	Q / SA
Cations (Ca^{2+}, Na^+, Mg^{2+}, K^+, Sr^{2+}, B^+)[2]	Ions	Q / SA	Q / SA	Q / SA
Alkalinity	Ions	Q / SA	Q / SA	Q / SA
Ammonia + unionized	Nutrients	SA	SA	SA
Nitrate+Nitrite	Nutrients	SA	SA	SA
Total Kjeldahl Nitrogen	Nutrients	SA	SA	SA
Total Phosphorus	Nutrients	SA	SA	SA
Soluble Reactive Phosphorus	Nutrients	SA	SA	SA
Silica	Nutrients	-	-	SA
Sulfides	Ions	Q / SA	Q / SA	Q / SA
TDS	Other	Q / SA	-	-
Dissolved Inorganic Carbon	Tracer	Q / SA	Q / SA	Q / SA
^3H	Tracer	Q / SA	Q / SA	Q / SA
$^2H/^1H$	Tracer	Q / SA	Q / SA	Q / SA
$^{18}O/^{16}O$	Tracer	Q / SA	Q / SA	Q / SA
$^{87}Sr/^{86}Sr$	Tracer	Q / SA	Q / SA	Q / SA
$^{13}C/^{12}C$	Tracer	Q / SA	Q / SA	Q / SA
Gross Alpha	Other	-	-	SA

Notes:

[1] = Trace elements (arsenic, barium, beryllium, cadmium, hexavalent chromium, copper, iron, lead, mercury, manganese, molybdenum, nickel, selenium, thallium, vanadium, and zinc) are referred to by the lab as “trace metals”. Barium and Iron are also part of tracer suite so broken out separately.

[2] = Cations referred to by the lab as “metals” due to analytical method specified for cations.

Key:

Q = Quarterly event.

SA = Semi-annual event.

Table 3.1-1. Summary of Groundwater Analytical Results from the June/July 2010 Event

Parameter	Units	TPGW-1S 7/12/2010		TPGW-1M 7/12/2010		TPGW-1D 7/12/2010		TPGW-2S 6/18/2010		TPGW-2M 6/18/2010		TPGW-2D 6/21/2010		TPGW-DUP 1 [1] 6/21/2010		TPGW-3S 6/17/2010		TPGW-3M 6/17/2010		TPGW-3D 6/17/2010		TPGW-4S 6/24/2010		TPGW-4M 6/24/2010		TPGW-4D 6/24/2010		TPGW-5S 6/16/2010		TPGW-5M 6/16/2010		TPGW-5D 6/16/2010	
Temperature	°C	26.66		26.59		26.49		26.31		27.33		27.12		N.A.		26.52		27.04		26.96		24.99		25.66		25.29		25.80		24.61		24.69	
pH	SU	7.08		7.04		7.00		7.29		6.94		6.86		N.A.		6.74		6.99		6.92		7.31		6.88		6.92		7.47		6.92		6.85	
Dissolved Oxygen	mg/L	1.6	J	11	J	3.7	J	3.7	J	2.7	J	1.7	J	N.A.		0.9	J	2.7	J	2.4	J	1.4	J	2.3	J	2.4	J	1.2	J	1.1	J	4	J
Specific Conductance	µS/cm	53720	J	61220	J	59870	J	65980	J	61080	J	65230	J	N.A.		51890	J	62250	J	55570	J	1750	J	32010	J	37010	J	958	J	21350	J	29980	J
Turbidity	NTU	1.56		4.65		1.06		0.38		0.13		0.03		N.A.		0.35		0.53		2.30		2.52		2.00		0.02		5.27		0.16		0.46	
Arsenic	mg/L	0.012	U	0.013	I	0.012	U	0.012	UJ-	0.012	UJ-	0.012	U	0.012	U																		
Barium	mg/L	0.15		0.16		0.15		0.16		0.13		0.11	J	0.14	J	0.12		0.11	J	0.092	I	0.024	I	0.15		0.14		0.04		0.26		0.22	
Beryllium	mg/L	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U																		
Cadmium	mg/L	0.0038	U	0.0038	U	0.0038	U	0.0038	U	0.0038	U	0.0038	U	0.0038	U																		
Copper	mg/L	0.0033	U	0.0033	U	0.0033	U	0.0033	U	0.0033	U	0.0033	U	0.0033 U	U																		
Iron	mg/L	0.78		1.2		0.63		3.1		0.32		0.9		0.91		0.32		1.7		0.33	I	0.22	I	4.7		5.9		0.56		5.4		1.6	
Lead	mg/L	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U																		
Manganese	mg/L	0.047		0.12		0.034		0.052	I	0.046	I	0.055	I	0.052	I																		
Molybdenum	mg/L	0.006	I	0.0073	I	0.0049	I	0.03	I	0.015	I	0.0047	U	0.0047	U																		
Nickel	mg/L	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U																		
Selenium	mg/L	0.034	U	0.034	U	0.034	U	0.034	UJ-	0.034	UJ-	0.034	U	0.034	U																		
Thallium	mg/L	0.016	U	0.016	U	0.028	I	0.016	U	0.016	U	0.016	U	0.016	U																		
Vanadium	mg/L	0.0094	I	0.0071	I	0.0075	I	0.021	I	0.016	I	0.014	I	0.016	I																		
Zinc	mg/L	0.047	I	0.051	I	0.054	I	0.018	U	0.018	U	0.017	U	0.017	U																		
Silica	mg/L	5		5.3		5.1		3.9		4.2		3.5		4.2																			
Calcium	mg/L	620		660		650		870		660		680		680		640	J-	640		640		120		620		620		130		570		600	
Magnesium	mg/L	1700		1900		2000		1800		2100		2000		2000		1700	J+	1800		1800		19		900		1100		8.4		540		750	
Potassium	mg/L	490		570		590		730		780		540		550		450	J+	490	J	490	J	9.2		280		420		7.7		120		210	
Sodium	mg/L	13000		15000		16000		17000	J-	18000	J-	16000		16000		13000	J+	15000		14000		250		7200		8600		110		4900	J-	6500	J-
Boron	mg/L	5.2		6.2		6.2		5.8		7.1		6.6		6.6		5	J	5.9		5.8		0.064		1.4		2.2		0.054		0.58		1.1	
Strontium	mg/L	11		12		12		15		14		13		14		11	J+	12		12		1.3		8.3		8.8		1.3		6.8		7.8	
Chromium VI	mg/L	0.002	U	0.002	U	0.006	I	0.002		0.002	U	0.002	UQJ	0.002	U																		
Mercury	mg/L	0.000072	UJ-	0.000072	UJ-	0.000072	UJ-	0.000072	UJ-	0.000072	U	0.000072	U	0.000072	U																		
Bromide	mg/L	69		82		82		98		100		100		100		83		89		87		1.7		47		54		0.74		30		40	
Chloride	mg/L	23000		27000		27000		29000		30000		29000		30000		24000		26000		26000		490		13000		16000		210		8900		12000	
Fluoride	mg/L	0.100	U	0.100	U	0.100	U	0.100	U	0.100	U	0.200	U	0.200	UJ-	0.100	U	0.100	U	0.100	U	0.055		0.010	U	0.100	U	0.051		0.040	U	0.040	U
Sulfate	mg/L	3100		3600		3600		3700		4000		4000		4000		3200		3400		3500		20		1600		1900		19		860		1300	
Total Ammonia	mg/L as N	37	?	15	?	1.9		1.7		1.8		1.8		1.7																			
Ammonium Ion (NH^{4+})	mg/L	47.231	?	19.156	?	2.429		2.161		2.301		2.304																					
Unionized NH_3	mg/L	0.34	?	0.13	?	0.014		0.025		0.013		0.01		--																			
Nitrate/Nitrite as N	mg/L	0.0047	U	0.0047	U	0.0047	U	0.0047	U	0.0047	U	0.014		0.014																			
TKN	mg/L	1.6	?	2.2	?	2.1		1.9		1.9		2		1.8																			
TN	mg/L	1.6	?	2.2	?	2.1		1.9		1.9		2		1.8																			
Orthophosphate	mg/L	0.05	J	0.055	J	0.061	J	0.12	IJ	0.11	IJ	0.1	IJ	0.1	IJ																		
Phosphorus (P)	mg/L	0.021	J	0.023	J	0.023	J	0.036	J	0.082	IJ	0.059	J	0.057	J																		
Alkalinity	mg/L ($CaCO_3$)	200		180		180		120		190		190		180		330		220		220		200		210		200		240		210		220	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	200		180		180		120		190		190		180		330		220		220		200		210		200		240		210		220	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	4.8		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	49000		61000		59000		62000		64000		62000		63000		44000		48000		47000		1100		28000		33000		690		17000		21000	
Dissolved Inorganic Carbon	mg/L	45		39		38		32		49		46		46		83		55		87		54		48		45		62		54		55	
$\delta^{18}O$	‰	3.8		4.4		4.4		4.6		4.7		4.9		5.0		3.5		4.1		2.1		-0.9		1.8		2.5		-1.2		0.2		0.8	
$\delta^{2}H$	‰	23.0		26.0		26.0		25.9		28.5		30.0		32.5		20.3		32.8		14.2		-3.2		10.0		14.8		-4.9		1.7		8.5	
$\delta^{13}C$	‰	-6.51		-6.38		-6.29		-7.69		-6.85		-6.63		-6.44		-8.59		-7.98		-8.07		-11.10		-7.34		-7.00		-10.43		-8.18		-7.52	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		35.4	J	41.8	J	40.1	J	44.7	J	41.0	J	44.1	J			34.1	J	41.9	J	36.8	J	0.88	J	19.9	J	23.4	J	0.47	J	12.8	J	18.6	J
$^{87}Sr/^{86}Sr$	µg/L*	0.70916		0.70914				0.70918		0.70913		0.70917		0.70917		0.70917				0.70914		0.70917		0.70914		0.70908		0.70918		0.70916		0.70915	
Tritium	pCi/L (1σ)	1580.8 (57.6)		2816.0 (96.0)		2579.2 (83.2)		3168.0 (96.0)		3328.0 (96.0)		3232.0 (96.0)		3732.3 (127.6)		854.4 (32.0)		1990.4 (73.6)		1990.4 (64.0)		8.64 (3.5)		325.38 (12.8)		505.6 (16.0)		10.208 (4.1)		293.48 (9.6)		187.572 (8.0)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (6/21/2010) is a duplicate of TPGW-2D.

[2] Sample TPGW-Dup1 (6/18/2010) is a duplicate of TPGW-12D.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

MCL = Maximum Contaminant Levels.

N.A. = Not applicable.

Q = Holding time exceeded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-1. Summary of Groundwater Analytical Results from the June/July 2010 Event

Parameter	Units	TPGW-6S		TPGW-6M		TPGW-6D		TPGW-7S		TPGW-7M		TPGW-7D		TPGW-8S		TPGW-8M		TPGW-8D		TPGW-9S		TPGW-9M		TPGW-9D		TPGW-12S		TPGW-12M		TPGW-12D		TPGW-DUP 1 [2]	
		6/21/2010		6/21/2010		6/21/2010		6/24/2010		6/24/2010		6/24/2010		7/6/2010		6/25/2010		6/25/2010		6/25/2010		6/25/2010		6/25/2010		6/17/2010		6/17/2010		6/18/2010		6/18/2010	
Temperature	°C	24.75		24.92		24.83		24.80		25.05		25.12		24.99		25.29		25.23		25.82		25.10		25.09		27.16		26.85		27.04		N.A.	
pH	SU	7.03		6.92		6.84		7.22		7.19		7.19		11.67		7.06		7.10		7.13		6.99		6.99		6.65		7.02		7.29		N.A.	
Dissolved Oxygen	mg/L	4.8	J	2.1	J	4.6	J	2	J	1.5	J	2.3	J	5.3	J	10.9	J	1.6	J	2.6	J	1.5	J	2.4	J	5	J	2.6	J	3.1	J	N.A.	
Specific Conductance	µS/cm	1050	J	19640	J	20400	J	483	J	500	J	510	J	1140	J	544	J	599	J	556	J	563	J	564	J	37380	J	52270	J	57910	J	N.A.	
Turbidity	NTU	2.32		0.46		0.29		3.81		2.29		1.34		7.50		1.18		4.04		9.27		8.49		0.83		0.44		0.28		3.02		N.A.	
Arsenic	mg/L																																
Barium	mg/L							0.0081	U	0.011	I	0.0081	U	0.069	I	0.0081	U	0.012	I	0.012	I	0.0081	U	0.023	I	0.028	I	0.13		0.1		0.12	
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L							0.34	I	0.36	I	0.28	I	0.042	IVJ+	0.55		0.31	I	0.19	I	0.6		0.76		0.16	I	1.5		0.5		0.52	
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica	mg/L																																
Calcium	mg/L	120		510		500		91		91		91		130		110		110		120		120		110		450		590		610		580	
Magnesium	mg/L	12		480		450		4.0		4.1		3.7		0.59		3.8		6.2		2.9		3.1		3.6		980		1700		1700		1700	
Potassium	mg/L	4		130		130		9.9		9.4		4.8		13		9.2		8.5		11		6.7		3.3		440	J	470	J	640		600	
Sodium	mg/L	100		4000		3800		20		21		26		21		20		31		14		15		22		7700		13000		15000	J	14000	J-
Boron	mg/L	0.061	I	0.86		0.82		0.053		0.053		0.051		0.06		0.063		0.069		0.047	I	0.048	I	0.048	I	3.2		5.3		5.6		5.4	
Strontium	mg/L	1.2		8.6		8.3		0.91		0.92		0.88		1		1.1		1.1		0.99		0.99		1.1		7.2		11		11		11	
Chromium VI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	0.56		29		27		0.18		0.17		0.21		0.22		0.18		0.26		0.3		0.29		0.41		50		81		87		89	
Chloride	mg/L	210		8000		7600		36		35		41		34		33		47		23		25		30		14000		24000		24000		25000	
Fluoride	mg/L	0.087		0.100	U	0.100	U	0.170		0.230		0.140		0.180		0.068		0.047 I		0.020	U	0.038	I	0.062		0.170	I	0.100	U	0.100	U	0.100	U
Sulfate	mg/L	14		880		800		27		25		29		36		43		49		18		24		33		1900		3100		3400		3500	
Total Ammonia	mg/L as N																																
Ammonium Ion (NH^{4+})	mg/L																																
Unionized NH_3	mg/L																																
Nitrate/Nitrite as N	mg/L																																
TKN	mg/L																																
TN	mg/L																																
Orthophosphate	mg/L																																
Phosphorus (P)	mg/L																																
Alkalinity	mg/L ($CaCO_3$)	270		210		200		210		200		200		240		230		220		250		270		250		510		190		180		180	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	270		210		200		210		200		200		1		230		220		250		270		250		510		190		180		180	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.1		1.0	U	1.0	U	22.0		1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	660		18000		17000		300		310		320		320		350		370		330		350		360		26000		44000		53000		53000	
Dissolved Inorganic Carbon	mg/L	69		56		52		44		47		47		3.9		51		49		62		60		58		130		49		46		46	
$\delta^{18}O$	‰	-1.6		-0.4		-0.4		-1.2		-1.2		-1.0		-1.7		-1.7		-1.7		-1.5		-1.4		-1.6		4.1		-3.2		4.2		4.3	
$\delta^{2}H$	‰	-8.9		1.9		-1.2		-8.2		-8.9		-7.0		-7.0		-5.9		-8.5		-5.2		-2.9		-7.1		23.4		-15.8		27.1		22.3	
$\delta^{13}C$	‰	-11.61		-6.60		-7.47		-9.09		-7.59		-8.92		-14.29		-9.25		-9.25		-9.25		-8.53		-9.25		-12.69		-7.20		-7.05		-7.05	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		0.52	J	11.7	J	12.2	J	0.23	J	0.24	J	0.25	J	0.57	J	0.26	J	0.29	J	0.27	J	0.27	J	0.27	J	23.6	J	34.4	J	38.6	J		
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70916		0.70911		0.70923		0.70918		0.70918		0.70912		0.70912		0.70916		0.70914		0.70916		0.70912		0.70917		0.70917		0.70914		0.70916	
Tritium	pCi/L (1σ)	9.57 (4.1)		0.957 (4.8)	UJ	12.76 (4.1)		1.6 (3.5)	UJ	3.2 (3.5)	UJ	4.48 (3.5)		4.48 (6.7)	UJ	4.48 (3.5)		6.72 (3.8)		4.16 (3.2)		16.0 (3.5)		8.0 (3.5)		236.8 (9.6)		1795.2 (67.2)		1561.6 (44.8)		1764.1 (57.4)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (6/21/2010) is a duplicate of TPGW-2D.

[2] Sample TPGW-Dup1 (6/18/2010) is a duplicate of TPGW-12D.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

MCL = Maximum Contaminant Levels.

N.A. = Not applicable.

Q = Holding time exceeded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-1. Summary of Groundwater Analytical Results from the June/July 2010 Event

Parameter	Units	TPGW-13S 6/30/2010		TPGW-13M 6/30/2010		TPGW-13D 6/30/2010		TPGW-EBI 6/18/2010		FB1 6/17/2010	
Temperature	°C	29.82		29.80		30.03					
pH	SU	6.89		7.07		7.02					
Dissolved Oxygen	mg/L	8.3	J	9.7	J	2.79	J				
Specific Conductance	µS/cm	72860	J	70180	J	71970	J				
Turbidity	NTU	0.66		0.39		0.16					
Arsenic	mg/L	0.016	IVJ	0.018	IV	0.012	U	0.0012	U	0.0012	U
Barium	mg/L	0.11		0.13		0.11		0.00081	U	0.00081	U
Beryllium	mg/L	0.0018	U	0.0018	U	0.0018	U	0.0018	U	0.0018	U
Cadmium	mg/L	0.0038	U	0.0038	U	0.0038	U	0.0038	U	0.0038	U
Copper	mg/L	0.0033	U	0.0033	U	0.0033	U	0.0033	U	0.0033	U
Iron	mg/L	0.13	I	8.6		1.3		0.0047	I	0.0027	U
Lead	mg/L	0.024	U	0.024	U	0.036	I	0.024	U	0.024	U
Manganese	mg/L	0.041	I	0.11		0.064	I	0.00046	U	0.00046	U
Molybdenum	mg/L	0.0047	I	0.0047	U	0.0047	U	0.0047	U	0.0047	U
Nickel	mg/L	0.014	U	0.014	U	0.014	U	0.014	U	0.014	U
Selenium	mg/L	0.034	U	0.034	U	0.034	U	0.0034	U	0.0034	U
Thallium	mg/L	0.03	I	0.016	U	0.016	U	0.0016	U	0.0016	U
Vanadium	mg/L	0.01	I	0.0093	I	0.011	I	0.00052	U	0.00052	U
Zinc	mg/L	0.017	U	0.017	U	0.036	I	0.0068	I	0.0026	I
Silica	mg/L	4.6		6		7.1		0.05	U	0.05	U
Calcium	mg/L	790		740		760		0.33		0.1	U
Magnesium	mg/L	2500		2300		2400		0.15		0.02	U
Potassium	mg/L	800		740		750		0.19	U	0.19	U
Sodium	mg/L	19000		19000		19000		1.5		0.31	U
Boron	mg/L	8.7		7.8		8.0		0.001	U	0.01	U
Strontium	mg/L	16		15		15		0.0015	I	0.001	U
Chromium VI	mg/L	0.003	IJ-	0.002	U	0.002	U	0.002	U	0.002	U
Mercury	mg/L	0.000072	UJ-	0.000072	UJ-	0.000072	UJ-	0.000072	U	0.000072	U
Bromide	mg/L	120		110		110		0.027	U	0.027	U
Chloride	mg/L	37000		36000		37000		0.22	I	0.2	U
Fluoride	mg/L	0.100	U	0.100	U	0.100	U	0.02	U	0.02	U
Sulfate	mg/L	5000		4700		4800		0.2	U	0.2	U
Total Ammonia	mg/L as N	2.1		1.3		1.4		0.11		0.048	I
Ammonium Ion (NH^{4+})	mg/L	2.684		1.656		1.786					
Unionized NH_3	mg/L	0.016		0.015		0.014					
Nitrate/Nitrite as N	mg/L	0.014		0.028		0.014		0.023		0.0068	I
TKN	mg/L	2.6		1.5		1.7		0.05	U	0.11	I
TN	mg/L	2.6		1.5		1.7		0.25	U	0.21	U
Orthophosphate	mg/L	0.081	J	0.053		0.072	J	0.005	I	0.053	I
Phosphorus (P)	mg/L	0.049	J	0.046		0.035	J	0.0044	U	0.0044	U
Alkalinity	mg/L ($CaCO_3$)	180		140		150		2.3		2.0	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	180		140		150		2.3		2.0	
Sulfides	mg/L	19.0		1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	75000		70000		74000		5	U	5	U
Dissolved Inorganic Carbon	mg/L	38		30		30		1.5		1	U
$\delta^{18}O$	‰	5.5		5.2		5.3		-3.1			
$\delta^{2}H$	‰	34.0		26.7		32.5		-16.2			
$\delta^{13}C$	‰	-7.86		-6.49		-7.20		-12.58		-12.16	
Gross Alpha	pCi/L										
Salinity (PSS-78)		50.0	J	47.9	J	49.3	J				
$^{87}Sr/^{86}Sr$	µg/L*	0.70913		0.70914		0.70915		0.05000	U	0.05000	U
Tritium	pCi/L (1σ)	4370.3 (127.6)		4178.9 (127.6)		4785.0 (159.5)		3.5 (4.1)	UJ	9.9 (4.1)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (6/21/2010) is a duplicate of TPGW-2D.

[2] Sample TPGW-Dup1 (6/18/2010) is a duplicate of TPGW-12D.

Text in blue are revised values.

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
MCL = Maximum Contaminant Levels.
N.A. = Not applicable.
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-2. Summary of Groundwater Analytical Results from the September 2010 Event

Parameter	Units	TPGW-1S 9/14/2010		TPGW-1M 9/14/2010		TPGW-1D 9/14/2010		TPGW-2S 9/20/2010		TPGW-2M 9/20/2010		TPGW-2D 9/20/2010		TPGW-3S 9/20/2010		TPGW-3M 9/20/2010		TPGW-3D 9/20/2010		TPGW-4S 9/17/2010		TPGW-4M 9/17/2010		TPGW-4D 9/17/2010		TPGW-5S 9/14/2010		TPGW-5M 9/14/2010		TPGW-5D 9/14/2010		TPGW-6S 9/15/2010		TPGW-6M 9/15/2010		TPGW-6D 9/15/2010	
Temperature	°C	26.52		26.79		26.99		27.29		27.74		27.81		26.45		26.84		26.68		25.37		25.5		25.36		24.45		24.6		24.75		24.47		25.25		24.56	
pH	SU	6.79		7.11		6.88		7.04		6.75	J	6.8	J	6.65	J	6.75	J	6.79	J	6.85	J	6.8	J	6.88	J	8.15		6.76	J	6.7	J	6.93	J	6.82	J	6.76	J
Dissolved Oxygen	mg/L	0.11		0.13		0.11		0.18		0.36		0.09		0.13		0.09		0.09		0.52		0.16		0.12		0.09		0.14		0.43		0.66		0.1		0.12	
Specific Conductance	µS/cm	33,001		72,898		71,763		73,570		77,199		78,349		65826		71328		70500		2026		38628		44990		1239		30936		34157		1230		23667		24355	
Turbidity	NTU	0.7		1.53		0.71		2.57		0.7		0.18		1.21		0.84		0.78		1.53		0.47		0.09		2.02		0.32		0.29		0.41		0.54		0.34	
Arsenic	mg/L																																				
Barium	mg/L	0.1	I	0.11	I	0.099	I	0.085	I	0.056	I	0.059	I	0.043	I	0.081	I	0.086	I	0.04	U	0.15	I V	0.2	I V	0.018	I	0.23		0.19	I	0.040	U	0.16	I V	0.2	I V
Beryllium	mg/L																																				
Cadmium	mg/L																																				
Copper	mg/L																																				
Iron	mg/L	1.40		13.0		0.810	I	3.80		1.0		1.50		0.730	I	1.80		1.20		0.14	U	5.80		10.0		0.4	I	2.50		1.50		0.14	U	2.70		1.30	I
Lead	mg/L																																				
Manganese	mg/L																																				
Molybdenum	mg/L																																				
Nickel	mg/L																																				
Selenium	mg/L																																				
Thallium	mg/L																																				
Vanadium	mg/L																																				
Zinc	mg/L																																				
Silica	mg/L																																				
Calcium	mg/L	400		610		650		720		690		690		660		630		640		140		600		590		140		620		610		120		520		520	
Magnesium	mg/L	690		1900		1900		1900		2000		2100		1700		1900		1900		22		860		1000		7.8		650		740		12		480		500	
Potassium	mg/L	340		540		550		470		480		530		380	I	450		420		6.0		290		420		7.2		160		220		4.7		150		150	
Sodium	mg/L	5700		15000		15000		14000		15000		17000		13000		14000		14000		210		7000		8200		100		5200		5800		110		4100		4300	
Boron	mg/L	2.2		6.1		6.0		6.2		6.5		6.8		5.1		6.0		5.9		0.07		1.4		2.0		0.048	I	0.78		1.2		0.06	I	0.87		0.91	
Strontium	mg/L	6.3		11.0		11.0		14.0		14.0		14.0		11.0		12.0		12.0		1.3		7.9		8.2		1.3		7.1		7.5		1.2		8.6		8.7	
Chromium VI	mg/L																																				
Mercury	mg/L																																				
Bromide	mg/L	36		95		92		97	J	100		98		84		84		91		0.027	U	44		52		0.79		36		40		0.79	J-	28		28	
Chloride	mg/L	11000		28000		28000		30000	J	29000		31000		24000		26000		27000		420		12000		15000		230		9500		11000		210		7100		7500	
Fluoride	mg/L	0.020	U	0.020	U	0.020	U	0.10	UJ	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.076		0.020	U	0.020	U	0.11		0.020	U	0.020	U	0.12		0.020	U	0.020	U
Sulfate	mg/L	1400	J-	4400		3800		3400	J	3700		3500		3100		3100		3300		16		1400		1700		17		1000		1200		13	J-	1000		1100	
Total Ammonia	mg/L as N																																				
Ammonium Ion (NH^{4+})	mg/L																																				
Unionized NH_3	mg/L																																				
Nitrate/Nitrite as N	mg/L																																				
TKN	mg/L																																				
TN	mg/L																																				
Orthophosphate	mg/L																																				
Phosphorus (P)	mg/L																																				
Alkalinity	mg/L ($CaCO_3$)	270		120		170		170	J	180		180		320		210		210		290		200		190		230		220		210		250		190		210	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	270		120		170		170	J	180		180		320		210		210		290		200		190		230		220		210		250		190		210	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.6		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	20000		49000		48000		48000		50000		52000		43000		47000		46000		1100		24000		27000		720		19000		21000		680		13000		14000	
Dissolved Inorganic Carbon	mg/L	70		28		42		42		46		46		84		55		54		75		52		49		59		58		55		67		50		54	
$\delta^{18}O$	‰	1.1		4.3		4.4		4.4		4.6		4.6		3.2		3.9		4.1		-0.7		1.5		2.2		-1.4		0.5		0.9		-1.7		-0.5		-0.4	
$\delta^{2}H$	‰	8.0		28.0		28.0		28.0		29.0		24.0		22.0		25.0		24.0		-3.0		12.0		14.0		-8.0		5.0		7.0		-9.0		1.0		3.0	
$\delta^{13}C$	‰	-8.22		-7.27		-6.47		-7.41		-7.23		-6.44		-8.32		-7.45		-7.71		-9.79		-8.41		-7.25		-9.95		-9.67		-8.69		-11.95		-8.07		-7.46	
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		20.6		50.2		49.3		50.7		53.6		54.5		44.6		48.9		48.3		1.0		24.5		29.1		0.6		19.2		21.4		0.6		14.3		14.8	
$^{87}Sr/^{86}Sr$	µg/L*	0.70911		0.70912		0.70914		0.70916		0.70913		0.70913		0.70916		0.70910		0.70916		0.70913		0.70911		0.70912		0.70916		0.70915		0.70913		0.70917		0.70911		0.70911	
Tritium	pCi/L (1σ)	455.7 (18.5)		2653 (92)		2272 (79)		3075 (92)		3460 (102)		3522 (105)		852 (28)		2178 (67)		1041 (60)		18.5 (5.7)		321 (13)		611 (21)		20.4 (5.7)	J	175 (9)		343 (13)		2.6 (7)	UJ	4.7 (6.8)	UJ	17.9 (7)	J

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (9/23/2010) is a duplicate of TPGW-11M.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

MCL = Maximum Contaminant Levels.

N.A. = Not applicable.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-2. Summary of Groundwater Analytical Results from the September 2010 Event

Parameter	Units	TPGW-7S 9/17/2010		TPGW-7M 9/17/2010		TPGW-7D 9/17/2010		TPGW-8S 9/20/2010		TPGW-8M 9/20/2010		TPGW-8D 9/20/2010		TPGW-9S 9/15/2010		TPGW-9M 9/15/2010		TPGW-9D 9/15/2010		TPGW-10S 9/22/2010		TPGW-10M 9/22/2010		TPGW-10D 9/22/2010		TPGW-11S 9/23/2010		TPGW-11M 9/23/2010		TPGW-Dup 1 [1] 9/23/2010		TPGW-11D 9/27/2010		TPGW-12S 9/16/2010		TPGW-12M 9/16/2010		TPGW-12D 9/16/2010	
Temperature	°C	25.13		24.95		26.01		25.03		24.81		25.51		25.84		25.71		25.45		27.08		27.56		27.18		26.46		26.56		26.56		26.66		27.02		27.08		27.47	
pH	SU	7.27		7.33		7.1		12.1	J	7.16		7.01		6.93	J	7.09		6.9	J	7.27		7.25		7.19		8.15		6.83	J	6.83	J	6.67	J	6.45	J	7.05		7.12	
Dissolved Oxygen	mg/L	0.34		0.1		0.26		0.22		0.13		0.2		0.07		0.16		0.12		0.53		0.2		0.07		1.1		0.5		0.5		0.46		0.4		0.05		0.09	
Specific Conductance	µS/cm	554	J	588	J	608	J	2648		654	J	699	J	609	J	679	J	654	J	52243		56762		56950		56504		58174		58174		59347		41222		66088		65920	
Turbidity	NTU	0.39		0.33		0.5		1.85		0.45		1.13		4.92		0.97		0.41		0.12		0.06		0.28		0.03		0.1		0.1		0.97		2.07		0.36		7.4	
Arsenic	mg/L																																						
Barium	mg/L	0.054	I V	0.040	U	0.057	I V	0.12	I	0.016	U	0.016	U	0.04	U	0.079	I V	0.04	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	UJ	0.016	U	0.016	U	0.041	I V	0.13	I V	0.063	I V
Beryllium	mg/L																																						
Cadmium	mg/L																																						
Copper	mg/L																																						
Iron	mg/L	0.34	I	0.22	I	0.25	I	0.11	I	0.46	I	0.20	I	0.14	U	0.37	I	0.20	I	0.71	I	0.74	I	0.85	I	0.71	I	0.82	I J3	0.72	I	1.20	V	0.25	I	0.84	I	0.79	I
Lead	mg/L																																						
Manganese	mg/L																																						
Molybdenum	mg/L																																						
Nickel	mg/L																																						
Selenium	mg/L																																						
Thallium	mg/L																																						
Vanadium	mg/L																																						
Zinc	mg/L																																						
Silica	mg/L																																						
Calcium	mg/L	80		88		90		210		100		100		120		120		120		410		440		460		500		540		530		580		440		580		610	
Magnesium	mg/L	3.4		3.9		3.7		0.18		3.7		5.9		2.6		3.4		3.7		1300		1400		1400		1400		1500		1400		1500		930		1600		1700	
Potassium	mg/L	10		8.6		4.9		11		8.5		7.8		4.3		7.6		3.1		410		440		420		410		500		460		430		450		400		430	
Sodium	mg/L	19		20		26		21		20		30		9.6		13		20		11000		11000		11000		11000		13000		12000		11000		7400		13000		13000	
Boron	mg/L	0.049	I	0.051		0.051		0.032	I	0.062		0.068		0.034	I	0.052	I	0.049	I	4.7		5.1		5.0		5.1		5.2		5.2		5.2		3.1		5.1		5.2	
Strontium	mg/L	0.82		0.86		0.87		1.1		1.1		1.1		0.89		1.0		1.1		7.6		8.7		9.1		8.4		9.0		9.0		9.9		6.8		11.0		11.0	
Chromium VI	mg/L																																						
Mercury	mg/L																																						
Bromide	mg/L	0.18		0.027	U	0.19		0.21		0.20		0.27		0.18		1.4		0.45		66		80		72		62		60		65		73	U	0.14	UJ	81		0.27	U
Chloride	mg/L	35		34		41	J-	33		34		46		20		26		29		19000		21000		20000		21000		22000		22000		22000		16000	J	21000		25000	
Fluoride	mg/L	0.12		0.11		0.12		0.11		0.10		0.075		0.094		0.077		0.086		39		130		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.020	UJ	0.020	U	0.020	U
Sulfate	mg/L	23		22		25	J-	22		41		44		3.3		23		27		2400		2600		2600		2500		2700		2600		2700		1700	J	2900		3000	
Total Ammonia	mg/L as N																																						
Ammonium Ion (NH^{4+})	mg/L																																						
Unionized NH_3	mg/L																																						
Nitrate/Nitrite as N	mg/L																																						
TKN	mg/L																																						
TN	mg/L																																						
Orthophosphate	mg/L																																						
Phosphorus (P)	mg/L																																						
Alkalinity	mg/L ($CaCO_3$)	180		200		190		500		210		210		270		260		250		130		110		110		270		320		310		300		480	J	190		170	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	180		200		190		1.0	U	210		210		270		260		250		130		110		110		270		320		310		300		480	J	190		170	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.3		1.0	U	1.0	U	4.3		1.6		1.4		17		9.9		7.2		4.8		13		1.0	U	1.0	U
Total Dissolved Solids	mg/L	280		310		300		570		350		380		340		360		350		32000		35000		37000		37000		36000				36000		23000		43000		43000	
Dissolved Inorganic Carbon	mg/L	45		51		51		3.5		58		57		70		68		64		33		27		29		74		85		84		94		120		47		44	
$\delta^{18}O$	‰	-1.3		-1.3		-1.2		-1.7		-1.7		-1.8		-1.0		-1.5		-1.8		1.7		1.7		1.9		1.6		1.6		1.5		2.5		1.7		4.0		4.3	
$\delta^{2}H$	‰	-5.0		-6.0		-5.0		-13.0		-11.0		-12.0		2.0		-5.0		-7.0		16.0		23.0		17.0		20.0		17.0		18.0		18.0		11.0		27.0		27.0	
$\delta^{13}C$	‰	-9.77		-9.59		-9.33		-13.48		-9.97		-9.66		-10.6		-10.9		-10.39		-5.1		-4.39		-7.24		-10.19		-10.88		-10.88		-11.45		-12.94		-7.1		-9.33	
Gross Alpha	pCi/L																																						
Salinity (PSS-78)		0.3	J	0.3	J	0.3	J	1.4		0.3	J	0.3	J	0.3	J	0.3	J	0.3	J	34.3		37.7		37.8		37.5		38.8		0.0		39.7		26.3		44.8		44.7	
$^{87}Sr/^{86}Sr$	µg/L*	0.70919		0.70914		0.70915		0.70911		0.70915		0.70914		0.70916		0.70914		0.70913		0.70918		0.70918		0.70916		0.70913		0.70912		0.70919		0.70912		0.70916		0.70916		0.70914	
Tritium	pCi/L (1σ)	3.2 (6.8)	UJ	6.9 (6.8)		4 (6.7)	UJ	12.6 (7)	J	11.6 (6.9)	J	-2.1 (6.6)	UJ	6.9 (6.8)	J	-2.7 (6.8)	UJ	-0.6 (6.8)	UJ	21.5 (6.2)	J	7.8 (6.3)	J	2.4 (6.6)	UJ	14.9 (6.3)		26.6 (6.5)	J	20.1 (8.2)	J	347 (13)		262 (12)		1654 (58)		1830 (65)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (9/23/2010) is a duplicate of TPGW-11M.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

MCL = Maximum Contaminant Levels.

N.A. = Not applicable.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-2. Summary of Groundwater Analytical Results from the September 2010 Event

Parameter	Units	TPGW-13S 9/9/2010		TPGW-13M 9/9/2010		TPGW-13D 9/9/2010		TPGW-14S 9/27/2010		TPGW-14M 9/27/2010		TPGW-14D 9/27/2010		EB1 9/9/2010		FB1 9/14/2010		FB1 9/15/2010		FB1 9/16/2010		FB1 9/17/2010		FB1 9/20/2010		FB1 9/23/2010	
Temperature	°C	30.37		30.47		30.1		27.11	J	27.33	J	27.28	J														
pH	SU	7.11		6.52		6.87		7.01	J	6.76	J	6.76	J														
Dissolved Oxygen	mg/L	1		0.07		1.08		0.2	J	0.45	J	0.65	J														
Specific Conductance	µS/cm	87606		83961		86058		60063	J	63756	J	75330	J														
Turbidity	NTU	0.33		0.71		0.34		0.93	J	2.68	J	0.98	J														
Arsenic	mg/L																										
Barium	mg/L	0.033	I	0.13	I	0.11	IJ	0.016	U	0.016	U	0.016	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.001	I V	0.00081	U	0.0016	U
Beryllium	mg/L																										
Cadmium	mg/L																										
Copper	mg/L																										
Iron	mg/L	0.22	I	7.80		1.70		0.97	I V	0.97	I V	1.10	V	0.011	I	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0054	U
Lead	mg/L																										
Manganese	mg/L																										
Molybdenum	mg/L																										
Nickel	mg/L																										
Selenium	mg/L																										
Thallium	mg/L																										
Vanadium	mg/L																										
Zinc	mg/L																										
Silica	mg/L																										
Calcium	mg/L	750		690		710		530		580		650		0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Magnesium	mg/L	2300		2100		2200		1500		1600		2000		0.020	U	0.020	U	0.020	U	0.024	I	0.020	U	0.020	U	0.020	U
Potassium	mg/L	660		600		610		460		500		620		0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	19000		18000		18000		12000		13000		16000		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	8.3		7.2		7.4		5.2		5.4		6.7		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Strontium	mg/L	14.0		14.0		14.0		9.5		10.0		13.0		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chromium VI	mg/L																										
Mercury	mg/L																										
Bromide	mg/L	110		100		49		73	U	79	U	160	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	33000		31000		26000		23000		25000		29000		0.20	U	0.20	U	0.20	U	0.36	I	0.20	U	0.20	U	0.20	U
Fluoride	mg/L	0.020	U	0.020	U	0.020	U	0.20	U	0.20	U	0.20	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Sulfate	mg/L	3900		3700		3900		2700		2700		3200		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Total Ammonia	mg/L as N																										
Ammonium Ion (NH^{4+})	mg/L																										
Unionized NH_3	mg/L																										
Nitrate/Nitrite as N	mg/L																										
TKN	mg/L																										
TN	mg/L																										
Orthophosphate	mg/L																										
Phosphorus (P)	mg/L																										
Alkalinity	mg/L ($CaCO_3$)	220		150		150		260		260		200		1.0	U	1.0	U	2.4		1.0	U	1.0	U	2.8		2.3	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	220		150		150		260		260		200		1.0	U	1.0	U	2.4		1.0	U	1.0	U	2.8		2.3	
Sulfides	mg/L	19		1.0	U	1.0	U	5.6		4.6		3.2		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	63000		58000		62000		35000		37000		47000						5.0	U	5.0	U	5.0	U	5.0	U		
Dissolved Inorganic Carbon	mg/L	50		38		37		83		86		67		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
$\delta^{18}O$	‰	5.4		5.0		5.3		2.4		3.2		4.3		-1.00		-1.1		-1.1		-1.0		-1.2		-1.2		-1.3	
$\delta^{2}H$	‰	34.0		32.0		35.0		21.0		22.0		26.0		-1.00		-7.0		-2.0		-7.0		-8.0		-5.0		-6.0	
$\delta^{13}C$	‰	-6.4		-6.69		-7.43		-8.54		-10.29		-7.99		-11.67		-12.90		-12.8		-11.87		-24.8		-18.87		-18.84	
Gross Alpha	pCi/L																										
Salinity (PSS-78)		61.9		58.9		60.7		40.2	J	43.0	J	52.1	J														
$^{87}Sr/^{86}Sr$	µg/L*	0.70910		0.70915		0.70914		0.70914		0.70916		0.70914		0.803		0.023		0.021		0.024		0.01	U	0.01	U	0.01	U
Tritium	pCi/L (1σ)	3554 (120)		3986 (137)		4390 (150)		228 (10)		688 (26)		2580 (90)		-		21.3 (8.4)		11.6 (8.2)		16.5 (8.4)		1.3 (7.8)	UJ	19 (7.9)		0.5 (7.6)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (9/23/2010) is a duplicate of TPGW-11M.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

MCL = Maximum Contaminant Levels.

N.A. = Not applicable.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-3. Summary of Groundwater Analytical Results from the December 2010 Sampling Event

Parameter	Units	TPGW-1S 12/11/2010		TPGW-1M 12/11/2010		TPGW-1D 12/11/2010		TPGW-2S 12/10/2010		TPGW-2M 12/10/2010		TPGW-2D 12/10/2010		TPGW-3S 12/10/2010		TPGW-3M 12/10/2010		TPGW-3D 12/10/2010		TPGW-4S 12/7/2010		TPGW-4M 12/7/2010		TPGW-4D 12/7/2010		TPGW-5S 12/11/2010		TPGW-5M 12/11/2010		TPGW-5D 12/11/2010		TPGW-6S 12/8/2010		TPGW-6M 12/8/2010		TPGW-6D 12/8/2010	
Temperature	°C	25.71		26.26		26.26		26.63		26.49		27.06		25.57		25.5		25.38		25.12		24.79		24.57		23.98		24.06		24.34		23.58		23.54		23.68	
pH	SU	7.23		7.20		7.28		7.23		7.21		6.98		6.92		7		7.14		7.02		7.05		7.03		8.73		7.06		6.98		7.05		7.14		6.94	
Dissolved Oxygen	mg/L	0.26		0.2		0.3		0.08		0.46		0.2		0.24		0.39		0.19		0.16		0.07		0.15		0.2		0.25		0.14		0.12		0.18		0.11	
Specific Conductance	µS/cm	48738		70180		71044		71102		76025		74449		64606		68445		69476		2136	J	37881		43547		1224		30840		32674		1207	J	21802		23808	
Turbidity	NTU	0.02		0.24		0		1.56		0.36		0.62		0.42		0.75		0.58		0.27		0.18		0.8		0.26		0		0.02		0.42		0.37		0.73	
Arsenic	mg/L																																				
Barium	mg/L	0.099	I	0.110	I	0.092	I	0.070	I	0.051	I	0.068	I	0.041	I	0.016	U	0.058	I	0.016	U	0.140	I	0.110	I	0.034	I	0.290		0.200		0.016	I V	0.210		0.160	I
Beryllium	mg/L																																				
Cadmium	mg/L																																				
Copper	mg/L																																				
Iron	mg/L	3.5		6.0		0.720	I	2.7		0.650	I	1.2	J	0.420	I	1.1		0.930	I	0.210	I	6.0		5.0		0.510	I	2.4		2.0		0.091	I	1.4		1.4	
Lead	mg/L																																				
Manganese	mg/L																																				
Molybdenum	mg/L																																				
Nickel	mg/L																																				
Selenium	mg/L																																				
Thallium	mg/L																																				
Vanadium	mg/L																																				
Zinc	mg/L																																				
Silica	mg/L																																				
Calcium	mg/L	500		650		630		760		680		670	J	650		620		630		140		570		570		130		580		590		110		450		490	
Magnesium	mg/L	1200		1900		1800		1700		1900		1900	J	1600		1700		1700		24		820		980		7.3		620		710		12		420		470	
Potassium	mg/L	350		580		560		570		600		590	J	480		520		530		5.0		160		220		7.3		110		140		4.5		100		110	
Sodium	mg/L	9800		16000		15000		15000		16000		16000	J	13000		14000		14000		240		7200		9000		110		5600		6400		100		4200		4300	
Boron	mg/L	3.6		5.9		5.6		5.6		6.1		6.1		4.7		5.4		5.4		0.080		1.3		2.0		0.051		0.760		1.1		0.058		0.720		0.820	
Strontium	mg/L	8.7		12.0		12.0		14.0		14.0		14.0		11.0		12.0		12.0		1.4		8.0		8.5		1.3		7.2		7.7		1.2		7.2		8.1	
Chromium VI	mg/L																																				
Mercury	mg/L																																				
Bromide	mg/L	60		99		99		87		91		130	J	73		82		93		1.6		38	J	46		0.61		39		39		0.53		23		30	
Chloride	mg/L	17000		29000		28000		29000		31000		32000	J	25000		27000		28000		470		15000	J	16000		220		11000		12000		190		7500		8300	
Fluoride	mg/L	0.20	U	0.20	U	0.20	U	0.26	I	0.20	U	0.20	UJ	0.20	U	0.20	U	0.20	U	0.076		0.20	UJ	0.20	U	0.20	U	0.20	U	0.20	U	0.19		0.020	U	0.020	U
Sulfate	mg/L	2600		4000		4200		3600		3800		3800	J	3200		3500		3400		18		1500	J	1700		16		1200		1500		110		700		820	
Total Ammonia	mg/L as N	1.0		1.5		1.4																															
Ammonium Ion (NH^{4+})	mg/L																																				
Unionized NH_3	mg/L																																				
Nitrate/Nitrite as N	mg/L																																				
TKN	mg/L																																				
TN	mg/L																																				
Orthophosphate	mg/L																																				
Phosphorus (P)	mg/L																																				
Alkalinity	mg/L ($CaCO_3$)	230		160		170		150		180		170	J	310		210		210		310		190	J	190		240		220		210		260		200		210	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	230		160		170		150		180		170	J	310		210		210		310		190	J	190		240		220		210		260		200		210	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	3.5		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	32000		49000		48000		50000		52000		54000		43000		49000		47000		1100		23000		28000		660		19000		21000		600		12000		13000	
Dissolved Inorganic Carbon	mg/L	62		42		46		42		49		49		84		57		57		82		54		64		56		59		58		68		55		56	
$\delta^{18}O$	‰	2.5		4.5		4.4		4.2		4.4		4.7		3.4		3.9		3.2		-2.5		1.2		2.2		-1.3		0.7		1		-2.5		-0.7		-1.1	
$\delta^{2}H$	‰	21.4		30.7		23.7		21.4		24.2		26.9		15.6		25.5		26.7		-2.0		10.5		15.4		-4.3		1.1		11.4		-4.9		0.3		0.9	
$\delta^{13}C$	‰	-6.66		-6.24		-6.05		-7.15		-6.67		-6.62		-8.47		-7.43		-7.72		-10.71		-7.65		-6.94		-10.43		-8.52		-8.16		-11.18		-7.39		-2.91	
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		31.7		48.0		48.7		48.7		52.7		51.4		43.7		46.7		47.5		1.1	J	24.0		28.1		0.6		19.2		20.4		0.6	J	13.1		14.4	
$^{87}Sr/^{86}Sr$	mg/L*	0.70909		0.70912		0.70913		0.70911		0.70909		0.70909		0.70912		0.70912		0.70912		0.70915		0.70912		0.70908		0.70916		0.70915		0.70911		0.70913		0.70914		0.70909	
Tritium	pCi/L (1σ)	937 (57)		2535 (151)		2658 (161)		2910 (180)		3250 (200)		3420 (200)		823 (57)		2110 (132)		2053 (123)		15.0 (6.9)		277 (19)		581 (40)		-4.5 (7.6)	UJ	218 (18)		295 (22)		3.8 (6.4)	UJ	14.7 (6.8)		23.2 (6.9)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

TPGW-1 cluster sampled for total ammonia per SFWMD (rejected June results); TPGW-10 & 14 clusters were sampled for nutrients and trace metals per SFWMD request to FPL (11/30/10).

[1] Sample TPGW-DUP1 (12/7/2010) is a duplicate of TPGW-7S.

[2] Sample TPGW-DUP1 (12/14/2010) is a duplicate of TPGW-11S.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

MDL = Method detection limits.

PQL = Practical quantitation limits.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-3. Summary of Groundwater Analytical Results from the December 2010 Sampling Event

Parameter	Units	TPGW-7S		TPGW-DUP1 [1]		TPGW-7M		TPGW-7D		TPGW-8S		TPGW-8M		TPGW-8D		TPGW-9S		TPGW-9M		TPGW-9D		TPGW-10S		TPGW-10M		TPGW-10D		TPGW-11S		TPGW-DUP1		TPGW-11M		TPGW-11D		TPGW-12S		TPGW-12M		TPGW-12D	
		12/7/2010		12/7/2010		12/7/2010		12/7/2010		12/8/2010		12/8/2010		12/8/2010		12/8/2010		12/8/2010		12/8/2010		12/14/2010		12/14/2010		12/14/2010		12/14/2010		12/14/2010		12/14/2010		12/14/2010		12/9/2010		12/9/2010		12/9/2010	
Temperature	°C	24.02				23.21		23.37		23.92		23.86		23.73		25.08		24.21		24.66		21.66		19.80		20.92		20.79				20.39		18.32		25.27		25.1		24.83	
pH	SU	8.62				7.35		7.39		12.02		7.33		7.18		7.02		7.32		7.03		7.29		7.64		7.30		6.96				6.79		7.05		6.76		7.09		7.38	
Dissolved Oxygen	mg/L	0.07				0.7		0.14		0.08		0.16		0.07		0.36		0.2		0.08		0.37		0.22		0.44		0.32				0.29		0.29		0.14		0.05		0.14	
Specific Conductance	µS/cm	516	J			632	J	585	J	3014	J	646	J	723	J	611	J	668	J	671	J	50505		55131		55483		54920				56022		58983		40997		66765		64747	
Turbidity	NTU	0.4				0.59		0.67		1.64		0.68		0.47		4.67		1.68		0.27		0.32		0.68		2.04		0.38				0.45		0.28		0.26		0.08		7.13	
Arsenic	mg/L																					0.100	I	0.061	I	0.052	I														
Barium	mg/L	0.023	I	0.016	I V	0.016	U	0.023	I	0.160	I	0.029	I	0.029	I	0.040	I	0.036	I	0.041	I	0.016	U	0.016	U	0.042	I	0.016	U	0.025	I	0.016	U	0.020	IJ	0.050	I	0.084	I	0.019	I
Beryllium	mg/L																					0.0037	U	0.0037	U	0.0043	I														
Cadmium	mg/L																					0.0076	U	0.0077	I	0.0076	U														
Copper	mg/L																					0.017	I	0.0065	U	0.0065	U														
Iron	mg/L	0.160	I	0.170	I	0.320	I	0.470	I	0.054	U	0.690	I	0.440	I	0.089	I	0.360	I	0.680	I	0.380	I	0.390	I	0.500	I	0.390	I	0.330	I	0.420	I	0.540	I	0.260	I	0.540	I	0.540	I
Lead	mg/L																					0.047	U	0.047	U	0.047	U														
Manganese	mg/L																					0.020	I	0.025	I	0.028	I														
Molybdenum	mg/L																					0.0094	U	0.023	I	0.018	I														
Nickel	mg/L																					0.028	U	0.028	U	0.028	U														
Selenium	mg/L																					0.160	I	0.160	I	0.069	I														
Thallium	mg/L																					0.084	I	0.033	U	0.110	I														
Vanadium	mg/L																					0.010	U	0.010	U	0.010	U														
Zinc	mg/L																					0.110	I	0.035	U	0.035	U														
Silica	mg/L																																								
Calcium	mg/L	78		77		85		88		230		99		99		110		120		110		440		490		520		520		530		590		600		450		570		580	
Magnesium	mg/L	3.0		3.0		3.9		3.7		0.024	I	3.7		6.0		2.3		3.4		3.8		1300		1400		1400		1400		1400		1500		1500		990		1700		1700	
Potassium	mg/L	9.7		9.6		7.3		4.4		11		9.2		8.0		3.6		7.9		3.3		380		420		430		420		420		450		440		510		520		550	
Sodium	mg/L	20		20		20		27		21		20		31		8.9		14		20		11000		11000		12000		12000		12000		12000		12000		8500		15000		15000	
Boron	mg/L	0.050		0.049	I	0.051		0.053		0.031	I	0.062		0.068		0.032	I	0.055		0.048	I	4.5		4.9		4.9		5.0		5.2		5.3		4.9		3.3		5.4		5.5	
Strontium	mg/L	0.850		0.850		0.860		0.870		0.960		1.1		1.1		0.820		1.0		1.1		8.2		9.2		9.8		9.2		9.3		10.0		10.0		7.3		11.0		11.0	
Chromium VI	mg/L																																								
Mercury	mg/L																																								
Bromide	mg/L	0.15		0.15		0.15		0.20		0.17		0.15	J	0.23		0.096	J	0.27	J	0.32	J	55		61		63		63		61		64		67		43		77		57	
Chloride	mg/L	37		37		36		43		35		33	J	51		14	J	24	J	28	J	20000		22000		22000		21000		21000		21000		22000		15000		26000		26000	
Fluoride	mg/L	0.12		0.11		0.083		0.095		0.020	U	0.020	UJ	0.020	U	0.095	J	0.020	UJ	0.020	UJ	0.54		0.43	I	0.23	I	0.55		0.62		0.39	I	0.37	I	0.37	I	0.20	U	0.20	U
Sulfate	mg/L	20	J-	21		21		24		110		130	J	45	J-	82	J	110	J	220	J	2400		2700		2800		2800		2700		2800		2800		1800		3100		2400	
Total Ammonia	mg/L as N																					0.41	J	0.31		0.30															
Ammonium Ion (NH^{4+})	mg/L																					0.52		0.39		0.38															
Unionized NH_3	mg/L																					0.0043		0.0063		0.0031															
Nitrate/Nitrite as N	mg/L																					0.10	U	0.10	U	0.10	U														
TKN	mg/L																					0.31	J	0.26		0.44															
TN	mg/L																					0.31		0.26		0.44															
Orthophosphate	mg/L																					0.054	J	0.059	J	0.067	J														
Phosphorus (P)	mg/L																					0.017	J	0.022	J	0.025	J														
Alkalinity	mg/L ($CaCO_3$)	160		160		200		190		570		220	J	210		280	J	270	J	250	J	130		110		110		300		260		320		300		490		190		180	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	160		160		200		190		1.0	U	220	J	210		280	J	270	J	250	J	130		110		110		300		260		320		300		490		190		180	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	4.8		1.8		1.3		14		13		8.3		5.1		18		1.1		1.0	U
Total Dissolved Solids	mg/L	260		260		290		300		600		350		380		330		370		360		32000		35000		34000		32000		35000		34000		37000		25000		43000		46000	
Dissolved Inorganic Carbon	mg/L	37		35		54		53		69		56		57		73		71		66		37		32		33		75		79		89		87		120		49		48	
$\delta^{18}O$	‰	-1.5		-1.6		-1.4		-1.5		-2.3		-2		-1.8		-1		-1.6		-1.7		1.9		1.8		1.9		1.6		1.6		1.5		2.3		0.9		3.6		3.9	
$\delta^{2}H$	‰	-8.9	J	-6.5	J	-4.8		-10.4		-5.2		-3.3		-12.9		-1.7		-5.1		-5.4		13.2		11.3		16.7		12.9		12.6		15.8		16.7		11.8		24.2		28.6	
$\delta^{13}C$	‰	-10.15		-10.04		-9.25		-9.24		-12.69		-9.78		-9.43		-8.13		-10.01		-9.95		-4.20		-4.26		-6.81		-9.63		-9.46		-10.58		-11.2		-12.55		-6.85		-6.58	
Gross Alpha	pCi/L																																								
Salinity (PSS-78)		0.3	J			0.3	J	0.3	J	1.6	J	0.3	J	0.4	J	0.3	J	0.3	J	0.3	J	33.2		36.6		36.9		36.4				37.3		39.5		26.2		45.4		43.8	
$^{87}Sr/^{86}Sr$	mg/L*	0.70914		0.7092		0.70913		0.70913		0.70912		0.7091		0.70913		0.70915		0.70913		0.70909		0.70916		0.70913		0.70912		0.70913		0.70915		0.70914		0.70914		0.70913		0.70912		0.70912	
Tritium	pCi/L (1σ)	1.1 (7.8)	UJ	-4.1 (7.5	UJ	13.5 (7.9)		5.9 (7.6)	UJ	-1.1 (7.7)	UJ	2.8 (6.3)	UJ	3.5 (6.5)	UJ	10.0 (6.5)		7.8 (6.5)		4.8 (6.5)	UJ	11.4 (5.3)		12.4 (5.4)		7.7 (5.2)		16.3 (5.4)		1.4 (5.1)	UJ	28.2 (8.3)		338 (25)		275 (21)		1740 (100)		1570 (90)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

TPGW-1 cluster sampled for total ammonia per SFWMD (rejected June results); TPGW-10 & 14 clusters were sampled for nutrients and trace metals per SFWMD request to FPL (11/30/10).

[1] Sample TPGW-DUP1 (12/7/2010) is a duplicate of TPGW-7S.

[2] Sample TPGW-DUP1 (12/14/2010) is a duplicate of TPGW-11S.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

MDL = Method detection limits.

PQL = Practical quantitation limits.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-3. Summary of Groundwater Analytical Results from the December 2010 Sampling Event

Parameter	Units	TPGW-13S 12/9/2010		TPGW-13M 12/9/2010		TPGW-13D 12/9/2010		TPGW-14S 12/14/2010		TPGW-14M 12/14/2010		TPGW-14D 12/14/2010		FB1 12/7/2010		FB1 12/8/2010		FB1 12/9/2010		FB1 12/10/2010		FB1 12/11/2010		FB1 12/14/2010	
Temperature	°C	29.38		28.83		28.83		22.25		22.28		21.97													
pH	SU	6.91		7.1		7.05		6.84		7.10		6.9													
Dissolved Oxygen	mg/L	0.17		0.2		0.13		0.16		0.4		0.27													
Specific Conductance	µS/cm	90261		83608		86786		58631		64180		73000													
Turbidity	NTU	1.55		1.49		0.43		0.35		1.51		0.1													
Arsenic	mg/L							0.025	U	0.025	U	0.073	I												
Barium	mg/L	0.016	U	0.069	I	0.037	I	0.016	U	0.016	U	0.016	U	0.002	I V	0.00091	I V	0.0013	I V	0.00098	I V	0.00081	U	0.0033	I
Beryllium	mg/L							0.0037	U	0.0037	U	0.0037	U												
Cadmium	mg/L							0.010	I	0.017	I	0.019	I												
Copper	mg/L							0.054	I	0.019	I	0.0065	U												
Iron	mg/L	0.270	I	3.7		1.8		0.500	I	0.460	I	0.500	I	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0033	I	0.0042	I V
Lead	mg/L							0.075	I	0.094	I	0.047	U												
Manganese	mg/L							0.042	I	0.040	I	0.042	I												
Molybdenum	mg/L							0.020	I	0.017	I	0.013	I V												
Nickel	mg/L							0.042	I	0.028	I	0.028	U												
Selenium	mg/L							0.069	U	0.069	U	0.069	U												
Thallium	mg/L							0.033	U	0.033	U	0.033	U												
Vanadium	mg/L							0.010	U	0.010	U	0.010	U												
Zinc	mg/L							0.035	U	0.035	U	0.035	U												
Silica	mg/L																								
Calcium	mg/L	710		720		700		590		630		710		0.10	U	0.10	U	0.10	U	0.17	I	0.23	I	0.32	I
Magnesium	mg/L	2300		2300		2300		1500		1700		2000		0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.026	I
Potassium	mg/L	790		750		780		450		490		590		0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	20000		19000		20000		13000		14000		16000		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	8.7		7.8		7.9		5.1		5.3		6.5		0.010	U	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Strontium	mg/L	15.0		15.0		15.0		10.0		11.0		14.0		0.001	U	0.001	U	0.001	U	0.0017	I	0.0023	I	0.0025	I
Chromium VI	mg/L																								
Mercury	mg/L																								
Bromide	mg/L	110		100		110		68		74		90		0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	36000		33000		35000		23000		25000		30000	J+	0.20	U	0.20	U	0.20	U	0.34	I	0.20	I	0.20	U
Fluoride	mg/L	0.30	I	0.20	U	0.20	U	0.31	I	0.28	I	0.25	I J-	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Sulfate	mg/L	4500		4100		4300		2900		3100		3700		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Total Ammonia	mg/L as N							0.68		1.0		1.7													
Ammonium Ion (NH^{4+})	mg/L							0.87		1.3		2.2													
Unionized NH_3	mg/L							0.0027		0.0071		0.0075													
Nitrate/Nitrite as N	mg/L							0.10	U	0.10	U	0.10	U												
TKN	mg/L							1.0		1.8		2.7													
TN	mg/L							1.0		1.8		2.7													
Orthophosphate	mg/L							0.083	J-	0.096	J	0.10	J												
Phosphorus (P)	mg/L							0.041	J	0.039	J	0.049	J												
Alkalinity	mg/L ($CaCO_3$)	200		170		160		280		260		200		1.0	U	1.3		3.1		1.6		1.9		1.1	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	200		170		160		280		260		200		1.0	U	1.3		3.1		1.6		1.9		1.1	
Sulfides	mg/L	25		1.0	U	1.0	U	8.8		5.9		4.8		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	62000		56000		67000		38000		39000		54000		5.0	U	5.0	U			5.0	U	5.0	U	5.0	U
Dissolved Inorganic Carbon	mg/L	45		43		43		86		70		62		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
$\delta^{18}O$	‰	5.6		4.9		5.1		2.5		3.4		4.6		-2.2		-1.3		-1.3		-1.2		-1.2		-1.1	
$\delta^{2}H$	‰	26.2		30.8		31.3		24.4		19.8		30.1		-6.9		-7.7		-8.9		-7.0		-7.5		-2.8	
$\delta^{13}C$	‰	-8.43		-7.21		-6.93		-8.58		-10		-8.07		-18.46		-17.74		-9.49		-16.01		-10.46		-9.74	
Gross Alpha	pCi/L																								
Salinity (PSS-78)		64.2		58.7		61.3		39.2		43.4		50.3													
$^{87}Sr/^{86}Sr$	mg/L*	0.70911		0.7091		0.70909		0.70912		0.70911		0.7091		0.014		0.019		0.011		0.429		0.557		0.696	
Tritium	pCi/L (1σ)	3460 (210)		3980 (240)		4180 (260)		230 (18)		851 (57)		2640 (161)		2.4 (7.9)	UJ	4.7 (6.4)	UJ	3.0 (7.9)	UJ	-0.8 (7.5)	UJ	7.0 (7.6)	UJ	0 (7.3)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

TPGW-1 cluster sampled for total ammonia per SFWMD (rejected June results); TPGW-10 & 14 clusters were sampled for nutrients and trace metals per SFWMD request to FPL (11/30/10).

[1] Sample TPGW-DUP1 (12/7/2010) is a duplicate of TPGW-7S.

[2] Sample TPGW-DUP1 (12/14/2010) is a duplicate of TPGW-11S.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

MDL = Method detection limits.

PQL = Practical quantitation limits.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-4. Summary of Groundwater Analytical Results from the March 2011 Sampling Event

Parameter	Units	TPGW-1S		PGW-DUP1		TPGW-1M		TPGW-1D		TPGW-2S		TPGW-2M		TPGW-2D		TPGW-3S		TPGW-3M		TPGW-3D		TPGW-4S		TPGW-4M		TPGW-4D		TPGW-5S		TPGW-5M		TPGW-5D		TPGW-6S		TPGW-6M		TPGW-6D	
		3/21/2011		3/21/2011		3/21/2011		3/21/2011		3/18/2011		3/18/2011		3/18/2011		3/18/2011		3/18/2011		3/18/2011		3/4/2011		3/4/2011		3/4/2011		3/2/2011		3/2/2011		3/2/2011		3/16/2011		3/16/2011		3/16/2011	
Temperature	°C	25.49				25.73		25.95		25.88		26.21		26.53		26.02		26.16		25.94		24.99		24.81		24.79		23.91		23.87		23.89		23.7		23.89		23.92	
pH	SU	7.01				7.39		7		7.22		6.99	J	7.12		6.84	J	7		7.06		7.33		7.17		6.89	J	8.06		7.02		6.72	J	7.19	J	6.95	J	7.07	J
Dissolved Oxygen	mg/L	0.12	J			0.26	J	0.12	J	0.09	J	0.13	J	0.36	J	0.14	J	0.22	J	0.1	J	0.17	J	0.15	J	0.09	J	0.12	J	0.27	J	0.21	J	0.2	J	0.07	J	0.19	J
Specific Conductance	µS/cm	43289				70962		70257		75624		73519		77912		65810		68320		71205		2790		37791		43423		1387		30324		32768		1148		21758		24028	
Turbidity	NTU	0.31				0.5		0.31		0.4	J	0.46	J	1.05	J	0.73	J	0.25	J	0.27	J	0.76		1.28		0.41		2.15		0.7		0.85		0.54		0.47		0.96	
Arsenic	mg/L	0.025	U	0.035	I	0.039	I	0.025	U	0.025	U	0.025	U	0.025	U																								
Barium	mg/L	0.09	I	0.054	I	0.07	I	0.13	I	0.04	I	0.021	I	0.032	I	0.023	I	0.024	I	0.016	I	0.018	I	0.11	I	0.069	I	0.031	I	0.37		0.21		0.016	U	0.081	I	0.094	I
Beryllium	mg/L	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U	0.0037	U																								
Cadmium	mg/L	0.0076	U	0.0076	U	0.0076	U	0.0076	U	0.0076	U	0.0076	U	0.0076	U																								
Copper	mg/L	0.095	I	0.098	I	0.3	I	0.052	IVJ	0.058	I	0.069	I	0.059	I																								
Iron	mg/L	1.5		1.7		2.8		0.61	I	1.7		0.49	I	0.84	I	0.32	I	1.5		1		0.12	I	5.9		6.1		0.51	I	3.1		2.5		0.15	I	1.2		1.3	
Lead	mg/L	0.047	U	0.047	U	0.047	U	0.047	U	0.047	U	0.047	U	0.047	U																								
Manganese	mg/L	0.049	I	0.051	I	0.061	I	0.041	I	0.046	I	0.042	I	0.045	I																								
Molybdenum	mg/L	0.014	I	0.0094	U	0.016	I	0.0098	I J	0.02	I	0.0092	U	0.0094	U																								
Nickel	mg/L	0.028	U	0.028	U	0.028	U	0.028	U	0.028	U	0.028	U	0.028	U																								
Selenium	mg/L	0.069	U	0.093	I	0.078	I	0.1	I	0.069	U	0.069	U	0.069	U																								
Thallium	mg/L	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U	0.033	U																								
Vanadium	mg/L	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U																								
Zinc	mg/L	0.035	U	0.035	U	0.035	U	0.035	U	0.072	I	0.087	I	0.084	I																								
Silica	mg/L																																				
Calcium	mg/L	480		490		650		640		740		720	J	700		670		660		660	J	150		570		600		140		610		590		120		470		490	
Magnesium	mg/L	1100		1000		1900		1800		1700		1800	J	1800		1500		1600		1600	J	34		800		1000		8.3		620		670		12		440		480	
Potassium	mg/L	320		310		570		560		610		650	J	630		510		570		570	J	7.8		180		260		7.8		110		140		4.6		92		100	
Sodium	mg/L	8500		8200		15000		14000		15000		16000	J	16000		13000		14000		15000	J	360		6900		8400		140		5400		5800		90		3800		4000	
Boron	mg/L	3		2.9		5.5		5.3		5.7		6.1		6		4.6		5.4		5.4		0.093		1.2		1.9		0.049		0.76		1		0.063		0.77		0.81	
Strontium	mg/L	8		7.9		11		11		14		15		14		12		13		13		1.4		7.4		8.2		1.4		6.7		6.8		1.1		7.3		7.8	
Chromium VI	mg/L	0.005	U	0.005	U	0.005	U	0.0066	I	0.005	U	0.005	U	0.005	UJ-																								
Mercury	mg/L	7.2E-05	U	7.2E-05	U	0.000072	U	0.000072	U	0.000072	U	0.000072	U	7.2E-05	UJ-																								
Bromide	mg/L	53		53		86		97	J	170	J	180	J	180	J	87	J	130	J	96	J	2.3		47		55		1.1		36		39		0.58		28		30	
Chloride	mg/L	17000		16000		29000		29000	J	30000	J	34000	J	32000	J	26000	J	31000	J	29000	J	670		13000		16000		300		10000		11000		190		7900		8400	
Fluoride	mg/L	0.2	U	0.2	U	0.2	U	0.2	U J	0.2	U J	0.2	U J	0.2	U J	0.2	U J	0.2	U J	0.2	U J	0.093		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.1		0.2	U	0.2	U
Sulfate	mg/L	2000		2000		3600		3500	J	3800	J	4200	J	3900	J	3200	J	3800	J	3400	J	40		1500		2000		19	J-	1100		1300		9.2		740		800	
Total Ammonia	mg/L as N	0.87		0.76		1.3		1.3		1.5		1.5		1.7																								
Ammonium Ion (NH^{4+})	mg/L	1.1				1.6		1.7		1.9		1.9		2.2																								
Unionized NH_3	mg/L	0.006				0.023		0.010		0.017		0.011		0.016																								
Nitrate/Nitrite as N	mg/L	0.8		0.068		1.2		8		0.026		0.15		5.3																								
TKN	mg/L	1.1		0.99		1.8		2.2		2.1		2.4		2.1																								
TN	mg/L	1.8		1.1		2.3		9.8		2.1		2.2		7.7																								
Orthophosphate	mg/L	0.019		0.017		0.03		0.039		0.024		0.029		0.043																								
Phosphorus (P)	mg/L	0.034		0.019		0.043		0.054		0.03		0.035		0.053																								
Alkalinity	mg/L ($CaCO_3$)	240		250		160		160	J	180	J	190	J	180	J	330	J	200	J	210	J	280		190		180		220		210		200		270		210		200	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	240		250		160		160	J	180	J	190	J	180	J	330	J	200	J	210	J	280		190		180		220		210		200		270		210		200	
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2.4		1	U	1	U	1.1		1	U	1	U	1	U	1	U	1	U	1.1		1	U	1	U
Total Dissolved Solids	mg/L	27000		28000		49000		50000		50000		52000		52000		43000		48000		47000		1400		22000		26000		850		18000		20000		620		13000		14000	
Dissolved Inorganic Carbon	mg/L	76		79		46		50		46		52		52		87		71		59		89		68		65		61		67		69		80		60		65	
$\delta^{18}O$	‰	1.9		-		4.3		4.5		4.6		4.7		4.8		3.5		4.0		4.2		-0.9		1.6		2.4		-1.3		0.5		0.9		-1.8		-0.7		-0.4	
$\delta^{2}H$	‰	18.0		-		24.0		31.0		25.0		32.0		27.0		22.0		28.0		23.0		-1.0		15.0		22.0		0.0		11.0		7.0		-9.0		2.0		2.0	
$\delta^{13}C$	‰	-7.35		-7.44		-6.43		-6.04		-7.03		-6.77		-6.84		-8.87		-7.41		-7.8		-10.46		-7.71		-7.06		-10.51		-8.89		-8.69		-11.56		-7.28		-6.93	
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		27.8				48.7		48.1		52.4		50.7		54.2		44.6		46.6		48.8		1.4		24.0		28.0		0.7		18.8		20.5		0.6		13.1		14.6	
$^{87}Sr/^{86}Sr$	µg/L*	0.70915		0.70915		0.70913		0.70913		0.70911		0.70906		0.70912		0.70912		0.70912		0.70911		0.70911		0.7091		0.70911		0.70915		0.70912		0.7091		0.70911		0.70912		0.70911	
Tritium	pCi/L (1σ)	810(50)		740(50)		2440(150)		2560(160)		3030(200)		3520(200)		3320(70)		236(14)		1940(130)		1980(120)		19.4(6.7)		246(18)		519(34)		-0.1 (7.1)	UJ	222 (18)		283(21)		5.1(6.4)	UJ	14.1(6.8)		19.4(7.2)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-DUP1 (3/21/2011) is a duplicate of TPGW-1S.

Text in blue are revised values.

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-4. Summary of Groundwater Analytical Results from the March 2011 Sampling Event

Parameter	Units	TPGW-7S		TPGW-7M		TPGW-7D		TPGW-8S		TPGW-8M		TPGW-8D		TPGW-9S		TPGW-9M		TPGW-9D		TPGW-10S		TPGW-10M		TPGW-10D		TPGW-11S		TPGW-11M		TPGW-11D		TPGW-12S		TPGW-12M		TPGW-12D		TPGW-13S		TPGW-13M		TPGW-13D	
		3/4/2011		3/4/2011		3/4/2011		3/3/2011		3/3/2011		3/3/2011		3/3/2011		3/3/2011		3/3/2011		3/7/2011		3/7/2011		3/7/2011		3/7/2011		3/7/2011		3/7/2011		3/23/2011		3/23/2011		3/23/2011		3/9/2011		3/9/2011		3/9/2011	
Temperature	°C	24.14		23.85		24.25		23.98		23.93		23.98		24.5		24.77		24.34		25.28		25.1		24.99		24.49		24.53		24.7		26.23		26.02		26.23		29.55		29.31		29.41	
pH	SU	7.23		7.28		7.51		12.05	J	7.44		7.18		7.28		7.31		7.16		7.35		7.6		7.31		7.01		7.07		6.78	J	6.72	J	7.22		7.19		7.06		7.2		7	
Dissolved Oxygen	mg/L	0.12	J	0.08	J	0.27	J	0.08	J	0.25	J	0.11	J	0.24	J	0.23	J	0.1	J	0.07	J	0.34	J	0.14	J	0.36	J	0.27	J	0.2	J	0.14	J	0.16	J	0.4	J	0.24	J	0.39	J	0.06	J
Specific Conductance	µS/cm	561	J	557	J	600	J	2663		647	J	669	J	621	J	662	J	638	J	51502		55706		56275		55562		56776		58825		40650		64647		64472		87096		83337		84277	
Turbidity	NTU	1.11		0.12		0.17		0.97	J	0.56	J	0.52	J	0.6	J	0.98	J	0.62	J	0.92		0.29		1.11		0.16		0.81		0.71		0.24		0.19		1.98		0.22		0.18		0.13	
Arsenic	mg/L																			0.025	U	0.025	U	0.025	U													0.025	U	0.025	U	0.025	U
Barium	mg/L	0.016	IV	0.022	I	0.016	U	0.094	I	0.016	U	0.016	IV	0.016	U	0.016	U	0.024	I	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.023	I	0.026	I	0.065	I	0.073	I
Beryllium	mg/L																			0.0037	U	0.0037	U	0.0037	U													0.0037	U	0.0037	U	0.0037	U
Cadmium	mg/L																			0.0076	U	0.0076	U	0.0076	U													0.0076	U	0.012	I	0.0076	U
Copper	mg/L																			0.058	I	0.076	I	0.032	I													0.0074	I	0.014	I	0.014	I
Iron	mg/L	0.32	I	0.25	I	0.38	I	0.054	U	0.45	I	0.23	I	0.11	I	0.35	I	0.8	I	0.63	I	0.74	I	0.34	I	0.62	I	0.66	I	0.74	I	0.85	I	0.87	I	1.1		0.78	I	3.5		1.9	
Lead	mg/L																			0.047	U	0.047	U	0.047	U													0.047	U	0.047	U	0.047	U
Manganese	mg/L																			0.012	I	0.019	I	0.014	I													0.03	I	0.067	I	0.062	I
Molybdenum	mg/L																			0.0099	I	0.015	I	0.0097	I													0.014	I	0.0094	U	0.0094	U
Nickel	mg/L																			0.039	I	0.035	I	0.028	U													0.028	U	0.03	I	0.028	U
Selenium	mg/L																			0.069	U	0.069	U	0.069	U													0.069	U	0.069	U	0.069	U
Thallium	mg/L																			0.033	U	0.077	I	0.033	U													0.033	U	0.047	I	0.033	U
Vanadium	mg/L																			0.01	U	0.01	U	0.01	U													0.01	U	0.01	U	0.01	U
Zinc	mg/L																			0.035	U	0.035	U	0.037	I													0.035	U	0.035	U	0.035	U
Silica	mg/L																																					5.4		4.7		5	
Calcium	mg/L	86		87		87		220	J	100		100		110		110		110		430		480		490		510		540		590		460		620		610		770		760		770	
Magnesium	mg/L	3.9		4		3.7		0.02	U J	3.8		6.1		2.5		3.3		3.7		1300		1400		1400		1400		1500		1500		940		1600		1600		2300		2200		2300	
Potassium	mg/L	10		8.6		4.9		12	J	10		8.7		7.4		8		3.6		410		440		450		440		450		470		300		510		500		700		670		700	
Sodium	mg/L	21		21		27		22	J	20		31		12		15		18		9900		11000		11000		11000		11000		11000		7600		13000		12000		18000		17000		17000	
Boron	mg/L	0.062		0.064		0.063		0.038	I	0.063		0.068		0.05		0.056		0.053		4.3		4.6		4.6		4.7		4.8		4.7		2.9		4.8		4.7		7.5		6.7		7.1	
Strontium	mg/L	0.87		0.86		0.85		0.83		1.1		1		0.82		0.99		1.1		7.5		8.7		9.1		8.4		9		9.8		6.9		11		10		14		14		15	
Chromium VI	mg/L																			0.005	U	0.005	U	0.005	U													0.011		0.005	U	0.005	UJ-
Mercury	mg/L																			7.2E-05	U	7.2E-05	U	7.2E-05	U													0.000072	U	0.000072	U	0.000072	UJ-
Bromide	mg/L	0.16		0.15		0.19		0.22	J	0.2		0.27		0.24		0.31		0.39		71	J	76		77		76		73	J	88	J	49		92		100	J	130	J	120	J	120	J
Chloride	mg/L	35		35		42		35	J	33		49		20		25		28		19000	J	22000		22000		22000		23000	J	24000	J	15000		26000		26000	J	38000	J	37000	J	37000	J
Fluoride	mg/L	0.11		0.11		0.1	J+	0.11	J	0.085	J+	0.071		0.085		0.079		0.087		0.2	U J	0.2	U	0.2	U	0.2	U	0.2	U J	0.2	U J	0.4	I	0.2	U	0.2	U J	2.5	I J	2.4	I J	2	U J
Sulfate	mg/L	22		23		24	J-	27	J	45	J-	46		11		22		27	J-	2500	J	2700		2700		2700		2600	J	3100	J	1800		3200		3700	J	4600	J	4300	J	4200	J
Total Ammonia	mg/L as N																			0.32		0.24		0.22														2.8		1.6	Q	1.6	
Ammonium Ion (NH^{4+})	mg/L																			0.41		0.3		0.28														3.6		2		2	
Unionized NH_3	mg/L																			0.004		0.006		0.003														0.026		0.024		0.015	
Nitrate/Nitrite as N	mg/L																			0.014	J	0.016	J	0.013	J													0.34		0.096		0.19	
TKN	mg/L																			0.56	J	0.31	J	0.32	J													3.5		1.9		2.4	
TN	mg/L																			0.57		0.33		0.33														3.8		2		2.6	
Orthophosphate	mg/L																			0.017	J	0.022	J	0.018	J													0.024		0.03		0.031	
Phosphorus (P)	mg/L																			0.026		0.029		0.028														0.044		0.047	J-	0.053	
Alkalinity	mg/L ($CaCO_3$)	200		200		190		490	J	200		200		260		250		230		120	J	110		110		240		290	J	290	J	1.9	J	180		180	J	200	J	160	J	150	J
Bicarbonate Alkalinity as $CaCO_3$	mg/L	200		200		190		1	U J	200		200		260		250		230		120	J	110		110		240		290	J	290	J	1.9	J	180		180	J	200	J	160	J	150	J
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1.1		1	U	1	U	7.5		2.1		2.4		13		7.7		5.9		14		1	U	1	U	22		1	U	1	U
Total Dissolved Solids	mg/L	300		300		310		510	J	340		370		330		350		350		33000		36000		36000		36000		39000		39000		25000		43000		44000		61000		57000		59000	
Dissolved Inorganic Carbon	mg/L	57		56		56		27		66		64		82		79		72		39		34		37		81		95		90		130		52		49		60		47		46	
$\delta^{18}O$	‰	-1.3		-1.3		-1.3		-2.1		-1.9		-1.9		-1.3		-1.5		-1.6		1.7		1.9		1.7		1.6		1.8		2.7		4.2		4.3		4.1		5.6		5.0		5.2	
$\delta^{2}H$	‰	-5.0		-4.0		-2.0		-9.0		-8.0		-6		-2.0		-1.0		-3.0		18.0		19.0		18.0		18.0		15.0		22.0		27.0		21.0		27.0		34.0		34.0		34.0	
$\delta^{13}C$	‰	-9.32		-9.37		-9.21		-12.93		-9.93		-9.48		-9.84		-10.45		-10.13		-4.74		-4.33		-7.41		-9.81		-11.09		-11.74		-13.02		-6.94		-6.65		-8.38		-6.64		-6.95	
Gross Alpha	pCi/L																																										
Salinity (PSS-78)		0.3	J	0.3	J	0.3	J	1.4		0.3	J	0.3	J	0.3	J	0.3	J	0.3	J	33.8		37.0		37.4		36.9		37.8		39.3		26.0		43.7		43.6		61.6		58.5		59.2	
$^{87}Sr/^{86}Sr$	µg/L*	0.70916		0.70918		0.70912		0.70911		0.70915		0.70915		0.70915		0.70912		0.70913		0.70912		0.70913		0.70911		0.70916		0.70915		0.7091		0.70914		0.70912		0.70913		0.7091		0.7091		0.70909	
Tritium	pCi/L (1σ)	13.5(7.5)		12.9(6.5)		2.2(6.1)	UJ	7.3(6.4)		4.4(6.3)	UJ	13(6.6)		10.6(6.1)		8.2(6.6)		1.5(6.3)	UJ	18.4(7.9)	J	2.8(7.2)	UJ	8.2(7.4)	J	2.4(7)	UJ	33.6(8.4)	J	435(31)		238(22)		1680(140)		1640(130)		3800(240)		4030(246)		3830(240)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-DUP1 (3/21/2011) is a duplicate of TPGW-1S.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

Q = Holding time exceeded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-4. Summary of Groundwater Analytical Results from the March 2011 Sampling Event

Parameter	Units	TPGW-14S 3/7/2011		TPGW-14M 3/7/2011		TPGW-14D 3/7/2011		EB1 3/2/2011		FB 3/3/2011		FB1 3/4/2011		FB1 3/7/2011		FB 3/9/2011		EB1 3/16/2011		FB1 3/23/2011	
Temperature	°C	25.15		25.24		25.23															
pH	SU	7.09		7.08		6.93	J														
Dissolved Oxygen	mg/L	0.41	J	0.32	J	0.16	J														
Specific Conductance	µS/cm	59713		64501		74875															
Turbidity	NTU	0.2		0.01		0.4															
Arsenic	mg/L	0.025	U	0.025	U	0.025	U	0.0012	U					0.0012	U	0.0012	U				
Barium	mg/L	0.016	U	0.016	U	0.05	I	0.00084	IV	0.00081	U	0.0008	U	0.00081	U	0.00081	U	0.00081	U	0.0008	U
Beryllium	mg/L	0.0037	U	0.0037	U	0.0037	U	0.00018	U					0.00018	U	0.00018	U				
Cadmium	mg/L	0.0076	U	0.0076	U	0.0076	U	0.00038	U					0.00038	U	0.00038	U				
Copper	mg/L	0.061	I	0.078	I	0.072	I	0.0029	IV					0.0007	IV	0.00034	IV				
Iron	mg/L	0.78	I	0.82	I	0.74	I	0.0033	I	0.0027	U	0.0087	I	0.0027	U	0.0032	IV	0.0059	I	0.032	I
Lead	mg/L	0.047	U	0.047	U	0.047	U	0.0024	U					0.0024	U	0.0024	U				
Manganese	mg/L	0.034	I	0.035	I	0.037	I	0.00046	U					0.00046	U	0.00046	U				
Molybdenum	mg/L	0.0094	U	0.0094	U	0.0094	U	0.00047	U					0.00068	IV	0.00065	I				
Nickel	mg/L	0.033	I	0.028	U	0.028	U	0.0014	U					0.0014	U	0.0014	U				
Selenium	mg/L	0.069	U	0.069	U	0.069	U	0.0034	U					0.0034	U	0.0034	U				
Thallium	mg/L	0.036	I	0.033	U	0.033	U	0.0016	U					0.002	I	0.0016	U				
Vanadium	mg/L	0.01	U	0.01	U	0.01	U	0.00052	U					0.00052	U	0.00052	U				
Zinc	mg/L	0.035	U	0.04	I	0.037	I	0.0022	I					0.0018	U	0.0018	U				
Silica	mg/L																				
Calcium	mg/L	570		600		680		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Magnesium	mg/L	1500		1600		2000		0.02	U	0.02	U	0.02	U	0.02	U	0.032	I	0.02	U	0.02	U
Potassium	mg/L	470		500		600		0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	12000		13000		15000		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.35	I	0.31	U
Boron	mg/L	4.8		5		6.1		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.018	I
Strontium	mg/L	9.6		10		13		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chromium VI	mg/L	0.005	U	0.005	U	0.005	U									0.005	U Q				
Mercury	mg/L	7.2E-05	U	7.2E-05	U	0.000072	U	7.2E-05	U					7.2E-05	U	7.2E-05	U				
Bromide	mg/L	65		76	J	93	J	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	24000		27000	J	32000	J	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Fluoride	mg/L	0.2	U	0.2	U J	0.2	U J	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Sulfate	mg/L	2300		2700	J	3200	J	0.44	I	0.2	U	0.2	U	0.29	I	0.2	U	0.2	U	0.2	U
Total Ammonia	mg/L as N	0.54		0.84		1.6	J-	0.026	U					0.026	U	0.026	U				
Ammonium Ion (NH^{4+})	mg/L	0.69		1.1		2															
Unionized NH_3	mg/L	0.004		0.006		0.009															
Nitrate/Nitrite as N	mg/L	0.022	J	0.02	J	0.016	J+	0.079						0.042		0.088					
TKN	mg/L	0.9	J	1.3	J	2.7		0.05	U					0.16	I	0.12	I				
TN	mg/L	0.92		1.3		2.7		0.25	U					0.25	U	0.25	U				
Orthophosphate	mg/L	0.053	J	0.046	J	0.071	J+	0.0019	I					0.0049	I	0.0017	IJ+				
Phosphorus (P)	mg/L	0.033	J	0.035	J	0.039	J	0.0044	U					0.0044	U	0.0044	U				
Alkalinity	mg/L ($CaCO_3$)	250		240	J	190	J	1	U	2.7		1	U	1	U	1.7		1	U	3.1	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	250		240	J	190	J	1	U	2.7		1	U	1	U	1.7		1	U	3.1	
Sulfides	mg/L	8.2		4.8		5		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	39000		43000		52000		5	U	5	U	5	U	5	U	5	U	5	U	5	U
Dissolved Inorganic Carbon	mg/L	85		83		60		10	U	10	U	10	U	10	U	10	U	10	U	10	U
$\delta^{18}O$	‰	2.5		3.5		4.3		-1.1		-1.1		-1.2		-1.2		-1.3		-1.2		-1.2	
$\delta^{2}H$	‰	23.0		22.0		29.0		-3.0		-4.0		0.0		-2.0		-1.0		-6.0		-2.0	
$\delta^{13}C$	‰	-8.89		-10.29		-8.22		-18.59		-13.31		-15.06		-15.63		-12.22		-12.92		-19.58	
Gross Alpha	pCi/L																				
Salinity (PSS-78)		40.0		43.6		51.8															
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70911		0.7091		0.105		0.05000		0.055		0.01900		0.05	U	0.049		0.05	U
Tritium	pCi/L (1σ)	247(20)		772(51)		2660(170)		0(7.4)	UJ	-4.3(7.2)	UJ	5.7(6.2)	UJ	6.8(6.3)		-2.9(6.5)	UJ	-1.5(6.5)	UJ	-1.2(7)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-DUP1 (3/21/2011) is a duplicate of TPGW-1S.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

Q = Holding time exceeded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-5. Summary of Groundwater Analytical Results from the June 2011 Sampling Event

		TPGW-1S		TPGW-1M		TPGW-1D		TPGW-2S		TPGW-2M		TPGW-2D		TPGW-3S		TPGW-3M		TPGW-3D		TPGW-4S		TPGW-4M		TPGW-4D		TPGW-5S		TPGW-5M		TPGW-5D		TPGW-6S		TPGW-6M		TPGW-6D	
Parameter	**Units**	**6/10/2011**		**6/10/2011**		**6/10/2011**		**6/15/2011**		**6/15/2011**		**6/15/2011**		**6/15/2011**		**6/15/2011**		**6/15/2011**		**6/7/2011**		**6/7/2011**		**6/7/2011**		**6/16/2011**		**6/16/2011**		**6/16/2011**		**6/6/2011**		**6/6/2011**		**6/6/2011**	
Temperature	°C	26.31		26.53		26.89		27.3		27.33		27.23		26.58		27.08		26.97		25.18		25.11		25.26		24.73		24.79		24.48		24.37		24.53		24.43	
pH	SU	7.2		7.19		7.27		7.3		6.86	J	7.22		6.88	J	7.18		6.81		7.05		7.07		7.07		8.49		6.76	J	7.09		7.06		6.96	J	7.18	
Dissolved Oxygen	mg/L	0.18		0.26		0.18		0.17		0.35		0.26		0.25		0.24		0.36		0.11		0.17		0.1		0.9		0.6		0.33		1.29	J	0.29	J	0.15	
Spec Cond	µS/cm	59744		70948		70747		77917		78540		76277		64589		69075		70195		2632		37818		43139		1189		31007		32996		1120		22835		24011	
Turbidity	NTU	1.06		1.29		1.2		0.94		0.93		0.6		1.05		1.02		0.59		0.36		0.62		0.15		3.27		1.31		1.43		0.34		0.65		0.59	
Arsenic	mg/L																																				
Barium	mg/L	0.1	I	0.39	I	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.590		2.4		2.0		0.081	U	0.087	I	0.081	U	0.2		2.6		3.0	
Beryllium	mg/L																																				
Cadmium	mg/L																																				
Copper	mg/L																																				
Iron	mg/L	1.2	I V	1.5	I	0.27	U	0.93	I	0.71	I	1.3	I	0.4	I	1.2	I	0.77	I	2.9		85		97		0.52	I	2.0	I	1.5	I	2.6		21		20	
Lead	mg/L																																				
Manganese	mg/L																																				
Molybdenum	mg/L																																				
Nickel	mg/L																																				
Selenium	mg/L																																				
Thallium	mg/L																																				
Vanadium	mg/L																																				
Zinc	mg/L																																				
Silica, dissolved	mg/L																																				
Calcium	mg/L	580		640		640		740		730		710		690		670		660		160		580		560		130		580		590		110		490		490	
Magnesium	mg/L	1500		1800		1800		2100		2200		2100		1700		1900		1800		31		840		970		7.3		640		720		12		460		490	
Potassium	mg/L	460		590		590		690		700		670		540		600		590		6.4		180		270		8.2		120		150		4.6		110		120	
Sodium	mg/L	12000		14000		14000		16000		17000		16000		13000		15000		15000		310		6800		8000		100		5500		6100		87		3800		4000	
Boron	mg/L	4.4		5.7		5.6		6.7		6.7		6.4		4.9		5.6		5.6		0.088	I J	1.3		1.9		0.048	I J	0.76		1.1		0.058	J	0.78		0.82	
Strontium	mg/L	9.9		11		11		14		14		14		11		12		12		1.5		7.7		7.8		1.3		6.8		7.5		1.2		8.0		8.1	
ChromiumVI	mg/L																																				
Mercury	mg/L																																				
Bromide	mg/L	84		100	J	110	J	100		130		100	J-	85		94		99		2		43		54		0.27	U	41		38		0.74		25		27	
Chloride	mg/L	24000		30000	J	30000	J	31000		31000		32000		25000		28000		26000		610		14000		15000		200		9800		11000		180		7300		7300	
Fluoride	mg/L	2	I	2	UJ	2	UJ	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.62	I	0.095		0.69		0.73		0.2	U	0.47	I	0.32	I J-	0.1		0.61		0.62	
Sulfate	mg/L	2700		3400	J	3400	J	3500		3100		3300		2500		2600		3400		30		1400		1800		14		980		1100	J-	7.2		680		770	
Ammonia	mg/L as N																																				
Ammonium Ion (NH^{4+})	mg/L																																				
Unionized NH_3	mg/L																																				
Nitrate/Nitrite as N	mg/L																																				
TKN	mg/L																																				
TN	mg/L																																				
Orthophosphate	mg/L																																				
Phosphorus (P)	mg/L																																				
Alkalinity	mg/L ($CaCO_3$)	80		160	J	160	J	160		110		140		250		190		170		290		200		190		220		200		190		270		200		210	
Bicarbonate Alkalinity as CaCO3	mg/L	80		160	J	160	J	160		110		140		250		190		170		290		200		190		220		200		190		270		200		210	
Sulfide	mg/L	1	U	1	U	1	U	2.6		2.7		1	U	4.6		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	37000		48000		48000		54000		54000		52000		43000		47000		47000		1400		24000		28000		640		20000		20000		610		14000		14000	
Dissolved Inorganic Carbon	mg/L	55		48		46		51		52		50		94		57		59		76		53		50		54		63		58		67		55		57	
$d^{18}O$	‰	3.9		4.8		4.8		4.5		4.8		4.9		3.2		3.7		3.8		-0.8		1.9		2.7		-1.5		0.4		0.9		-1.5		-0.6		-0.5	
$d^{2}H$	‰	22.0		26.0		26.0		27.7		32.1		31.1		23.4		26.3		28.9		-2.0		10.0		15.0		0.2		9.0		7.8		-3.0		1.0		4.0	
$d^{13}C$	‰	-6.60		-6.41		-6.16		-6.88		-6.97		-6.67		-9.09		-7.57		-7.63		-10.54		-7.84		-7.17		-10.19		-8.51		-8.15		-11.24		-7.14		-7.03	
Gross Alpha	pCi/L																																				
Salinity		40.0		48.6		48.5		54.1		54.6		52.8		43.7		47.1		48.0		1.4		24.0		27.7		0.6		19.3		20.6		0.6		13.8		14.6	
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70913		0.70913		0.7091		0.70911		0.70912		0.70911		0.70907		0.70911		0.70913		0.70912		0.7091		0.70915		0.70912		0.70912		0.70915		0.70911		0.70907	
Tritium	pCi/L (1σ)	1320 (80)		2510 (140)		1980 (110)		3670 (210)		3690 (210)		3270 (190)		620 (40)		1960 (110)		2070 (120)		10.2 (5.6)	J	281 (18)		433 (26)		16 (4.7)		156 (11)		288 (18)		19.7 (5.7)	J	5.7 (5.6)	J	32.7 (6.1)	J

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (6/14/2011) is a duplicate of TPGW-10M.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-5. Summary of Groundwater Analytical Results from the June 2011 Sampling Event

		TPGW-7S		TPGW-7M		TPGW-7D		TPGW-8S		TPGW-8M		TPGW-8D		TPGW-9S		TPGW-9M		TPGW-9D		TPGW-10S		TPGW-10M		TPGW-DUP1 [1]		TPGW-10D		TPGW-11S		TPGW-11M		TPGW-11D	
Parameter	**Units**	**6/16/2011**		**6/16/2011**		**6/16/2011**		**6/6/2011**		**6/6/2011**		**6/6/2011**		**6/6/2011**		**6/6/2011**		**6/6/2011**		**6/14/2011**		**6/14/2011**		**6/14/2011**		**6/14/2011**		**6/13/2011**		**6/13/2011**		**6/13/2011**	
Temperature	°C	24.33		24.47		24.47		24.22		29.18		24.46		25		25.22		24.68		26.71		26.86				27.17		26.69		27.05		26.86	
pH	SU	7.12		7.13		7.44		12.03	J	7.11		7.14		7.08		6.97	J	7.07		7.24		7.44				7.2		6.93		6.7		7.04	J
Dissolved Oxygen	mg/L	0.4		0.35		0.31		0.17		0.31	J	0.23		0.25		0.38	J	0.31		0.32		0.35				0.19		0.33		1.04		0.3	
Spec Cond	µS/cm	572	J	579	J	586	J	2570		645	J	694	J	643	J	651	J	646	J	51442		55203				55931		55906		56720		59546	
Turbidity	NTU	1.19		1.25		1.43		0.8		0.55		0.37		2.41		7		0.57		1.24		1.07				0.85		1.21		1.39		1.41	
Arsenic	mg/L																																
Barium	mg/L	0.081	U	0.081	U	0.081	U	2.2		0.31		0.32		0.39		0.35		0.35		0.081	U	0.081	U	0.15	I	0.081	U	0.081	U	0.081	U	0.081	U
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	0.31	I	0.27	U	0.4	I	0.068	I	8.6		3.8		1.3		5.2		13		0.63	I V	0.66	I V	0.65	I V	0.63	I V	0.54	I V	0.48	I V	0.62	I V
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica, dissolved	mg/L																																
Calcium	mg/L	87		85		86		210		100		97		110		110		110		410		450		470		470		490		520		570	
Magnesium	mg/L	4.1		3.9		3.7		0.022	I	3.7		6		3		3.1		3.7		1300		1400		1400		1400		1400		1400		1500	
Potassium	mg/L	9.5		8.3		4.5		10		8.4		7.7		6.9		6.7		3.2		420		460		470		450		460		450		490	
Sodium	mg/L	20		20		26		20		19		28		13		13		16		10000		11000		11000		11000		12000		12000		12000	
Boron	mg/L	0.051	J	0.05	J	0.05	J	0.03	I J	0.062	J	0.068	J	0.049	I J	0.047	I J	0.049	I J	4.2		4.5		4.6		4.4		4.7		4.7		4.7	
Strontium	mg/L	0.88		0.88		0.85		0.76		1.0		1.0		0.98		0.98		1.1		7.5		8.6		8.8		8.9		8.5		8.7		9.7	
ChromiumVI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	0.18		0.18		0.2		0.19		0.2		0.26		0.29		0.3		0.4	J+	74		79		82		82		70		76		81	
Chloride	mg/L	37		37		42		32		30		43		21		22		27	J-	21000		24000		21000		23000		21000		22000		23000	
Fluoride	mg/L	0.11		0.13		0.1		0.17		0.11		0.11		0.11		0.1		0.13		0.61		0.49	I J-	0.54		20	U	0.52		0.4	I	0.32	I
Sulfate	mg/L	23		23		23		22		39		46		15		15		28	J-	2400		2700		2700		2700		2400		2600		2700	
Ammonia	mg/L as N																																
Ammonium Ion (NH^{4+})	mg/L																																
Unionized NH_3	mg/L																																
Nitrate/Nitrite as N	mg/L																																
TKN	mg/L																																
TN	mg/L																																
Orthophosphate	mg/L																																
Phosphorus (P)	mg/L																																
Alkalinity	mg/L ($CaCO_3$)	200		200		200		490		220		210		270		270		250		100		100		85		110		240		290		270	
Bicarbonate Alkalinity as CaCO3	mg/L	200		200		200		1	U	220		210		270		270		250		100		100		85		110		240		290		270	
Sulfide	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1.1		1	U	1	U	5.6		1.3	J	1.6	J	1	U	12		6.2		6.1	
Total Dissolved Solids	mg/L	310		320		320		550		350		370		350		350		350		34000		37000		36000		37000		35000		37000		40000	
Dissolved Inorganic Carbon	mg/L	56		58		60		51		59		56		69		68		64		26		31		32		34		71		84		78	
$d^{18}O$	‰	-1.5		-1.3		-1.4		-2.6		-1.8		-1.9		-1.5		-1.3		-1.8		1.6		2.1		1.9		2.0		1.8		1.6		2.7	
$d^{2}H$	‰	-4.9		-7.7		-7.0		-8.0		-5.0		-10.0		-4.0		-5.0		-9.0		17.0		16.0	J	20.0	J	18.0		22.0		18.0		23.0	
$d^{13}C$	‰	-9.44		-9.23		-9.15		-11.55		-10.28		-9.84		-10.60		-10.42		-10.01		-4.57		-3.94		-4.16		-6.81		-9.84		-10.54		-11.52	
Gross Alpha	pCi/L																																
Salinity		0.3	J	0.3	J	0.3	J	1.3		0.3	J	0.3	J	0.3	J	0.3	J	0.3	J	33.7		36.5				37.1		37.1		37.7		39.8	
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70912		0.70912		0.70913		0.70912		0.70913		0.70913		0.70915		0.7091		0.70914		0.70915		0.70913		0.70915		0.70913		0.70915		0.70915	
Tritium	pCi/L (1σ)	17.5 (5.7)		-1 (4.3)	UJ	4.9 (4.4)		16.6 (6.4)	J	24.4 (6.6)	J	28.8 (6.8)	J	10.2 (6.2)	J	15.6 (7.1)	J	13.3 (6.4)	J	24.2 (5.2)		14.5 (4.9)		12 (4.9)		16.2 (5.1)		21.6 (5.2)		25.8 (5.1)		429 (27)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (6/14/2011) is a duplicate of TPGW-10M.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-5. Summary of Groundwater Analytical Results from the June 2011 Sampling Event

		TPGW-12S		TPGW-12M		TPGW-12D		TPGW-13S		TPGW-13M		TPGW-13D		TPGW-14S		TPGW-14M		TPGW-14D		TPGW-EB1		TPGW-FB1		TPGW-FB1		TPGW-FB1		TPGW-FB1		TPGW-FB1	
Parameter	**Units**	6/9/2011		6/9/2011		6/9/2011		6/9/2011		6/9/2011		6/9/2011		6/13/2011		6/13/2011		6/13/2011		6/6/2011		6/7/2011		6/9/2011		6/13/2011		6/15/2011		6/16/2011	
Temperature	°C	26.87		26.67		26.91		29.74		29.74		29.88		27.05		26.91		27.3													
pH	SU	6.64	J	7.19		7.24		6.94	J	7.13		7.02		6.86		6.96	J	6.81													
Dissolved Oxygen	mg/L	1.67		0.17	J	0.81		0.39	J	0.15	J	0.07		0.54		0.26		0.22													
Spec Cond	µS/cm	41853		60849		63264		82111		82262		82779		58014		62228		74774													
Turbidity	NTU	0.75		0.99		6.85		0.92		1.05		0.87		0.76		0.85		0.71													
Arsenic	mg/L																														
Barium	mg/L	0.081	U	0.28	I	0.16	U	0.23	I	0.16	U	0.16	U	0.081	U	0.081	U	0.081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U
Beryllium	mg/L																														
Cadmium	mg/L																														
Copper	mg/L																														
Iron	mg/L	0.34	I	0.63	I	0.78	I V	0.72	I V	3.4	I	1.5	I V	0.63	I V	0.65	I V	0.95	I	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U
Lead	mg/L																														
Manganese	mg/L																														
Molybdenum	mg/L																														
Nickel	mg/L																														
Selenium	mg/L																														
Thallium	mg/L																														
Vanadium	mg/L																														
Zinc	mg/L																														
Silica, dissolved	mg/L																														
Calcium	mg/L	450		560		590		720	J	710		720		520		580		670		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Magnesium	mg/L	930		1400		1500		2100	J	2000		2100		1500		1600		2000		0.02	U	0.026	I	0.038	I	0.02	U	0.02	U	0.02	U
Potassium	mg/L	310		460		500		720	J	680		710		470		520		640		0.19	U	0.19	U	0.86	I	0.19	U	0.19	U	0.19	U
Sodium	mg/L	7700		11000		13000		17000	J	16000		16000		12000		13000		17000		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	3.0		4.4		4.7		7.1		6.6		6.9		4.6		4.9		6.1		0.067		0.075		0.075		0.082		0.084		0.083	
Strontium	mg/L	6.9		9.7		10		14		14		14		9.1		10		13		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
ChromiumVI	mg/L																														
Mercury	mg/L																														
Bromide	mg/L	50		77	J	85	J	110	J	110	J	110	J	77		86		110		0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	16000	J+	24000	J	26000	J	36000	J	34000	J	35000	J	24000		24000		32000		0.21	I	0.2	U	0.2	U	0.2	I	0.2	U	0.2	U
Fluoride	mg/L	0.66		1.2	J	1.5	J	0.64	J	2.1	J	3.6	J	0.36	I	0.48	I	0.96		0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Sulfate	mg/L	1800		2700	J	3000	J	3800	J	3700	J	3900	J	2700		3000		3600		0.21	I	0.2	U	0.2	U	0.29	I	0.2	U	0.2	U
Ammonia	mg/L as N																														
Ammonium Ion (NH^{4+})	mg/L																														
Unionized NH_3	mg/L																														
Nitrate/Nitrite as N	mg/L																														
TKN	mg/L																														
TN	mg/L																														
Orthophosphate	mg/L																														
Phosphorus (P)	mg/L																														
Alkalinity	mg/L ($CaCO_3$)	320		48	J	120	J	54	J	150	J	150	J	220		250		160		1	U	1	U	1	U	1	U	1	U	1.8	
Bicarbonate Alkalinity as CaCO3	mg/L	320		48	J	120	J	54	J	150	J	150	J	220		250		160		1	U	1	U	1	U	1	U	1	U	1.8	
Sulfide	mg/L	9.3		3.4		1.1		14		1	U	1	U	3.4		8.8		3.5		1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	26000		39000		43000		58000		56000		56000		38000		41000		50000		5	U	16		5	U	12		5	U	12	
Dissolved Inorganic Carbon	mg/L	130		62		49		54		44		46		67		73		58		10	U	10	U	10	U	10	U	10	U	10	U
$d^{18}O$	‰	1.7		3.6		4.2		5.3		5.2		5.3		2.5		3.3		4.6		-1.4		-1.0		-1.3		-1.2		-1.1		-1.5	
$d^{2}H$	‰	16.2		21.7		18.2		34.0		33.0		36.0		21.0		20.0		24.0		-4.0		-3.0		-4.0		-3.0		-2.3		-5.9	
$d^{13}C$	‰	-12.52		-7.76		-6.63		-8.05		-6.66		-6.95		-7.94		-10.12		-8.17		-18.18		-17.89		-16.70		-20.37		-18.98		-20.34	
Gross Alpha	pCi/L																														
Salinity		26.8		40.8		42.6		57.4		57.6		58.0		38.6		41.8		51.6													
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70911		0.70911		0.70909		0.7091		0.70908		0.70911		0.70914		0.70911		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Tritium	pCi/L (1σ)	72.8 (17)		1260 (80)		1490 (90)		4190 (250)		3800 (230)		3650 (220)		186 (13)		600 (40)		2490 (140)		12.7 (6.3)		8.6 (5.6)		11 (7.8)		1.6 (6.1)	UJ	1.4 (4.6)	UJ	-1.8 (4.2)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (6/14/2011) is a duplicate of TPGW-10M.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-6. Summary of Groundwater Analytical Results from the September 2011 Sampling Event

Parameter	Units	TPGW-1S 9/22/2011		TPGW-1M 9/22/2011		TPGW-1D 9/22/2011		TPGW-2S 9/13/2011		TPGW-2M 9/13/2011		TPGW-2D 9/13/2011		TPGW-3S 9/14/2011		TPGW-3M 9/14/2011		TPGW-3D 9/14/2011		TPGW-4S 9/6/2011		TPGW-DUP1 [1] 9/6/2011		TPGW-4M 9/6/2011		TPGW-4D 9/6/2011		TPGW-5S 9/22/2011		TPGW-5M 9/22/2011		TPGW-5D 9/22/2011	
Temperature	°C	26.17		26.49		26.59		27.26		27.67		28.11		26.85		26.88		26.50		25.37				25.43		25.95		24.23		24.57		24.28	
pH	SU	7.05		7.24		7.13		6.97	J	6.87	J	6.96		6.59	J	6.95	J	6.69	J	6.94	J			6.89	J	6.81	J	8.77		7.02		6.9	
Dissolved Oxygen	mg/L	1.11	J	0.08	J	0.19	J	0.40	J	0.16		0.15	J	0.25	J	0.10	J	0.18	J	0.54				0.24		0.08	J	0.08		0.22		0.11	
Specific Conductance	µS/cm	44022		70784		70471		74150		75599	J	76249		63997		67273		69305		2174				38273		42964		1192		31197		32965	
Turbidity	NTU	1.23		1.46		1.56		0.01		0.01		0.01		0.68		0.13		0.02		0.1				0.18		0.12		2.5		0.26		0.3	
Arsenic	mg/L	0.12	U	0.12	U	0.21	I	0.12	U	0.12	U	0.12	U																				
Barium	mg/L	0.08	U	0.08	U	0.08	U	0.08	U	0.12	I	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.20	I	0.16	I
Beryllium	mg/L	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U																				
Cadmium	mg/L	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U																				
Copper	mg/L	0.03	U	0.03	U	0.07	I	0.23	I V	0.19	I V	0.26	I V																				
Iron	mg/L	1.20	I	2.60	I	1.60	I V	1.10	I V	0.92	I V	1.50	I V	0.73	I V J	0.87	I V J	0.80	I J	0.27	U	0.27	U	6.60		4.80	I V	0.50	I	2.30	I	1.60	I
Lead	mg/L	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U																				
Manganese	mg/L	0.05	U	0.05	U	0.08	I	0.05	I	0.06	I	0.05	I																				
Molybdenum	mg/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U																				
Nickel	mg/L	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U																				
Selenium	mg/L	0.34	U	0.34	U	0.34	U	0.69	I V	0.44	I V	0.38	I V																				
Thallium	mg/L	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U	0.16	U																				
Vanadium	mg/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U																				
Zinc	mg/L	0.18	U	0.18	U	0.19	I	0.18	U	0.18	U	0.18	U																				
Silica	mg/L																																
Calcium	mg/L	510		660		660		710		690		710		740		710		700		160		150		600		610		130		600		590	
Magnesium	mg/L	1000		1800		1800		1900		2000		2100		1800		1900		1900		26		26		1000		910		7.20		630		690	
Potassium	mg/L	300		560		560		580		610		620		520		570		570		5.20		5.20		250.00		180.00		7.50		120		140	
Sodium	mg/L	8100		14000		15000		15000		16000		16000		14000		15000		14000		240		240		8400		7400		110		5400		5700	
Boron	mg/L	3.00		5.70		5.70		6.10		6.30		6.40		5.30		6.00		5.90		0.08		0.08		2.10		1.40		0.06		0.81		1.10	
Strontium	mg/L	7.70		11.00		11.00		13.00		14.00		14.00		12.00		13.00		12.00		1.50		1.50		8.50		8.10		1.30		6.90		7.10	
Chromium VI	mg/L	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U																				
Mercury	mg/L	0.00007	U	0.00007	U	0.00007	U	0.00007	U	0.00007	U	0.00007	U																				
Bromide	mg/L	49		92		88		98		110		110		100		120		180		1.80		2.30		53		47		1.20		33		36	
Chloride	mg/L	15000		27000		27000		30000		32000		32000		25000		26000		27000		480		470		15000		13000		210		10000		10000	
Fluoride	mg/L	0.40	U	0.40	U	0.40	U	2.00	U	2.00	U	2.00	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.45	I	0.40	U
Sulfate	mg/L	1900		3400		3100		3600		3700		3700		740		4200		540		24		23		1800		1500		17		1000		1100	
Total Ammonia	mg/L as N	0.38		1.10		1.50		1.80		2.00		1.80																					
Ammonium Ion (NH^{4+})	mg/L	0.48		1.40		1.90		2.30		2.60		2.30																					
Unionized NH_3	mg/L	0.004		0.013		0.014		0.014		0.013		0.015																					
Nitrate/Nitrite as N	mg/L	0.038		0.014		0.025		0.007	I	0.034		0.005	U																				
TKN	mg/L	1.40		1.70		1.90		1.80		2.00		2.20	J-																				
TN	mg/L	1.40		1.70		1.90		1.80		2.00		2.20																					
Orthophosphate	mg/L	0.038	J	0.019		0.020		0.029		0.035		0.039																					
Phosphorus (P)	mg/L	0.015	J-	0.027		0.023		0.030		0.037		0.042																					
Alkalinity	mg/L ($CaCO_3$)	220		160		160		170		180		160		330		180		180		290		300		180		190		250		200		170	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	220		160		160		170		180		160		330		180		180		290		300		180		190		250		200		170	
Sulfides	mg/L	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	8.80		1.00	U	1.00	U	1.30		1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U
Total Dissolved Solids	mg/L	27000	J	47000		47000		52000		54000		54000		42000		48000		48000		960		1000		27000		24000		650		19000		20000	
Dissolved Inorganic Carbon	mg/L	10	U	10	U	10	U	62		65		62		10	U	10	U	10	U	94		94		65		67		10	U	10	U	10	U
$\delta^{18}O$	‰	2.0		4.5		4.3		4.5		4.7		4.8		3.2		3.9		4.1		-1.1		-1.0		2.3		-1.1		-1.4		0.5		0.9	
$\delta^{2}H$	‰	10.0		19.0		26.0		27.0		25.0		32.0		21.0		24.0		19.0		-7.0		-7.0		14.0		-1.0		-5.0		6.0		6.0	
$\delta^{13}C$	‰	-6.1		-6.27		-6.94		-7.22		-7.14		-6.66		-9.85		-8.09		-8.30		-7.52		-		-7.19		-8.19		-10.07		-8.55		-7.87	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		28.4		48.5		49.3		51.1		52.3	J	52.8		43.2		43.5		47.3		1.1				24.3		27.6		0.6		19.4		20.6	
$^{87}Sr/^{86}Sr$	µg/L*	0.70911		0.70915		0.70915		0.70911		0.70911		0.70911		0.70913		0.7091		0.70912		0.70914		0.70914		0.70912		0.70912		0.70914		0.70911		0.7091	
Tritium	pCi/L (1σ)	830 (50)		2740 (170)		2560 (160)		3310 (200)		3720 (220)		3100 (180)		770 (50)		2130 (146)		2270 (140)		23.9 (6.4)	J	31.4 (7.3)	J	340 (22)		520 (30)		31.6 (8.3)		224 (18)		319 (24)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (9/6/2011) is a duplicate of TPGW-4S.

[2] Sample TPGW-Dup1 (9/9/2011) is a duplicate of TPGW-14D.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-6. Summary of Groundwater Analytical Results from the September 2011 Sampling Event

		TPGW-6S		TPGW-6M		TPGW-6D		TPGW-7S		TPGW-7M		TPGW-7D		TPGW-8S		TPGW-8M		TPGW-8D		TPGW-9S		TPGW-9M		TPGW-9D		TPGW-10S		TPGW-10M		TPGW-10D		TPGW-11S		TPGW-11M		TPGW-11D	
Parameter	**Units**	**9/2/2011**		**9/2/2011**		**9/2/2011**		**9/6/2011**		**9/6/2011**		**9/6/2011**		**9/2/2011**		**9/2/2011**		**9/2/2011**		**9/2/2011**		**9/2/2011**		**9/2/2011**		**9/8/2011**		**9/8/2011**		**9/8/2011**		**9/9/2011**		**9/9/2011**		**9/9/2011**	
Temperature	°C	24.38		24.86		25.07		25.87		25.56		25.7		25.17		24.69		25.02		25.37		25.31		25.13		28.20		28.14		27.71		27.63		27.70		27.66	
pH	SU	7.29		7.33		6.76	J	7.09		7.13		7.06		11.72	J	7.10		6.99	J	7.03		6.87	J	6.96	J	7.54		7.57		7.33		7.50		6.79	J	7.09	
Dissolved Oxygen	mg/L	0.59		0.17		0.23		0.21		0.21		0.11	J	0.15		0.17		0.27		0.20		0.24		0.27		0.09		0.12		0.17		0.22		0.14		0.28	
Specific Conductance	µS/cm	1163		23018		24033		580	J	578	J	590	J	2051		651	J	702	J	582	J	657	J	651	J	52279		54719		54911		54734		56277		58768	
Turbidity	NTU	0.39		0.22		0.29		0.02		0.01		0.56		1.07		0.07		0.21		0.28		1.25		0.00		0.00		0.00		0.00		0.10		0.00		2.00	
Arsenic	mg/L																									0.12	U	0.12	U	0.12	U						
Barium	mg/L	0.08	U	0.08	I	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U
Beryllium	mg/L																									0.02	U	0.02	U	0.02	U						
Cadmium	mg/L																									0.04	U	0.04	U	0.04	U						
Copper	mg/L																									0.03	U	0.03	U	0.03	U						
Iron	mg/L	0.27	U	1.20	I V J	1.20	I V J	0.31	I V	0.38	I V	0.28	I V	0.27	U	0.42	I V J	5.30	V J	0.27	U	0.27	U	0.72	I V J	0.27	U	0.31	I V	0.43	I V	1.20	I V J	1.10	I V J	1.20	I V J
Lead	mg/L																									0.24	U	0.24	U	0.26	I						
Manganese	mg/L																									0.05	U	0.05	U	0.05	U						
Molybdenum	mg/L																									0.05	U	0.05	U	0.05	U						
Nickel	mg/L																									0.14	U	0.14	U	0.14	U						
Selenium	mg/L																									0.34	U	0.34	U	0.34	U						
Thallium	mg/L																									0.16	U	0.16	U	0.16	U						
Vanadium	mg/L																									0.05	U	0.05	U	0.05	U						
Zinc	mg/L																									0.18	U	0.18	U	0.18	U						
Silica	mg/L																																				
Calcium	mg/L	120		470		510		91		90		90		180	J	100		100		120		120		110		450	J	470		500		500		550		590	
Magnesium	mg/L	12		420		450		4.10		4.00		3.80		0.08	I J	3.80		6.00		2.20		3.10		3.70		1400	J	1400		1400		1400		1400		1500	
Potassium	mg/L	4.30		95		100		9.90		8.50		4.80		10	J	8.70		7.90		3.60		7.80		3.20		420	J	440		440		420		430		460	
Sodium	mg/L	100		4100		4300		20		21		25		21	J	21		31		8.00		14		17		11000	J	11000		11000		11000		11000		12000	
Boron	mg/L	0.06		0.76		0.82		0.05		0.05		0.05		0.04	I	0.07		0.07		0.03	I	0.05		0.05		4.60		4.80		4.80		4.80		5.00		4.90	
Strontium	mg/L	1.20		7.60		8.10		0.92		0.88		0.88		0.71		1.00		1.00		0.87		0.99		1.20		7.90		8.60		9.10		8.10		8.70		9.70	
Chromium VI	mg/L																									0.005	U	0.005	U	0.005	U						
Mercury	mg/L																									0.00007	U	0.00007	U	0.00007	U						
Bromide	mg/L	0.72		37	I	40	I	0.17		0.16		0.19		0.23	J	0.20		0.27		0.17		0.30		0.03	U	78		72	J	73	J	75		76		80	
Chloride	mg/L	200		7600		8600		34		34		39	J-	36	J	35		51		15		23		28		19000		21000	J	21000	J	20000		21000		20000	
Fluoride	mg/L	0.09		0.20	U	0.20	U	0.09		0.09		0.12	J-	0.09	J	0.08		0.07		0.07		0.07	J-	0.08		0.48	I	0.40	U J	0.40	U J	0.67	I	0.40	U	0.40	U
Sulfate	mg/L	8.30		690		800		23		22		24	J-	29	J	43		47		10		20	J-	28		2400		2600	J	2600	J	2600		2600		2700	
Total Ammonia	mg/L as N																									0.46		0.32		0.32							
Ammonium Ion (NH^{4+})	mg/L																									0.58		0.40		0.41							
Unionized NH_3	mg/L																									0.012		0.011		0.005							
Nitrate/Nitrite as N	mg/L																									0.005	U	0.005	U	0.020	J+						
TKN	mg/L																									0.41		0.29		0.38							
TN	mg/L																									0.38		0.29		0.40							
Orthophosphate	mg/L																									0.014		0.015		0.016							
Phosphorus (P)	mg/L																									0.020		0.022		0.022	?						
Alkalinity	mg/L ($CaCO_3$)	290		190		200		190		200		190		380		210		210		260		270		250		120		100		110		240		290		270	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	290		190		200		190		200		190		1.00	U	210		210		260		270		250		120		100		110		240		290		270	
Sulfides	mg/L	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	2.70		1.00	U	1.00	U	14.00		1.60		1.10		18.00		12.00		9.10	
Total Dissolved Solids	mg/L	560		13000		14000		280		250		300		320		320		350		280		330		330		32000		35000		36000		35000		37000		38000	
Dissolved Inorganic Carbon	mg/L	79		10	U	63		59		61		58		73		63		64		85		82		74		32		33		36		75		89		88	
$\delta^{18}O$	‰	-1.7		-0.8		-0.6		-1.3		-1.4		1.7		-2.2		-1.8		-1.9		-2.3		-1.7		-1.7		1.8		1.6		2.0		1.5		1.6		2.7	
$\delta^{2}H$	‰	-6.0		3.0		3.0		-9.0		-6.0		15.0		-7.0		-8.0		-5.0		-14.0		-8.0		-1.0		8.0		17.0		19.0		8.0		15.0		14.0	
$\delta^{13}C$	‰	-11.79		-7.38		-6.32		-9.34		-9.90		-9.36		-15.32		-10.49		-8.66		-9.84		-9.64		-10.62		-9.56		-4.34		-6.82		-9.31		-10.53		-10.94	
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		0.6		13.9		14.6		0.3	J	0.3	J	0.3	J	1.0		0.3	J	0.3	J	0.3	J	0.3	J	0.3	J	34.3		36.1		36.3		36.2		37.3		39.2	
$^{87}Sr/^{86}Sr$	µg/L*	0.70917		0.70914		0.70913		0.70915		0.70919		0.70918		0.70914		0.70914		0.70916		0.70915		0.70915		0.70913		0.70914		0.70915		0.70913		0.70917		0.70919		0.70916	
Tritium	pCi/L (1σ)	21.7 (6.9)	J	14.3 (6.6)	J	32.3 (5.5)	J	12 (9)	J	13.5 (6.5)	J	25.3 (7.7)	J	24.1 (5.3)	J	16.3 (5.1)	J	12.1 (5.1)	J	23.8 (5.8)	J	18.5 (5.3)	J	16.8 (5.1)	J	18.6 (7.1)		7 (6.3)		3.2 (6.5)	UJ	25.5 (6.8)		42.8 (7.5)		467 (30)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (9/6/2011) is a duplicate of TPGW-4S.

[2] Sample TPGW-Dup1 (9/9/2011) is a duplicate of TPGW-14D.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-6. Summary of Groundwater Analytical Results from the September 2011 Sampling Event

		TPGW-12S		TPGW-12M		TPGW-12D		TPGW-13S		TPGW-13M		TPGW-13D		TPGW-14S		TPGW-14M		TPGW-14D		TPGW-DUP1 [2]		TPGW-FB-1		TPGW-FB1		TPGW-FB1		TPGW-EB1		TPGW-FB1	
Parameter	**Units**	**9/7/2011**		**9/7/2011**		**9/7/2011**		**9/7/2011**		**9/7/2011**		**9/7/2011**		**9/9/2011**		**9/9/2011**		**9/9/2011**		**9/9/2011**		**9/2/2011**		**9/6/2011**		**9/7/2011**		**9/9/2011**		**9/14/2011**	
Temperature	°C	27.72		26.97		27.70		30.37		29.90		30.08		28.45		28.32		28.10													
pH	SU	6.72	J	7.18		7.13		7.25		7.18		6.96	J	7.24		6.86	J	7.14													
Dissolved Oxygen	mg/L	0.19		0.23		0.10		0.11		0.18		0.06		0.21		0.40		0.28													
Specific Conductance	µS/cm	40848		63017		64298		82473		80616		82287		57317		62560		72650													
Turbidity	NTU	0.16		0.09		0.77		0.00		0.23		0.01		0.60		0.09		0.13													
Arsenic	mg/L							0.12	U	0.12	U	0.12	U	-		-		-								0.0012	U			0.0012	U
Barium	mg/L	0.20	I	0.16	I	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.00081	U	0.00081	U	0.0008	U	0.081	U	0.0008	U
Beryllium	mg/L							0.02	U	0.02	U	0.02	U	-		-		-								0.0002	U			0.0002	U
Cadmium	mg/L							0.04	U	0.04	U	0.04	U	-		-		-								0.0004	U			0.0004	U
Copper	mg/L							0.03	U	0.03	U	0.03	U	-		-		-								0.0003	U			0.0003	U
Iron	mg/L	0.29	I V	0.50	I V	0.47	I V	0.71	I V	2.80	I V	1.40	I V	5.20	J	5.60	J	5.10	J	6.00	J	0.01	I V	0.00	U	0.0027	U	5.00		0.0190	I
Lead	mg/L							0.24	U	0.24	U	0.24	U	-		-		-								0.0024	U			0.0024	U
Manganese	mg/L							0.05	U	0.05	U	0.05	U	-		-		-								0.0005	U			0.0005	U
Molybdenum	mg/L							0.05	U	0.05	U	0.05	U	-		-		-								0.0005	U			0.0005	U
Nickel	mg/L							0.14	U	0.14	U	0.14	U	-		-		-								0.0014	U			0.0014	U
Selenium	mg/L							0.42	I	0.34	U	0.34	U	-		-		-								0.0034	U			0.0034	U
Thallium	mg/L							0.16	U	0.18	I V	0.16	U	-		-		-								0.0016	U			0.0036	I V
Vanadium	mg/L							0.05	U	0.05	U	0.05	U	-		-		-								0.0005	U			0.0005	U
Zinc	mg/L							0.18	U	0.18	U	0.24	I	-		-		-								0.0018	U			0.0018	U
Silica	mg/L																														
Calcium	mg/L	470		630		650		790		770		770		530		590		670		670		0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Magnesium	mg/L	980		1600		1700		2300		2200		2200		1500		1600		1900		1900		0.02	U	0.02	U	0.02	U	0.02	U	0.03	I
Potassium	mg/L	310	J	490	J	510	J	710	J	670	J	680	J	450		480		580		570		0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	8100	J	13000	J	13000	J	18000	J	17000	J	17000	J	12000		13000		15000		15000		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	3.30	J	5.10	J	5.30	J	7.90	J	7.10	J	7.40	J	4.80		5.00		6.20		6.20		0.087		0.089		0.092		0.065		0.067	
Strontium	mg/L	6.90	J	11.00	J	11.00	J	15.00	J	14.00	J	14.00	J	9.00		9.90		12		12		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chromium VI	mg/L							0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U	0.005	U					0.005	UQ	0.005	UQ	0.005	UQ
Mercury	mg/L							0.00007	U	0.00007	U	0.00007	U	0.00007	U	0.00007	U	0.00007	U	0.00007	U					0.00007	U	0.00007	U	0.00007	U
Bromide	mg/L	50		84		85		110		110		81		67		86		99		100		0.03	U	0.03	U	0.03	U	0.03	U	0.03	U
Chloride	mg/L	14000		24000		24000		33000		32000		32000		21000		23000		29000		27000		0.30	I	0.20	U	0.28	I	0.20	U	0.29	I
Fluoride	mg/L	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Sulfate	mg/L	1700		2900		3000		4200		3900		4000		2700		2900		3500		3500		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Total Ammonia	mg/L as N							2.30		1.60		1.90		0.58		1.10		1.80		2.00						0.08		0.05		0.07	
Ammonium Ion (NH^{4+})	mg/L							2.90		2.00		2.40		0.74		1.40		2.30													
Unionized NH_3	mg/L							0.035		0.019		0.184		0.008		0.008		0.019													
Nitrate/Nitrite as N	mg/L							0.012	J+	0.080	J	0.160	J	0.025	J	0.037	J	0.031		0.025						0.020		0.500		0.005	U
TKN	mg/L							2.80		2.20		2.40		0.68		1.20		2.30		2.30						0.05	U	0.05	U	0.14	I
TN	mg/L							2.80		2.30		2.60		0.71		1.20		2.30		2.30						0.25	U	0.55		0.25	U
Orthophosphate	mg/L							0.033		0.035		0.038		0.032		0.037		0.036		0.034						0.002	I	0.001	U	0.001	U
Phosphorus (P)	mg/L							0.049	I	0.057		0.066		0.035		0.050		0.042		0.036						0.004	U	0.004	U	0.004	U
Alkalinity	mg/L ($CaCO_3$)	330		180		170		170		150		150		220		240		190		190		1.10		1.20		1.00	U	1.30		1.30	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	330		180		170		170		150		150		220		240		190		190		1.10		1.20		1.00	U	1.30		1.30	
Sulfides	mg/L	12.00		2.10		1.40		16.00		1.00	U	1.00	U	5.60		5.00		5.80		5.40		1.00	U	1.00	U	1.00	U	1.00	U	1.00	U
Total Dissolved Solids	mg/L	25000		42000		44000		58000		57000		57000		36000		41000		50000		49000		5.00	U	5.00	U	5.00	U	5.00	U	5.00	U
Dissolved Inorganic Carbon	mg/L	110		66		61		53		50		59		70		79		66		66		10.00	U	10.00	U	10.00	U	10.00	U	10.00	U
$\delta^{18}O$	‰	1.5		4.1		4.2		5.4		5.1		5.1		2.3		3.6		4.4		4.5		-		-1.1		-1.3		-1.3		-	
$\delta^{2}H$	‰	4.0		24.0		21.0		30.0		29.0		33.0		15.0		26.0		22.0		31.0		-		-8.0		2.0		-7.0		-	
$\delta^{13}C$	‰	-12.82		-7.74		-7.16		-8.89		-7.17		-7.72		-8.20		-9.98		-8.25		-8.22		-11.65		-		-11.13		-11.31		-10.59	
Gross Alpha	pCi/L																														
Salinity (PSS-78)		26.1		42.4		43.4		57.7		56.2		57.6		38.1		42.1		49.9													
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70913		0.70914		0.70911		0.70912		0.70912		0.70917		0.70915		0.70914		0.70914		0.1		0.1		0.1		0.05	U	0.1	
Tritium	pCi/L (1σ)	208 (15)	J	100 (10)	J	1706 (106)		6390 (390)		3910 (220)		3850 (220)		175 (14)		790 (50)		2620 (160)		2600 (160)		11.1 (4.8)		25.4 (6.9)		29.8 (8.8)		3.8 (6.3)	UJ	-1.2 (6.8)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (9/6/2011) is a duplicate of TPGW-4S.

[2] Sample TPGW-Dup1 (9/9/2011) is a duplicate of TPGW-14D.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-7. Summary of Groundwater Analytical Results from the December 2011 Sampling Event

Parameter	Units	TPGW-1S 12/8/2011		TPGW-1M 12/8/2011		TPGW-1D 12/8/2011		TPGW-2S 12/13/2011		TPGW-2M 12/13/2011		TPGW-2D 12/13/2011		TPGW-3S 12/8/2011		TPGW-3M 12/8/2011		TPGW-3D 12/8/2011		TPGW-4S 12/7/2011		TPGW-4M 12/7/2011		TPGW-4D 12/7/2011		TPGW-5S 12/16/2011		TPGW-5M 12/16/2011		TPGW-5D 12/16/2011		TPGW-6S 12/1/2011		TPGW-6M 12/1/2011		TPGW-6D 12/1/2011	
Temperature	°C	25.8		26.03		26.22		26.36		26.63		26.71		25.56		25.27		25.3		25.3		24.89		24.96		24.09		24.01		23.94		23.88		23.79		23.84	
pH	SU	7.02		7.16		7.07		7.08		6.96	J	6.95	J	6.75	J	6.9	J	6.95	J	7.03		6.95		6.97		8.48		6.86	J	6.93	J	7.02		6.94	J	6.8	J
Dissolved Oxygen	mg/L	0.31		0.23		0.11		0.17		0.17		0.08		0.19		0.17		0.07		0.24		0.29		0.3		0.18		0.17		0.23		0.94		0.35		0.16	
Specific Conductance	µS/cm	45929		71993		70715		74782		76658		77583		65411		70052		69551		2044	J	37832		43264		1100		31941		33540		1088	J	22283		23397	
Turbidity	NTU	0.32		0.37		0.38		0.48		0.83		0.61		0.44		0.67		0.42		1.52		0.71		0.82		6.31		1.59		1.47		0.73		0.93		1.57	
Arsenic	mg/L																																				
Barium	mg/L	0.081	U	0.081	U	0.16	I V	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.18	I	0.12	I	0.081	U	0.15	I	0.14	I
Beryllium	mg/L																																				
Cadmium	mg/L																																				
Copper	mg/L																																				
Iron	mg/L	1.2	I	2.4	I	0.93	I	1.3	I V	0.98	I V	1.3	I V	0.79	I	0.97	I	0.89	I	0.27	U	5		5.8		1.3	I	2	I	1.5	I	0.27	U	1.4	I	1.1	I
Lead	mg/L																																				
Manganese	mg/L																																				
Molybdenum	mg/L																																				
Nickel	mg/L																																				
Selenium	mg/L																																				
Thallium	mg/L																																				
Vanadium	mg/L																																				
Zinc	mg/L																																				
Silica	mg/L																																				
Calcium	mg/L	550		680		660		760		740		750	J	720		650		640		140		600		600		120		600		600		110		500		530	
Magnesium	mg/L	1100		1900		1800		1900		2100		2100	J	1700		1700		1600		22		830		810		6.8	V	660		710		11		440		480	
Potassium	mg/L	340		620		590		620		660		660	J	550		550		530		5.3		200		170		6.5	J	130		150		4.5		110		110	
Sodium	mg/L	9300		16000		15000		15000		16000		16000	J	14000		13000		13000		220		6900		6600		87	J	5700		6000		88		3900		4200	
Boron	mg/L	3.3		6		5.7		6		6.4		6.5		5.1		5.4		5.3		0.076		1.5		1.3		0.051	J	0.89		1.1		0.058	J	0.77		0.8	
Strontium	mg/L	8.5		12		12		14		15		14		12		12		12		1.3		7.5		7.6		1.2		7.1		7.2		1.1		7.9		8.1	
Chromium VI	mg/L																																				
Mercury	mg/L																																				
Bromide	mg/L	58		99		100		110	J	110		110	J	90		97	J	98	J	0.58		48	J	56	J	0.46		41		44		0.17		28		37	
Chloride	mg/L	17000		30000		27000		32000	J	32000		33000	J	26000		28000	J	30000	J	490		15000	J	17000	J	190	J	12000		12000		190		7200		8000	
Fluoride	mg/L	0.4	U	1.4		1.4		2.7	J	1.8		0.94	I J	0.4	U	0.96	I J	1.4	J	0.098		0.4	UJ	0.4	UJ	0.2	U	0.4	U J-	0.4	U	0.12		0.4	U	0.4	U
Sulfate	mg/L	2400		3900		4000		4200	J	4300		4400	J	3500		3800	J	3900	J	20		1800	J	2100	J	21		1200		1400		10		750		840	
Total Ammonia	mg/L as N																																				
Ammonium Ion (NH^{4+})	mg/L																																				
Unionized NH_3	mg/L																																				
Nitrate/Nitrite as N	mg/L																																				
TKN	mg/L																																				
TN	mg/L																																				
Orthophosphate	mg/L																																				
Phosphorus (P)	mg/L																																				
Alkalinity	mg/L ($CaCO_3$)	300		190		200		190	J	210	J	210	J	390		250	J	240	J	360		240	J	230	J	240	J	260	J	250	J	310		230		240	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	300		190		200		190	J	210	J	210	J	390		250	J	240	J	360		240	J	230	J	240	J	260	J	250	J	310		230		240	
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	7.2		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	29000		47000		47000		49000		52000		54000		42000		47000		47000		300	J	21000		26000		530		19000		20000		360	J	12000		13000	
Dissolved Inorganic Carbon	mg/L	65		46		47		52	J	56	J	54	J	87		54		56		83		55		55		54	J	58	J	55	J	69		52		55	
$\delta^{18}O$	‰	-1.8		-2.0		-1.9		4.5		4.6		4.8		-1.5		-0.5		-0.9		-1.6		-2.2		-1.8		-1.5		0.6		0.9		-1.5		-1.7		-1.6	
$\delta^{2}H$	‰	17.0		26.0		26.0		22.0		26.0		28.0		21.0		23.0		25.0		-5.0		10.0		15.0		-8.0		4.0		3.0		-4.0		1.0		11.0	
$\delta^{13}C$	‰	-7.48		-6.66		-6.43		-7.52		-7.10		-6.79		-9.56		-7.78		-7.94		-11.07		-8.05		-7.38		-10.66		-8.98		-8.71		-11.22		-7.16		-6.68	
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		29.74		49.46		48.45		51.66		53.16		53.90		44.33		47.95		47.56		1.04	J	23.99		28.22		0.55		19.91		21.01		0.54	J	13.42		14.15	
$^{87}Sr/^{86}Sr$	µg/L*																																				
Tritium	pCi/L (1σ)	840 (50)		2350 (140)		2230 (130)		3660 (230)		3770 (230)		3340 (190)		620 (40)		1790 (110)		2020 (120)		14.9 (5.5)		297 (19)		510 (30)		0 (6.3)	UJ	243 (17)		315 (22)		-0.3 (4)	UJ	5.1 (4.5)		13.8 (4.8)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-7. Summary of Groundwater Analytical Results from the December 2011 Sampling Event

Parameter	Units	TPGW-7S 12/8/2011		TPGW-7M 12/8/2011		TPGW-7D 12/8/2011		TPGW-8S 12/1/2011		TPGW-8M 12/1/2011		TPGW-8D 12/1/2011		TPGW-9S 12/1/2011		TPGW-9M 12/1/2011		TPGW-9D 12/1/2011		TPGW-10S 12/15/2011		TPGW-10M 12/15/2011		TPGW-10D 12/15/2011		TPGW-11S 12/14/2011		TPGW-11M 12/14/2011		TPGW-11D 12/14/2011		TPGW-12S 12/5/2011		TPGW-12M 12/5/2011		TPGW-12D 12/5/2011	
Temperature	°C	24.11		23.93		23.94		24.54		24.06		24.05		25.43		24.62		24.6		25.5		24.38		24.54		24.92		24.85		24.9		26.13		26.22		26.31	
pH	SU	7.3		7.25		7.29		12.02	J	7.03		7.13		7.01		6.99	J	6.92	J	7.35		7.39		7.34		7.02		6.8	J	6.89	J	6.74	J	7.02		7.26	
Dissolved Oxygen	mg/L	0.13		0.32		0.17		0.13		0.11		0.26		0.14		0.16		0.13		0.21		0.3		0.25		0.19		0.28		0.18		0.14		0.11		0.08	
Specific Conductance	µS/cm	568	J	566	J	594	J	2496		635	J	698	J	547	J	653	J	640	J	53203		55143		56200		55764		56330		60116		41350		63876		64538	
Turbidity	NTU	0.27		0.33		0.35		1.55		0.64		1.57		0.25		3.53		0.16		0.76		0.35		0.48		1.29		1.5		1.16		1.27		0.47		2.79	
Arsenic	mg/L																																				
Barium	mg/L	0.081	U	0.081	U	0.081	I V	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U
Beryllium	mg/L																																				
Cadmium	mg/L																																				
Copper	mg/L																																				
Iron	mg/L	0.44	I	0.31	I	0.46	I	0.61	I	0.36	I	0.27	U	0.27	U	0.27	U	0.56	I	0.52	I	0.45	I	0.46	I	0.48	I	0.49	I	0.45	I	0.96	IJ	0.71	IJ	0.82	IJ
Lead	mg/L																																				
Manganese	mg/L																																				
Molybdenum	mg/L																																				
Nickel	mg/L																																				
Selenium	mg/L																																				
Thallium	mg/L																																				
Vanadium	mg/L																																				
Zinc	mg/L																																				
Silica	mg/L																																				
Calcium	mg/L	87		87		93		220		110		97		110		120		110		450		490		510		570		550		620		500		650		640	
Magnesium	mg/L	4.1		4		3.7		0.02	U	3.9		6.1		1.9		3.1		3.8		1300		1400		1400		1500		1500		1500		960		1600		1600	
Potassium	mg/L	9.6		8		4.7		10		9.3		7.7		2.7		8.1		3.5		430		440		450		460		470		480		330		540		530	
Sodium	mg/L	21		21		27		20		20		29		6		13		17		11000		11000		11000		12000		12000		12000		8100		13000		13000	
Boron	mg/L	0.053	J	0.053	J	0.056	J	0.036	IJ	0.066	J	0.068	J	0.029	IJ	0.054	J	0.052	J	4.5		4.5		4.6		4.6		4.8		4.8		3.2		5		4.9	
Strontium	mg/L	0.96		0.9		0.91		0.73		1.1		0.99		0.73		1		1.2		7.9		8.3		8.9		9.6		9.3		9.9		7		11		10	
Chromium VI	mg/L																																				
Mercury	mg/L																																				
Bromide	mg/L	0.19		0.2		0.027	U	0.25		0.24		0.087		0.083		0.075		0.095		71		75		76	J	86		78		84		54		85		92	J
Chloride	mg/L	38		38		43		37	V	35	V	51		10		24		29	V	21000		22000		22000	J	25000		23000		23000		16000		26000		27000	J
Fluoride	mg/L	0.2	J	0.11	J	0.099	J	0.096		0.093		0.079		0.087		0.081		0.087		1		0.48	I	3.3	J	0.4	U	0.4	U	0.4	U	0.53	IJ	1.7	J	1.7	J
Sulfate	mg/L	26		25		28		31		48		46		0.92	J	24		30		2900		3000		3100	J	3500		3200		3200		1900		3400		3600	J
Total Ammonia	mg/L as N																																				
Ammonium Ion (NH^{4+})	mg/L																																				
Unionized NH_3	mg/L																																				
Nitrate/Nitrite as N	mg/L																																				
TKN	mg/L																																				
TN	mg/L																																				
Orthophosphate	mg/L																																				
Phosphorus (P)	mg/L																																				
Alkalinity	mg/L ($CaCO_3$)	230		240		240		580		250		260		300		310		290		150	J	130	J	130	J	300	J	280	J	340	J	550		240		200	J
Bicarbonate Alkalinity as $CaCO_3$	mg/L	230		240		240		1	U	250		260		300		310		290		150	J	130	J	130	J	300	J	280	J	340	J	550		240		200	J
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1.3		1	U	1	U	6.2		2.2		1.1		7.7		6.1		8		15		2.1		1	U
Total Dissolved Solids	mg/L	250		240		280		250	U	220	J	240	J	160	J	280		240		35000		37000		38000		41000		37000		39000		26000		42000		43000	
Dissolved Inorganic Carbon	mg/L	50		51		50		10	U	56		56		75		72		66		34	J	29	J	32	J	65	J	58	J	71	J	120		57	J	48	J
$\delta^{18}O$	‰	-2.5		-1.9		-1.7		1.3		4.1		-1.3		-0.8		-1.8		-1.2		1.7		1.9		2.1		3.2		2.4		2.8		2.3		4.4		4.3	
$\delta^{2}H$	‰	-7.0		0.0		-7.0		-9.0		-8.0		-7.0		-10.0		-8.0		-8.0		14.0		16.0		14.0		18.0		17.0		14.0		11.0		20.0		24.0	
$\delta^{13}C$	‰	-9.93		-9.78		-9.38		-11.54		-9.76		-9.39		-9.80		-10.19		-9.96		-4.99		-4.45		-7.09		-9.92		-11.33		-11.93		-13.47		-7.13		-6.94	
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		0.28	J	0.27	J	0.29	J	1.31		0.31	J	0.34	J	0.26	J	0.32	J	0.31	J	35.08		36.51		37.34		37.01		37.43		40.29		26.45		43.13		43.64	
$^{87}Sr/^{86}Sr$	µg/L*																																				
Tritium	pCi/L (1σ)	12.2 (5.3)		11.9 (5.5)		12.9 (5.4)		9.7 (7.4)		12.7 (7.5)		-2 (7)	UJ	11.4 (7.5)		6.5 (7.2)	UJ	13.9 (7.6)		22.8 (7.2)		2.9 (6.8)	UJ	0.5 (7.3)	UJ	9.9 (6.8)		47.7 (7.5)		480 (30)		242 (18)		1630 (100)		1520 (90)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-7. Summary of Groundwater Analytical Results from the December 2011 Sampling Event

		TPGW-13S		TPGW-13M		TPGW-13D		TPGW-14S		TPGW-14M		TPGW-14D		TPGW-EB1		TPGW-FB1		TPGW-FB1		TPGW-FB1	
Parameter	**Units**	**12/5/2011**		**12/5/2011**		**12/5/2011**		**12/14/2011**		**12/14/2011**		**12/14/2011**		**12/1/2011**		**12/5/2011**		**12/8/2011**		**12/16/2011**	
Temperature	°C	29.75		29.47		29.5		25.42		24.83		25.18									
pH	SU	6.97	J	6.99	J	7		6.96		6.85		6.91									
Dissolved Oxygen	mg/L	0.1		0.09		0.13		0.22		0.22		0.12									
Specific Conductance	µS/cm	83469		81654		82425		58055		63012		74202									
Turbidity	NTU	0.26		0.23		0.45		1.57		1.03		1.33									
Arsenic	mg/L																				
Barium	mg/L	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.00081	U	0.00081	U	0.0008	U	0.00081	U
Beryllium	mg/L																				
Cadmium	mg/L																				
Copper	mg/L																				
Iron	mg/L	0.9	IJ	2.3	IJ	1.7	IJ	0.41	I	0.44	I	0.6	I	0.0027	U	0.0032	I	0.0027	U	0.0027	U
Lead	mg/L																				
Manganese	mg/L																				
Molybdenum	mg/L																				
Nickel	mg/L																				
Selenium	mg/L																				
Thallium	mg/L																				
Vanadium	mg/L																				
Zinc	mg/L																				
Silica	mg/L																				
Calcium	mg/L	790		770	J	760		580		510		690		0.14	I	0.45	I	0.1	I	0.58	
Magnesium	mg/L	2200		2200	J	2100		1400		1400		1900		0.02	U	0.14		0.028	I	0.2	V
Potassium	mg/L	760		720	J	700		450		440		620		0.19	U	0.48	I	0.19	U	4.1	
Sodium	mg/L	17000		17000	J	17000		12000		11000		15000		0.31	U	13		0.31	U	62	
Boron	mg/L	7.7		7.1		6.8		4.8		4.8		6.3		0.073		0.058		0.071		0.059	
Strontium	mg/L	14		14		14		8.7		8.1		12		0.001	U	0.0031	I	0.001	U	0.003	I
Chromium VI	mg/L																				
Mercury	mg/L																				
Bromide	mg/L	120	J	120	J	120	J	96		74		110		0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	36000	J	35000	J	35000	J	22000		21000		29000		0.2	U	4.8		0.2	U	38	
Fluoride	mg/L	0.4	UJ	0.4	UJ	0.4	UJ	0.4	U	0.59	I	3.2		0.02	U	1.2		0.02	I	0.21	
Sulfate	mg/L	4800	J	4500	J	4600	J	3100		3100		4100		0.24	I	0.2	U	0.2	U	0.28	I
Total Ammonia	mg/L as N																				
Ammonium Ion (NH^{4+})	mg/L																				
Unionized NH_3	mg/L																				
Nitrate/Nitrite as N	mg/L																				
TKN	mg/L																				
TN	mg/L																				
Orthophosphate	mg/L																				
Phosphorus (P)	mg/L																				
Alkalinity	mg/L ($CaCO_3$)	220	J	200	J	200	J	380	J	320	J	220	J	1	U	13		1.2		140	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	220	J	200	J	200	J	380	J	320	J	220	J	1	U	13		1.2		140	
Sulfides	mg/L	21		1	U	1	U	11		12		4.6		1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	58000		57000		57000		36000		35000		53000		5	U	22		5	U		
Dissolved Inorganic Carbon	mg/L	42	J	51	J	52	J	80	J	65	J	50	J	3		6.6		10	U	30	
$\delta^{18}O$	‰	3.2		3.7		3.9		1.7		1.5		4.4		-1.9		-1.1		-1.0		-1.2	
$\delta^{2}H$	‰	28.0		27.0		26.0		12.0		11.0		24.0		-2.0		-5.0		0.0		-8.0	
$\delta^{13}C$	‰	-8.76		-6.85		-7.28		-8.55		-10.39		-8.45		-8.09		-5.30		-7.55		-3.59	
Gross Alpha	pCi/L																				
Salinity (PSS-78)		17.43		57.09		57.71		38.72		42.50		51.24									
$^{87}Sr/^{86}Sr$	µg/L*																				
Tritium	pCi/L (1σ)	4300 (250)		3640 (210)		3850 (230)		159 (12)		650 (40)		2540 (150)		-0.6 (4.3)	UJ	1.8 (5.4)	UJ	3 (5.7)	UJ	0.4 (6.6)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-8. Summary of Groundwater Analytical Results from the March 2012 Sampling Event

Parameter	Units	TPGW-1S 3/5/2012		TPGW-1M 3/5/2012		TPGW-1D 3/5/2012		TPGW-2S 3/8/2012		TPGW-2M 3/8/2012		TPGW-2D 3/8/2012		TPGW-3S 3/15/2012		TPGW-3M 3/15/2012		TPGW-3D 3/15/2012		TPGW-4S 3/5/2012		TPGW-4M 3/5/2012		TPGW-4D 3/5/2012		TPGW-5S 3/16/2012		TPGW-5M 3/16/2012		TPGW-5D 3/16/2012		TPGW-6S 3/1/2012		TPGW-6M 3/1/2012		TPGW-6D 3/1/2012	
Temperature	°C	25.49		26.12		26.29		26.33		26.50		27.30		25.91		25.64		25.69		24.86		24.77		24.53		23.54		23.40		24.21		24.14		24.09		24.00	
pH	SU	7.14		7.24		7.11		7.25		7.08		7.09		6.88		6.98		7.07		7.02		7.01		7.01		8.23		6.98		7.01		7.03		7.00		6.93	
Dissolved Oxygen	mg/L	0.15		0.13		0.17		0.11		0.12		0.36		0.46		0.37		0.16		0.23		0.16		0.23		0.30		0.45		0.29		2.70		0.14		0.22	
Specific Conductance	µS/cm	59838.00		72597.00		71660.00		74636.00		76409.00		77119.00		64474.00		67848.00		69560.00		2281.00		38574.00		43554.00		1390.00		31913.00		33043.00		1105.00		23477.00		24213.00	
Turbidity	NTU	0.36		0.27		0.50		0.29		0.12		0.10		2.35		0.36		0.52		0.37		0.93		0.85		0.95		0.51		0.32		0.58		0.32		0.46	
Arsenic	mg/L	0.12	U	0.12	U	0.13	I	0.12	U	0.12	U	0.12	U																								
Barium	mg/L	0.08	U	0.08	U	0.08	U	0.12	I	0.08	U	0.08	U	0.08	U	0.09	I V	0.08	U	0.08	U	0.15	I	0.08	U	0.08	U	0.31	I V	0.26	I V	0.09	I	0.08	U	0.08	U
Beryllium	mg/L	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U																								
Cadmium	mg/L	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U																								
Copper	mg/L	0.09	I V	0.08	I V	0.08	I V	0.13	I V	0.06	I V	0.03	I V																								
Iron	mg/L	1.50	I V	3.00	I V	0.87	I V	1.30	I V	0.92	I V	0.11	I V	0.74	I	1.10	I	1.40	I	0.34	I	4.60	I	5.60		0.64	I	1.60	I	1.50	I	0.27	U	1.30	I	1.10	I
Lead	mg/L	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U																								
Manganese	mg/L	0.05	I	0.07	I	0.05	U	0.05	I	0.05	I	0.05	I																								
Molybdenum	mg/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U																								
Nickel	mg/L	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U																								
Selenium	mg/L	0.34	U	0.34	U	0.34	U	0.44	I	0.39	I	0.34	U																								
Thallium	mg/L	0.16	U	0.25	I V	0.28	I V	0.37	I V	0.19	I V	0.16	U																								
Vanadium	mg/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U																								
Zinc	mg/L	0.18	I	0.18	U	0.18	U	0.18	U	0.18	U	0.18	U																								
Silica	mg/L																																				
Calcium	mg/L	620		720		720		810		750	J	750	J	720		720.00		710.00		160.00		620.00		610.00		140.00		660.00		640.00		120.00		650.00		660.00	
Magnesium	mg/L	1500		2000		2000		1900		2000	J	2100	J	1700		1900.00		1900.00		28.00		880.00		1000.00		8.90		690.00		700.00		12.00		460.00		490.00	
Potassium	mg/L	490		670		670		650		690	J	700	J	570		650.00		640.00		6.10		190.00		270.00		7.70		150.00		160.00		4.60		120.00		120.00	
Sodium	mg/L	12000		16000		15000		15000		16000	J	16000	J	13000		15000.00		14000.00		260.00		7300.00		8400.00		140.00		5900.00		6100.00		88.00		4200.00		4500.00	
Boron	mg/L	4.50		6.30		6.30		5.90		6.40		6.50		4.90		5.70		5.70		0.09		1.40		2.10		0.05		0.93		1.10		0.06		0.82		0.86	
Strontium	mg/L	10.00		12.00		12.00		13.00		14.00		14.00		11.00		12.00		12.00		1.50		7.80		8.20		1.40		7.60		7.60		1.20		8.20		8.60	
Chromium VI	mg/L	0.0050	U	0.0050	U	0.0050	U	0.0064	I J-	0.0140		0.0110																									
Mercury	mg/L	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U																								
Bromide	mg/L	86.00		98.00		110.00		110.00	J	120.00	J	110.00	J	81.00	I	81.00	I	87.00	IJ	1.10		53.00		58.00		0.95	I	29.00	I	35.00	I	0.38		28.00		29.00	
Chloride	mg/L	23000.00		28000.00		28000.00		31000.00	J	31000.00	J	32000.00	J	26000.00		28000.00		29000.00	J	500.00		14000.00		16000.00		240.00		11000.00		11000.00		160.00	J-	7900.00		8600.00	
Fluoride	mg/L	0.40	U	1.80		0.40	U	0.09	UJ	0.09	UJ	0.09	UJ	0.35	U	0.35	U	0.35	UJ	0.09		0.40	U	0.40	U	0.07	I	0.35	U	0.35	U	0.11		0.40	U	0.40	U
Sulfate	mg/L	3300.00		3800.00		3700.00		3700.00	J	3800.00	J	3800.00	J	3500.00		3700.00		3800.00	J	25.00		1700.00		2000.00		20.00		1200.00		1300.00		8.00		800.00		860.00	
Total Ammonia	mg/L as N	1.20		1.60		1.50		2.90	J	2.00		0.35																									
Ammonium Ion (NH^{4+})	mg/L	1.50		2.00		1.90		3.70		2.60		0.45																									
Unionized NH_3	mg/L	1.07		1.86		8.25		3.37		1.92		0.36																									
Nitrate/Nitrite as N	mg/L	0.05		0.03		0.03	J+	0.02		0.02		0.02																									
TKN	mg/L	1.40		2.00		1.90		2.10	J	2.30		2.50	J-																								
TN	mg/L	1.50		2.00		1.90		2.10		2.30		2.50																									
Orthophosphate	mg/L	0.023		0.036		0.034	J-	0.014		0.029		0.034																									
Phosphorus (P)	mg/L	0.035		0.045		0.045		0.043		0.052		0.061																									
Alkalinity	mg/L ($CaCO_3$)	220		170		180		140	J	190	J	190	J	350		220		210	J	330		220		210		220		230		230		280		210		210	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	220		170		180		140	J	190	J	190	J	350		220		210	J	330		220		210		220		230		230		280		210		210	
Sulfides	mg/L	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	4.20		1.00	U	1.00	U	1.00	U	1.40		1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U
Total Dissolved Solids	mg/L	41000		52000		51000		50000		52000		52000		43000		46000		47000		1200		23000		28000		830		22000		19000		570		14000		15000	
Dissolved Inorganic Carbon	mg/L	46		46		48		43		50		51		82		61		59		81		54		51		46		57	J-	10	U	72		51		51	
$\delta^{18}O$	‰																																		
$\delta^{2}H$	‰																																		
$\delta^{13}C$	‰																																		
Gross Alpha	pCi/L																																		
Salinity (PSS-78)		40.1		49.9		49.2		51.5		53.0		53.5		43.6		46.2		47.6		1.2		24.5		28.1		0.7		19.9		20.7		0.5		14.2		14.7	
$^{87}Sr/^{86}Sr$	µg/L*																																		
Tritium	pCi/L (1σ)																																		

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
[1] Sample TPGW-Dup1 (3/14/12) is a duplicate of TPGW-10M.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-8. Summary of Groundwater Analytical Results from the March 2012 Sampling Event

		TPGW-7S		TPGW-7M		TPGW-7D		TPGW-8S		TPGW-8M		TPGW-8D		TPGW-9S		TPGW-9M		TPGW-9D		TPGW-10S		TPGW-10M		TPGW-Dup1 [1]		TPGW-10D		TPGW-11S		TPGW-11M		TPGW-11D		TPGW-12S		TPGW-12M		TPGW-12D	
Parameter	**Units**	3/5/2012		3/5/2012		3/5/2012		3/1/2012		3/1/2012		3/1/2012		3/1/2012		3/1/2012		3/1/2012		3/14/2012		3/14/2012		3/14/2012		3/14/2012		3/13/2012		3/13/2012		3/13/2012		3/9/2012		3/9/2012		3/9/2012	
Temperature	°C	24.07		23.53		23.65		24.25		23.80		24.05		25.18		25.25		24.79		25.13		25.14				24.69		24.75		24.56		24.27		26.68		26.45		26.57	
pH	SU	7.12		7.18		7.20		11.92		7.00		7.14		6.80		6.94		7.02		7.48		7.44				7.45		7.15		6.84		6.92		6.76		7.04		7.38	
Dissolved Oxygen	mg/L	0.23		0.25		0.19		0.31		0.39		0.17		0.34		0.40		0.26		0.19		0.42				0.30		0.24		0.50		0.31		0.24		0.13		0.12	
Specific Conductance	µS/cm	581.00		575.00		597.00		2604.00		653.00		714.00		590.00		662.00		660.00		52831.00		54072.00				55544.00		55004.00		55511.00		59510.00		42960.00		64570.00		64988.00	
Turbidity	NTU	0.34		0.52		0.33		0.92		0.50		0.19		0.60		3.04		0.90		0.30		0.34				0.28		0.24		0.05		0.22		0.24		0.65		0.88	
Arsenic	mg/L																			0.12	U	0.12	U	0.12	U	0.12	U												
Barium	mg/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.09	I	0.08	U	0.08	U	0.08	U	0.08	U	0.14	I	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.15	I V
Beryllium	mg/L																			0.02	U	0.02	U	0.02	U	0.02	U												
Cadmium	mg/L																			0.04	U	0.04	U	0.04	U	0.04	U												
Copper	mg/L																			0.16	I V	0.08	I V	0.09	I V	0.03	U												
Iron	mg/L	0.45	I	0.40	I	0.41	I	0.27	U	0.60	I	0.27	U	0.41	I	0.40	I	0.76	I	0.69	I	0.66	I	1.00	I	0.65	I	0.92	I V	0.75	I V	0.74	I V	0.41	I	0.71	I	0.93	I
Lead	mg/L																			0.24	U	0.24	U	0.29	I V	0.37	I V												
Manganese	mg/L																			0.05	U	0.05	U	0.05	U	0.05	U												
Molybdenum	mg/L																			0.10	I V	0.12	I V	0.10	I V	0.16	I V												
Nickel	mg/L																			0.14	U	0.14	U	0.14	U	0.14	U												
Selenium	mg/L																			0.34	U	0.34	U	0.34	U	0.34	U												
Thallium	mg/L																			0.21	I V	0.50	I V	0.42	I V	0.25	I V												
Vanadium	mg/L																			0.05	U	0.05	U	0.05	U	0.05	U												
Zinc	mg/L																			0.18	U	0.18	U	0.18	U	0.18	U												
Silica	mg/L																																						
Calcium	mg/L	94.00		94.00		95.00		230.00	J	110.00		110.00		110.00		120.00		110.00		490.00		530.00		520.00		540.00		550.00		620.00		650.00		520.00		660.00		650.00	
Magnesium	mg/L	4.40		4.40		4.00		0.02	IJ	3.90		6.50		2.20		3.20		3.60		1300.00		1500.00		1500.00		1400.00		1400.00		1500.00		1600.00		1000.00	V	1700.00	V	1600.00	V
Potassium	mg/L	9.40		8.70		5.00		11.00	J	9.70		8.30		3.90		8.00		3.60		480.00		520.00		530.00		510.00		500.00		530.00		530.00		340.00		560.00		550.00	
Sodium	mg/L	21.00		22.00		28.00		21.00	J	19.00		30.00		8.40		14.00		16.00		10000.00		11000.00		11000.00		11000.00		11000.00		11000.00		12000.00		8200.00		13000.00		13000.00	
Boron	mg/L	0.05		0.06		0.06		0.04	I	0.07		0.07		0.04	I	0.06		0.05		4.60		4.90		5.00		4.80		5.00		5.10		4.90		3.30		5.10		4.90	
Strontium	mg/L	0.95		0.94		0.93		0.77		1.10		1.10		0.79		1.10		1.20		7.90		8.80		8.90		9.10		8.60		9.40		10.00		7.20		11.00		10.00	
Chromium VI	mg/L																			0.0050	U	0.0058	IJ-	0.0050	U	0.0050	U												
Mercury	mg/L																			0.0001	U	0.0001	U	0.0001	U	0.0001	U												
Bromide	mg/L	0.17		0.18		0.22		0.23	J	0.24		0.30		0.12		0.20	J-	0.41		63.00	I	69.00	I	69.00	I	64.00	I	63.00	I Q J	70.00	I Q J	72.00	I Q J	43.00	J	75.00	J	64.00	J
Chloride	mg/L	35.00		36.00	J-	42.00		37.00	J	33.00		45.00		15.00		24.00	J-	28.00		20000.00		21000.00		22000.00		22000.00		21000.00	J	22000.00	J	23000.00	J	16000.00	J	26000.00	Q J	24000.00	J
Fluoride	mg/L	0.12		0.12		0.11		0.12	J	0.10		0.10		0.10		0.09		0.09		0.35	U	0.35	U	0.35	U	0.35	U	0.35	U Q J	0.35	U Q J	0.35	U Q J	1.50	IJ	1.80	I J	1.70	I J
Sulfate	mg/L	24.00		25.00		28.00		30.00	J	63.00		60.00		6.20		25.00	J-	31.00		2700.00		2900.00		3000.00		3000.00		2900.00	Q J	2900.00	Q J	3100.00	Q J	1800.00	J	3100.00	J	3100.00	J
Total Ammonia	mg/L as N																			0.46		0.35		0.34		0.30													
Ammonium Ion (NH^{4+})	mg/L																			0.58		0.44				0.38													
Unionized NH_3	mg/L																			0.99		0.75				0.64													
Nitrate/Nitrite as N	mg/L																			0.01	I	0.01	I	0.01		0.02													
TKN	mg/L																			0.67		0.44		0.44		0.56													
TN	mg/L																			0.68	I	0.45	I	0.45	I	0.58	I												
Orthophosphate	mg/L																			0.013		0.001	U	0.001	I	0.002	I												
Phosphorus (P)	mg/L																			0.028		0.027		0.028		0.031													
Alkalinity	mg/L ($CaCO_3$)	210		210		210		510	J	220		230		270		270		260		130		110		110		120		280	J	340	J	300	J	500	J	210	J	180	J
Bicarbonate Alkalinity as $CaCO_3$	mg/L	210		210		210		1	UJ	220		230		270		270		260		130		110		110		120		280	J	340	J	300	J	500	J	210	J	180	J
Sulfides	mg/L	1.00	U	1.30		1.00	U	1.00	U	1.00	U	1.00	U	1.40		1.00	U	1.00	U	5.00		1.40		1.30		1.00	U	9.00		8.00		5.90		13.00		1.10		1.00	U
Total Dissolved Solids	mg/L	260		260		280		380		320		330		310		340		340		34000		35000		35000		35000		36000		37000		38000		27000		43000		43000	
Dissolved Inorganic Carbon	mg/L	49		48		47		10	U	52		52		68		66		67		32		28		27		28		70		82		73		110		50		42	
$\delta^{18}O$	‰																																				
$\delta^{2}H$	‰																																				
$\delta^{13}C$	‰																																				
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		0.3		0.3		0.3		1.3		0.3		0.3		0.3		0.3		0.3		34.8		35.2				36.8		36.4		36.8		39.8		27.6		43.7		44.0	
$^{87}Sr/^{86}Sr$	µg/L*																																				
Tritium	pCi/L (1σ)																																				

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (3/14/12) is a duplicate of TPGW-10M.

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-8. Summary of Groundwater Analytical Results from the March 2012 Sampling Event

		TPGW-13S		TPGW-13M		TPGW-13D		TPGW-14S		TPGW-14M		TPGW-14D		TPGW-EB1		TPGW-FB1		TPGW-FB1		TPGW-FB1		TPGW-FB1		TPGW-FB1		TPGW-FB1	
Parameter	**Units**	**3/9/2012**		**3/9/2012**		**3/9/2012**		**3/13/2012**		**3/13/2012**		**3/13/2012**		**3/1/2012**		**3/5/2012**		**3/7/2012**		**3/8/2012**		**3/13/2012**		**3/15/2012**		**3/16/2012**	
Temperature	°C	29.96		29.34		29.52		25.05		25.10		25.31															
pH	SU	7.04		7.01		7.11		7.10		6.96		7.05															
Dissolved Oxygen	mg/L	0.11		0.16		0.08		0.18		0.53		0.21															
Specific Conductance	µS/cm	83997.00		81243.00		81700.00		57415.00		61619.00		73593.00															
Turbidity	NTU	0.25		0.37		0.29		0.30		0.53		0.53															
Arsenic	mg/L	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.12	U	0.0012	I V					0.12	U	0.12	U				
Barium	mg/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.09	I	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U	0.0008	U
Beryllium	mg/L	0.02	U	0.02	U	0.03	I V	0.02	U	0.02	U	0.02	U	0.0002	U					0.02	U	0.02	U				
Cadmium	mg/L	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.04	U	0.0004	U					0.04	U	0.04	U				
Copper	mg/L	0.10	I V	0.12	I V	0.08	I V	0.12	I V	0.08	I V	0.03	U	0.0003	U					0.11	I V	0.12	I V				
Iron	mg/L	1.00	I V	2.20	I V	2.00	I V	0.62	I V	1.10	I V	0.99	I	0.0074	I	0.0027	U	0.0028	I V	0.58	I V	0.27	U	0.0130	I V	0.0036	I V
Lead	mg/L	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.24	U	0.0024	U					0.24	U	0.24	U				
Manganese	mg/L	0.05	U	0.07	I	0.09	I	0.05	U	0.05	U	0.05	U	0.0005	U					0.05	U	0.05	U				
Molybdenum	mg/L	0.05	U	0.05	U	0.07	I	0.05	U	0.05	U	0.11	I V	0.0005	U					0.05	U	0.05	U				
Nickel	mg/L	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.14	U	0.0014	U					0.14	U	0.14	U				
Selenium	mg/L	0.34	U	0.34	U	0.44	I	0.34	U	0.34	U	0.34	U	0.0039	I					0.34	U	0.34	U				
Thallium	mg/L	0.16	U	0.30	I V	0.36	I V	0.16	U	0.16	U	0.16	U	0.0016	U					0.28	I V	0.30	I V				
Vanadium	mg/L	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.05	U	0.0005	U					0.05	U	0.05	U				
Zinc	mg/L	0.18	U	180.18	U	0.18	U	0.18	U	0.18	U	0.18	U	0.0018	U					0.18	U	0.18	U				
Silica	mg/L																										
Calcium	mg/L	800.00	J	780.00	J	770.00	J	580.00		660.00	J	740.00	J	0.63		0.65		1.20		1.20		1.20		1.30		1.20	
Magnesium	mg/L	2300.00	VJ	2200.00	VJ	2200.00	VJ	1500.00		1700.00	J	2000.00	J	0.23		0.19		0.39		0.43		0.49		0.46		0.45	
Potassium	mg/L	800.00	J	740.00	J	740.00	J	520.00		570.00	J	690.00	J	4.40		4.60		17.00		19.00		19.00		18.00		18.00	
Sodium	mg/L	18000.00	J	17000.00	J	17000.00	J	11000.00		13000.00	J	15000.00	J	79.00		91.00		110.00		110.00		100.00		100.00		100.00	
Boron	mg/L	7.80		6.90		7.00		4.80		5.20		6.40		0.05		0.05		0.05	I	0.05	I	0.05	I	0.05	I	0.05	I
Strontium	mg/L	14.00		14.00		14.00		9.10		10.00		13.00		0.00	I	0.00	I	0.00	I	0.01		0.01		0.01		0.01	
Chromium VI	mg/L	0.0069	I Q	0.0050	U Q	0.0050	U Q	0.0100		0.0069	I	0.0058	I							0.0050	U	0.0075	I				
Mercury	mg/L	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U	0.0001	U					0.0001	U	0.0001	U				
Bromide	mg/L	78.00	J	87.00	J	90.00	J	68.00	I Q J	74.00	I Q J	88.00	I Q J	0.03	U	0.03	U	0.03	U	0.03	U	0.41	U Q	0.00	U	0.00	U
Chloride	mg/L	37000.00	Q J	34000.00	QJ	36000.00	QJ	23000.00	J	25000.00	J	30000.00	Q J	36.00		34.00		97.00		110.00		78.00	Q	71.00		74.00	
Fluoride	mg/L	2.50	I J	1.60	IJ	2.00	IJ	0.35	U Q J	0.35	U Q J	0.35	U Q J	0.50		0.41		0.28		0.29		0.35	U Q	0.19	I	0.16	I
Sulfate	mg/L	4300.00	J	4200.00	J	4300.00	J	3000.00	Q J	3300.00	Q J	3900.00	Q J	0.20	U	0.20	U	0.20	U	0.20	U	3.30	I Q	0.02	U	0.02	U
Total Ammonia	mg/L as N	0.61		0.76		0.06		0.55		0.85		1.50		1.30						0.41							
Ammonium Ion (NH^{4+})	mg/L	0.78		0.97		0.08		0.70		1.10		1.90															
Unionized NH_3	mg/L	0.59		0.71		0.07		0.38		0.58		1.07															
Nitrate/Nitrite as N	mg/L	0.08	J+	0.03		0.03		0.01	I	0.02		0.02		0.00	U					0.00	U						
TKN	mg/L	4.40		2.40		2.50		0.83		1.30		2.50		4.00						3.90							
TN	mg/L	4.50		2.40		2.50		0.84		1.30		2.50								3.90							
Orthophosphate	mg/L	0.023		0.016		0.016		0.034		0.001	U	0.041								0.001	U						
Phosphorus (P)	mg/L	0.056	J-	0.057		0.057		0.044		0.056		0.036		0.008	I					0.004	U						
Alkalinity	mg/L ($CaCO_3$)	160	J	180	J	180	J	250	J	280	J	210	J	140		160		120		130		150		140		150	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	160	J	180	J	180	J	250	J	280	J	210	J	140		160		120		130		150		140		150	
Sulfides	mg/L	22.00		1.00	U	1.00	U	2.90		7.70		4.20		1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U
Total Dissolved Solids	mg/L	59000		57000		57000		36000		40000		50000		160		180		250		240		260		270		260	
Dissolved Inorganic Carbon	mg/L	43		43		43		61		72		57		1	U	41		29		33		36		3		38	
$\delta^{18}O$	‰																										
$\delta^{2}H$	‰																										
$\delta^{13}C$	‰																										
Gross Alpha	pCi/L																										
Salinity (PSS-78)		59.0		56.8		57.1		38.2		41.4		50.7															
$^{87}Sr/^{86}Sr$	µg/L*																										
Tritium	pCi/L (1σ)																										

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (3/14/12) is a duplicate of TPGW-10M.

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-9. Summary of Groundwater Analytical Results from the June 2012 Sampling Event

Parameter	Units	TPGW-1S 6/13/2012	TPGW-1M 6/13/2012	TPGW-DUP1 [1] 6/13/2012	TPGW-1D 6/13/2012	TPGW-2S 6/14/2012	TPGW-2M 6/14/2012	TPGW-2D 6/14/2012	TPGW-3S 6/14/2012	TPGW-3M 6/14/2012	TPGW-3D 6/14/2012	TPGW-4S 6/13/2012	TPGW-4M 6/13/2012	TPGW-4D 6/13/2012	TPGW-5S 6/6/2012	TPGW-5M 6/6/2012	TPGW-5D 6/6/2012	TPGW-6S 6/4/2012	TPGW-6M 6/4/2012	TPGW-6D 6/4/2012
Temperature	°C	25.83	26.54		26.70	26.47	26.36	27.00	26.94	26.94	26.37	24.58	25.56	26.05	24.22	24.20	24.44	24.94	24.89	25.02
pH	SU	7.05	7.15		7.24	7.06	7.27	7.08	6.86	6.86	7.02	7.02	6.83	7.02	7.47	7	6.99	6.93	7.03	6.99
Dissolved Oxygen	mg/L	0.49	0.30		0.19	0.18	0.17	0.21	0.16	0.16	0.40	0.31	1.08	0.86	0.77	0.23	0.65	0.59	0.40	0.50
Specific Conductance	µS/cm	43277	54680		72817	69944	72823	75927	64651	64651	69150	601	1438	38757	1331	32196	34183	1067	22517	23704
Turbidity	NTU	0.09	0.26		0.19	0.19	0.39	0.12	0.11	0.11	0.14	0.24	0.47	0.60	0.35	0.07	0.46	0.07	0.03	0.23
Arsenic	mg/L																			
Barium	mg/L	0.14	0.14	0.013	0.14	0.15	0.12	0.12	0.093	0.089	0.092	0.019	0.16	0.14	0.028	0.26	0.22	0.013	0.16	0.18
Beryllium	mg/L																			
Cadmium	mg/L																			
Copper	mg/L																			
Iron	mg/L	1.3	3.1	0.24	0.17 I	0.4 I V	0.13 I V	0.36 I V	0.062 I V	0.25 I V	0.29 I V	0.046	4.5	5.6	0.42	1.5	1.5	0.039 I V	1.3 V	1.1
Lead	mg/L																			
Manganese	mg/L																			
Molybdenum	mg/L																			
Nickel	mg/L																			
Selenium	mg/L																			
Thallium	mg/L																			
Vanadium	mg/L																			
Zinc	mg/L																			
Silica	mg/L																			
Calcium	mg/L	590	710	91	690	1400	760	780	690	700	690	130	640	620	130	610	580	100	470	510
Magnesium	mg/L	1300	1900	4.1	1900	1400	2000	2100	1700	1800	1800	15	890	1000	8.4	700	720	12	450	460
Potassium	mg/L	400	600	8.5	590	580	620	650	490	550	550	3.2	180	250	6.2	130	150	4	96	100
Sodium	mg/L	11000	15000	21	15000	15000	16000	16000	13000	14000	14000	140	7400	8500	120	6000	6500	80	4100	4300
Boron	mg/L	4	6.1	0.053	5.9	5.4	6.4	6.7	4.8	5.6	5.6	0.055	1.4	2	0.047 I	0.85	1.1	0.054	0.77	0.77
Strontium	mg/L	9.3	12	0.9	12	15	14	14	11	12	12	1.1	8	8.3	1.2	6.9	7.3	1.1	7.5	8.2
Chromium VI	mg/L																			
Mercury	mg/L																			
Bromide	mg/L	67	99	0.15	97	97	110	110	92	92	110	0.96	46	52	0.89	40	43	0.65	27	27
Chloride	mg/L	19000	29000	35	28000	28000	30000	32000	27000	27000	30000	270	13000	15000	260	11000	12000	160	7600	7800
Fluoride	mg/L	0.2 U	0.2 U	0.11	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.084	0.2 U	0.2 U	0.12	0.2 U	0.2 U	0.16	0.47 I	0.08 U
Sulfate	mg/L	2700	3900	24	3800	3400	3800	4200	3600	3500	3900	7.4	1600	1900	20	1200	1400	8.2	780	860
Total Ammonia	mg/L as N																			
Ammonium Ion (NH^{4+})	mg/L																			
Unionized NH_3	mg/L																			
Nitrate/Nitrite as N	mg/L																			
TKN	mg/L																			
TN	mg/L																			
Orthophosphate	mg/L																			
Phosphorus (P)	mg/L																			
Alkalinity	mg/L ($CaCO_3$)	240	180	210	180	96	200	190	350	230	220	300	210	210	250	230	230	290	210	220
Bicarbonate Alkalinity as $CaCO_3$	mg/L	240	180	210	180	96	200	190	350	230	220	300	210	210	250	240	230	290	210	220
Sulfides	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.4	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Total Dissolved Solids	mg/L	38000	53000	310	51000	50000	35000	54000	45000	48000	50000	840	26000	31000	660	19000	21000	470	13000	14000
Dissolved Inorganic Carbon	mg/L	57	42	54	43	43	52	62	96	72	72	93	71	48	58	59	61	73	53	54
$\delta^{18}O$	‰																			
$\delta^{2}H$	‰																			
$\delta^{13}C$	‰																			
Gross Alpha	pCi/L																			
Salinity (PSS-78)		27.8	36.1		50.1	47.8	50.1	52.6	43.7	43.7	47.2	0.3	0.7	24.6	0.7	20.1	21.5	0.5	13.6	14.3
$^{87}Sr/^{86}Sr$	µg/L*																			
Tritium	pCi/L (1σ)																			

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (6/13/12) is a duplicate of TPGW-1M.

[2] Sample TPGW-Dup2 (6/13/12) is a duplicate of TPGW-7M.

[3] Sample TPGW-Dup1 (6/4/12) is a duplicate of TPGW-9M.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-9. Summary of Groundwater Analytical Results from the June 2012 Sampling Event

Parameter	Units	TPGW-7S 6/13/2012	TPGW-7M 6/13/2012	TPGW-DUP2 [2] 6/13/2012	TPGW-7D 6/13/2012	TPGW-8S 6/4/2012	TPGW-8M 6/4/2012	TPGW-8D 6/4/2012	TPGW-9S 6/4/2012	TPGW-9M 6/4/2012	TPGW-DUP1 [3] 6/4/2012	TPGW-9D 6/4/2012	TPGW-10S 6/5/2012	TPGW-10M 6/5/2012	TPGW-10D 6/5/2012	TPGW-11S 6/5/2012	TPGW-11M 6/5/2012	TPGW-11D 6/5/2012
Temperature	°C	24.76	24.76		24.57	24.96	24.58	24.78	26.53	26.82		25.74	29.45	29.11	27.82	27.69	27.41	27.53
pH	SU	6.95	6.95		7.11	11.87 J	6.99	7.06	6.86	6.89		6.93	7.42	7.44	7.35	7.08	6.91	6.91
Dissolved Oxygen	mg/L	0.27	0.27		0.28	0.43	0.51	0.50	0.42	0.55		0.43	0.48	0.38	0.28	0.44	1.17	0.28
Specific Conductance	µS/cm	580	580		580	2181	645	686	593	649		640	52885	55240	58923	55079	56569	59865
Turbidity	NTU	0.2	0.20		0.15	0.30	0.09	0.23	0.60	2.88		0.27	0.17	0.07	0.27	0.01	0.01	0.00
Arsenic	mg/L																	
Barium	mg/L	0.016	0.013	0.15	0.015	0.086	0.018	0.022	0.013	0.020	0.020	0.021	0.022 I	0.056	0.05	0.018 I	0.028 I	0.034 I
Beryllium	mg/L																	
Cadmium	mg/L																	
Copper	mg/L																	
Iron	mg/L	0.31	0.25	3.1	0.17	0.0053 I	0.27	0.17	0.035 I	0.097	0.096	0.55	0.055 I V	0.066 I V	0.1 I V	0.060 I V	0.058 I V	0.082 I V
Lead	mg/L																	
Manganese	mg/L																	
Molybdenum	mg/L																	
Nickel	mg/L																	
Selenium	mg/L																	
Thallium	mg/L																	
Vanadium	mg/L																	
Zinc	mg/L																	
Silica	mg/L																	
Calcium	mg/L	91	89	720	92	180	100	98	110	110	110	110	440	490	510	500	540	570
Magnesium	mg/L	4.2	4	2000	3.8	0.02 U	3.7	5.6	2.4	3	3	3.5	1400	1500	1600	1400	1500	1600
Potassium	mg/L	9	8.2	610	4.9	9.5	9.4	8.2	4.8	6.9	6.8	3.6	420	440	460	420	430	450
Sodium	mg/L	20	21	15000	26	20	19	27	9.4	12	12	15	11000	12000	12000	12000	12000	11000
Boron	mg/L	0.051	0.052	6.1	0.053	0.035 I	0.061	0.067	0.038 I	0.047 I	0.048 I	0.048 I	4.3	4.7	4.7	4.6	4.6	4.5
Strontium	mg/L	0.92	0.89	12	0.89	0.61	1.1	1.0	0.82	0.96	0.96	1.1	7.7	8.6	9.1	8.1	8.7	9.3
Chromium VI	mg/L																	
Mercury	mg/L																	
Bromide	mg/L	0.18	0.17	94	0.18	0.23	0.21	0.27	0.21	0.28	0.29	0.4	69	72	77	73	76	82
Chloride	mg/L	36	35	27000	40	35	32	47	16	20	22	27	20000	21000	22000	21000	21000	23000
Fluoride	mg/L	0.13	0.11	0.2 U	0.11	0.11	0.11	0.12	0.12	0.12	0.11	0.12	1.1	0.67	0.2 U	0.84	0.87	0.2 U
Sulfate	mg/L	25	24	3700	25	31	49	54	8.3	21	22	30	2700	2900	3100	3000	3000	3200
Total Ammonia	mg/L as N																	
Ammonium Ion (NH^{4+})	mg/L																	
Unionized NH_3	mg/L																	
Nitrate/Nitrite as N	mg/L																	
TKN	mg/L																	
TN	mg/L																	
Orthophosphate	mg/L																	
Phosphorus (P)	mg/L																	
Alkalinity	mg/L ($CaCO_3$)	210	210	180	210	430	230	230	280	280	280	260	130	130	140	300	350	310
Bicarbonate Alkalinity as $CaCO_3$	mg/L	210	210	180	210	1 U	230	230	280	280	280	260	130	130	140	300	250	310
Sulfides	mg/L	1 U	1 U	1 U	1 U	1 U	1 U	1.1 U	1 U	1 U	1 U	1 U	1 U	2.6	1 U	8.3 U	4	2.6
Total Dissolved Solids	mg/L	320	330	53000	290	300	320	320	290	300	330	320	34000	36000	38000	36000	38000	40000
Dissolved Inorganic Carbon	mg/L	52	53	60	52	10 U	59	59	74	74	74	67	36	32	35	79	86	79
$\delta^{18}O$	‰																	
$\delta^{2}H$	‰																	
$\delta^{13}C$	‰																	
Gross Alpha	pCi/L																	
Salinity (PSS-78)		0.3	0.3		0.3	1.1	0.3	0.3	0.3	0.3		0.3	34.7	36.5	39.3	36.4	37.5	40.0
$^{87}Sr/^{86}Sr$	µg/L*																	
Tritium	pCi/L (1σ)																	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (6/13/12) is a duplicate of TPGW-1M.

[2] Sample TPGW-Dup2 (6/13/12) is a duplicate of TPGW-7M.

[3] Sample TPGW-Dup1 (6/4/12) is a duplicate of TPGW-9M.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-9. Summary of Groundwater Analytical Results from the June 2012 Sampling Event

		TPGW-12S		TPGW-12M		TPGW-12D		TPGW-13S		TPGW-13M		TPGW-13D		TPGW-14S		TPGW-14M		TPGW-14D		TPGW-EB1		TPGW-FB1		TPGW-FB1		FB1		TPGW-FB1		TPGW-FB1	
Parameter	**Units**	**6/7/2012**		**6/7/2012**		**6/7/2012**		**6/7/2012**		**6/7/2012**		**6/7/2012**		**6/5/2012**		**6/5/2012**		**6/5/2012**		**6/4/2012**		**6/5/2012**		**6/7/2012**		**6/12/2012**		**6/13/2012**		**6/14/2012**	
Temperature	°C	26.78		26.50		26.61		30.47		30.20		30.21		27.49		27.33		27.28													
pH	SU	6.77		7.04		7.23		7.05		7.08		7.08		7.04		6.96		6.97													
Dissolved Oxygen	mg/L	0.35		0.27		0.44		0.27		0.60		0.30		0.45		0.47		0.34													
Specific Conductance	µS/cm	43247		65003		65013		84225		80280		81844		57931		63535		74001													
Turbidity	NTU	0.01		0.01		0.67		0.00		0.38		0.01		0.05		0.08		0.12													
Arsenic	mg/L																														
Barium	mg/L	0.066		0.12		0.1		0.091		0.11		0.1		0.041	I	0.051		0.082		0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U	0.00035	U
Beryllium	mg/L																														
Cadmium	mg/L																														
Copper	mg/L																														
Iron	mg/L	0.027	U	0.04	I	0.12	I	0.027	U	2.0		0.75		0.044	I V	0.042	I V	0.038	I V	0.014	I	0.0092	I V	0.0043	I	0.0027	U	0.0027	U	0.0027	U
Lead	mg/L																														
Manganese	mg/L																														
Molybdenum	mg/L																														
Nickel	mg/L																														
Selenium	mg/L																														
Thallium	mg/L																														
Vanadium	mg/L																														
Zinc	mg/L																														
Silica	mg/L																														
Calcium	mg/L	520		640		640		800		750		760		530		580		660		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Magnesium	mg/L	1100		1700		1700		2400		2100		2200		1500		1600		2100		0.02	U	0.02	U	0.02	U	0.025	I	0.02	U	0.02	U
Potassium	mg/L	330		500		500		720		650		660		440		470		590		0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	9000		14000		13000		18000		17000		17000		12000		13000		16000		0.31	U	0.31	U	0.31	I	0.31	U	0.31	U	0.31	U
Boron	mg/L	3.3		4.8		4.8		7.6		6.5		6.7		4.6		4.7		5.9		0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Strontium	mg/L	7.5		10		10		14		14		14		8.8		9.7		12		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chromium VI	mg/L																														
Mercury	mg/L																														
Bromide	mg/L	54		89		86		120		110		110		78		85		100		0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	15000		25000		25000		35000		32000		32000		22000		25000		30000		0.2	U	0.37	I	0.34	I	0.2	U	0.2	U	0.2	U
Fluoride	mg/L	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Sulfate	mg/L	2000		3500		3300		4600		4300		4300		3100		3300		4000		0.2	U	0.2	U	0.2	U	0.2	U	0.2	I	0.2	U
Total Ammonia	mg/L as N																														
Ammonium Ion (NH^{4+})	mg/L																														
Unionized NH_3	mg/L																														
Nitrate/Nitrite as N	mg/L																														
TKN	mg/L																														
TN	mg/L																														
Orthophosphate	mg/L																														
Phosphorus (P)	mg/L																														
Alkalinity	mg/L ($CaCO_3$)	530		210		200		200		190		190		260		270		210		3.5		1.9		1.6		1		1	U	1	U
Bicarbonate Alkalinity as $CaCO_3$	mg/L	530		210		200		200		190		190		260		270		210		3.5		1.9		1.6		1		1	U	1	U
Sulfides	mg/L	9.9		1	U	1	U	16		1	U	1	U	2.4		4.3		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	28000		44000		43000		60000		55000		58000		39000		43000		52000		5	U	5	U	5	U	190		5	U	60	
Dissolved Inorganic Carbon	mg/L	140		60		57		54		56		56		67		74		62		1.3		1	U	1	U	1	U	1	U	1	U
$\delta^{18}O$	‰																														
$\delta^{2}H$	‰																														
$\delta^{13}C$	‰																														
Gross Alpha	pCi/L																														
Salinity (PSS-78)		27.8		44.0		44.0		59.1		55.9		57.2		38.6		42.8		51.0													
$^{87}Sr/^{86}Sr$	µg/L*																														
Tritium	pCi/L (1σ)																														

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (6/13/12) is a duplicate of TPGW-1M.

[2] Sample TPGW-Dup2 (6/13/12) is a duplicate of TPGW-7M.

[3] Sample TPGW-Dup1 (6/4/12) is a duplicate of TPGW-9M.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.1-10. Summary of Groundwater Analytical Results from the October 2010 Historical Well Sampling Event

Parameter	Units	TPGW-L3-18 10/19/2010		TPGW-L3-58 10/19/2010		TPGW-L5-18 10/19/2010		TPGW-L5-58 10/19/2010		TPGW-G21-18 10/21/2010		TPGW-G21-58 10/21/2010		TPGW-G28-18 10/19/2010		TPGW-G28-58 10/19/2010		TPGW-G35-18 10/19/2010		TPGW-G35-58 10/19/2010		F Blank 1 10/21/2010		F Blank 1 10/19/2010	
Temperature	°C	27.5	J	28.1	J	28.4	J	27.9	J	25.5	J	25.1	J	24.7	J	24.8	J	25.6	J	25.1	J				
pH	SU	7.1	J	7.0	J	7.8	J	7.0	J	7.5	J	6.8	J	9.0	J	7.0	J	7.1	J	7.1	J				
Dissolved Oxygen	mg/L	0.1	J	0.2	J	0.1	J	0.2	J	0.1	J	0.2	J	0.1	J	0.2	J	0.1	J	0.3	J				
Specific Conductance	µS/cm	1340.0	J	80211.0	J	494.0	J	75992.0	J	429.0	J	13419.0	J	8264.0	J	39797.0	J	736.0	J	18117.0	J				
Turbidity	NTU	1.7	J	0.5	J	1.4	J	0.8	J	6.4	J	0.4	J	11.1	J	9.0	J	0.7	J	0.2	J				
Arsenic	mg/L																								
Barium	mg/L	0.016	U	0.075	I	0.016	U	0.094	I	0.016	U	0.420		0.048	I	0.150	I	0.016	U	0.025	I	0.00081	U	0.00081	U
Beryllium	mg/L																								
Cadmium	mg/L																								
Copper	mg/L																								
Iron	mg/L	0.054	U	0.460	I	0.260	I	0.810	I	0.390	IJ	0.310	I	0.340	I	4.0		0.310	I	1.5		0.0037	I	0.0027	U
Lead	mg/L																								
Manganese	mg/L																								
Molybdenum	mg/L																								
Nickel	mg/L																								
Selenium	mg/L																								
Thallium	mg/L																								
Vanadium	mg/L																								
Zinc	mg/L																								
Silica	mg/L																								
Calcium	mg/L	95		700		48		720		65		540		270		590		110		310		0.10	U	0.11	I
Magnesium	mg/L	19		2100		5.8		2000		2.9		150		56		880		5.7		350		0.020	U	0.020	U
Potassium	mg/L	6.2		640		2.6		590		4.4		25		14		190		6.9		100		0.19	U	0.19	U
Sodium	mg/L	140		17000		38		16000		15		2000		970		7700		26		3300		0.31	U	0.31	U
Boron	mg/L	0.095		6.7		0.030	I	6.2		0.032	I	0.140		0.150		1.4		0.061		1.6		0.010	U	0.010	U
Strontium	mg/L	1.0		13.0		0.530		14.0		0.950		6.3		2.4		7.6		1.1		4.9		0.001	U	0.001	U
Chromium VI	mg/L																								
Mercury	mg/L																								
Bromide	mg/L	0.69		0.027	U	0.17		0.027	U	0.097		0.027	U	0.027	U	0.027	U	0.21	J-	0.027	U	0.027	U	0.027	U
Chloride	mg/L	260		33000		72		31000		34		4600		2200		15000		46		6100		0.20	U	0.46	I
Fluoride	mg/L	0.10		0.020	U	0.057		0.020	U	0.094		0.020	U	0.020	U	0.020	U	0.066		0.020	U	0.020	U	0.020	U
Sulfate	mg/L	20		3900		0.46	I	3600		2.4		0.20	U	130		1400		35		750		0.20	U	0.20	I
Total Ammonia	mg/L as N																								
Ammonium Ion (NH_4^+)	mg/L																								
Unionized NH_3	mg/L																								
Nitrate/Nitrite as N	mg/L																								
TKN	mg/L																								
TN	mg/L																								
Orthophosphate	mg/L																								
Phosphorus (P)	mg/L																								
Alkalinity	mg/L ($CaCO_3$)	230		160		120		180		150		180		30		200		260		160		1.1		2.8	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	230		160		120		180		150		180		30		200		260		160		1.1		2.8	
Sulfides	mg/L	4.8		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	730		56000		260		53000		230		8500		3800		24000		400		10000		5.0	U	5.0	U
Dissolved Inorganic Carbon	mg/L	57		37		29		41		37		42		9.1		47		58		38		1.0	U	1.0	U
$\delta^{18}O$	‰	0.6		4.9		-4.0		4.7		-2.1		-1.0		-1.2		1.9		-1.7		-0.8		-1.1		-1.2	
$\delta^{2}H$	‰	7.0		28.0		-32.0		25.0		-12.0		-3.0		-6.0		15.0		-7.0		-4.0		-4.0		-6.0	
$\delta^{13}C$	‰	-11.1		-7.7		-9.8		-7.2		-9.4		-9.2		-12.0		-7.8		-10.8		-7.2		-10.2		-18.3	
Gross Alpha	pCi/L																								
Salinity (PSS-78)		0.7	J	56.0	J	0.2	J	52.6	J	0.2	J	7.7	J	4.6	J	25.4	J	0.4	J	10.7	J				
$^{87}Sr/^{86}Sr$	mg/L*	0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.7		0.0		0.0	U
Tritium	pCi/L (1σ)	55.8(6.8)		3850(132)		84.4(7.4)		3198(114)		6.0(5.9)		13.3(5.9)		6.9(5.9)		413(17)		11.7(5.9)		1.4(5.7)	UJ	2.3(5.9)	UJ	3.2(5.8)	UJ

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
Text in blue are revised values.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.

Table 3.1-11. Summary of Groundwater Analytical Results from the January 2011 Historical Well Sampling Event

Parameter	Units	TPGW-L3-18 1/27/2011		TPGW-L3-58 1/27/2011		TPGW-L5-18 1/27/2011		TPGW-L5-58 1/27/2011		TPGW-G21-18 1/28/2011		TPGW-G21-58 1/28/2011		TPGW-G28-18 1/28/2011		TPGW-G28-58 1/28/2011		TPGW-G35-18 1/28/2011		TPGW-G35-58 1/28/2011		EB1 1/27/2011		FB1 1/28/2011	
Temperature	°C	22.13		24.86		22.05		25.21		23.27		23.29		23.88		23.73		23.62		23.5					
pH	SU	7.42		6.82		7.19		6.76		7.23		6.74		8.06		9.92		7.05		7.02					
Dissolved Oxygen	mg/L	0.17		0.16		1.28		0.15		0.47		0.18		0.59		0.18		0.16		0.16					
Specific Conductance	µS/cm	699		84800		908		80124		548		14319		9991		41949		775		18039					
Turbidity	NTU	1.41		0.2		1.44		0.27		1.52		1.41		9		6.84		0.48		0.59					
Arsenic	mg/L																								
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.018		0.098	I	0.095	I	0.031	I	0.016	U	0.00081	U	0.0029	I
Beryllium	mg/L																								
Cadmium	mg/L																								
Copper	mg/L																								
Iron	mg/L	0.054	U	0.510	I	0.054	U	1.0		0.054	U	0.014	I	0.260	I	4.0		0.054	U	1.3		0.0027	U	0.0027	U
Lead	mg/L																								
Manganese	mg/L																								
Molybdenum	mg/L																								
Nickel	mg/L																								
Selenium	mg/L																								
Thallium	mg/L																								
Vanadium	mg/L																								
Zinc	mg/L																								
Silica	mg/L																								
Calcium	mg/L	81		660		65		660		82		490		310		530		110		250		0.10	U	0.12	I
Magnesium	mg/L	9.4		2200		7.8		2100		3.7		160		96		870		5.9		340		0.020	U	0.020	U
Potassium	mg/L	4.0		1400		3.0		1300		4.3		55		38		440		7.8		230		0.19	U	0.19	U
Sodium	mg/L	89		21000		54		20000		20		2700		1800		8300		30		3500		0.31	U	0.31	U
Boron	mg/L	0.044	I	7.5		0.041	I	6.8		0.038	I	0.160		0.200		1.5		0.060		1.6		0.010	U	0.010	U
Strontium	mg/L	0.750		13.0		0.650		14.0		0.860		6.1		3.3		7.3		1.0		4.1		0.001	U	0.001	U
Chromium VI	mg/L																								
Mercury	mg/L																								
Bromide	mg/L	0.35	I	110		0.27	U	210		0.14		16		9.0		48		0.28		19		0.027	U	0.027	U
Chloride	mg/L	170		34000		100		32000		38	J-	4800		3200		15000		52		5800		0.20	U	0.20	U
Fluoride	mg/L	0.065		0.20	U	0.069		0.20	U	0.11	J+	0.020	U	0.020	U	0.020	U	0.084		0.020	U	0.020	U	0.020	U
Sulfate	mg/L	24		4000		17		3700		11	J-	130		180		1600		40	J-	780		0.20	U	0.20	U
Total Ammonia	mg/L as N																								
Ammonium Ion (NH^{4+})	mg/L																								
Unionized NH_3	mg/L																								
Nitrate/Nitrite as N	mg/L																								
TKN	mg/L																								
TN	mg/L																								
Orthophosphate	mg/L																								
Phosphorus (P)	mg/L																								
Alkalinity	mg/L ($CaCO_3$)	140		160		140		170		180		180		120		200		240		160		3.1		1.0	U
Bicarbonate Alkalinity as $CaCO_3$	mg/L	140		160		140		170		180		180		120		200		240		160		3.1		1.0	U
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	490		56000		350	J	55000		270		9400		5900		26000		400		11000		5.0	U	5.0	U
Dissolved Inorganic Carbon	mg/L	39		42		39		45		49		35		46		43		2.6		43		1.0	U	1.0	U
$\delta^{18}O$	‰	-0.7		5.0		-0.9		4.5		-1.8		-1.0		-1.0		1.8		-1.6		-0.7		-1.0		-1.2	
$\delta^{2}H$	‰	3.0		31.0		2.0		30.0		-11.0		1.0		-5.0		12.0		-6.0		1.0		-6.0		-5.0	
$\delta^{13}C$	‰	-9.80		-7.38		-9.02		-7.14		-9.69		9.24		-11.00		-7.66		-10.94		-7.34		-20.38		-17.07	
Gross Alpha	pCi/L																								
Salinity (PSS-78)		0.3		59.8		0.4		56.0		0.3		8.3		5.6		26.9		0.4		10.7					
$^{87}Sr/^{86}Sr$	mg/L*	0.70915		0.70912		0.70916		0.70909		0.70911		0.70912		0.70915		0.70912		0.70911		0.70915		0.177		0.177	
Tritium	pCi/L (1σ)	80.4(10.4)		4040(250)		64.7(8.9)		3320(200)		4.4(8.1)	UJ	17.3(8)		13.9(8.3)		4440(30)		16.2(8.1)		-2.6(7.7)	UJ	2.6(6.7)	UJ	0.5(7.8)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.

Table 3.1-12. Summary of Groundwater Analytical Results from the March 2011 Historical Well Sampling Event

Parameter	Units	TPGW-L3-18 3/16/2011		TPGW-L3-58 3/16/2011		031611-DUP1 [1] 3/16/2011		TPGW-L5-18 3/16/2011		TPGW-L5-58 3/16/2011		TPGW-G21-18 3/17/2011		TPGW-G21-58 3/17/2011		TPGW-G28-18 3/17/2011		TPGW-G28-58 3/17/2011		TPGW-G35-18 3/17/2011		TPGW-G35-58 3/17/2011		EB1 40271 3/17/2011		EB1 40269 3/16/2011	
Temperature	°C	24.52		26.96				23.78		26.93		23.19		24.28		24.76		24.62		24.29		24.32					
pH	SU	7.69	J	7.08	J			7.58	J	7.07	J	7.40		6.80	J	8.29		7.01		7.36		7.13					
Dissolved Oxygen	mg/L	0.34		0.39				0.85		0.60		1.10		0.18		0.29		0.25		0.15		0.24					
Specific Conductance	µS/cm	930.00		79735.00				963.00		74971.00		592.00		13392.00		9378.00		38230.00		738.00		17867.00					
Turbidity	NTU	0.99		0.44				0.40		0.21		1.12		0.42		3.08		7.82		0.28		0.01					
Arsenic	mg/L																										
Barium	mg/L	0.016	U	0.033	I	0.034	I	0.016	U	0.140	I	0.016	U	0.390		0.086	I	0.150	I	0.016	U	0.054	I	0.007	IV	0.001	U
Beryllium	mg/L																										
Cadmium	mg/L																										
Copper	mg/L																										
Iron	mg/L	0.054	U	0.560	IJ	0.480	I	0.400	I	1.400		0.092	I	0.350	I	0.450	I	4.200		0.270	I	1.600		0.003	U	0.006	I
Lead	mg/L																										
Manganese	mg/L																										
Molybdenum	mg/L																										
Nickel	mg/L																										
Selenium	mg/L																										
Thallium	mg/L																										
Vanadium	mg/L																										
Zinc	mg/L																										
Silica	mg/L																										
Calcium	mg/L	85		710		710		86		720		90		550		320		590		89		310		0.1	U	0.1	U
Magnesium	mg/L	12		2200		2200		12		2000		4.2		160		77		910		6.7		380		0.02	U	0.02	U
Potassium	mg/L	3.7		640		630		3.9		580		5.2		25		18		190		9.1		110		0.19	U	0.19	U
Sodium	mg/L	76		16000		16000		82		15000		26		2100		1200		7300		44		3200		0.31	U	0.35	I
Boron	mg/L	0.052		6.7		6.7		0.054		6		0.056		0.15		0.17		1.4		0.074		1.6		0.037	I	0.01	U
Strontium	mg/L	0.82		13		13		0.81		14		0.9		6.2		2.9		7.4		0.92		4.8		0.001	U	0.001	U
Chromium VI	mg/L																										
Mercury	mg/L																										
Bromide	mg/L	0.29	I	99		120		0.4	I	91		0.2		17		11		48		0.37	I	23		0.027	U	0.027	U
Chloride	mg/L	150		33000		33000		170		31000		50		4900		3300		15000		82		6300		0.2	U	0.2	U
Fluoride	mg/L	0.061		0.22	I	0.2	U	0.068		0.2	U	0.096		0.2	U	0.2	U	0.2	U	0.096		0.2	U	0.02	U	0.02	U
Sulfate	mg/L	64		4200		4200		21		3700		16		130		190		1600		65	J-	890		0.2	U	0.2	U
Total Ammonia	mg/L as N																										
Ammonium Ion (NH^{4+})	mg/L																										
Unionized NH_3	mg/L																										
Nitrate/Nitrite as N	mg/L																										
TKN	mg/L																										
TN	mg/L																										
Orthophosphate	mg/L																										
Phosphorus (P)	mg/L																										
Alkalinity	mg/L ($CaCO_3$)	160		160		160		180		170		200		170		99		200		140		160		21		1	U
Bicarbonate Alkalinity as $CaCO_3$	mg/L	160		160		160		180		170		200		170		99		200		140		160		21		1	U
Sulfides	mg/L	1	U	1.1		1.1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	510		55000		55000		510		50000		340		8700		5600		24000		390		10000		5	U	5	U
Dissolved Inorganic Carbon	mg/L	51		49		47		61		52		61		55		33		67		51		49		10	U	10	U
$\delta^{18}O$	‰	-0.8		5.0		-1.5		-1.2		4.7		-1.3		-		-1.3		1.8		-1.0		-0.6		-		-1.2	
$\delta^{2}H$	‰	1.0		27.0		-7.0		-2.0		26.0		-8.0		-		-7.0		12.0		-6.0		-3.0		-		-6.0	
$\delta^{13}C$	‰	-9.77		-7.59		-7.64		-10.58		-6.93		-9.4		-9.37		-10.91		-7.81		-9.96		-7.17		-15.52		-12.92	
Gross Alpha	pCi/L																										
Salinity (PSS-78)		0.5		55.6				0.5		51.8		0.3		7.7		5.3		24.3		0.4		10.5					
$^{87}Sr/^{86}Sr$	mg/L*	0.70918		0.70911		0.70912		0.70915		0.7091		0.70912		0.7091		0.70915		0.70908		0.70913		0.70912		0.035		0.049	
Tritium	pCi/L (1σ)	93.8(10.5)		3960(240)		3900(240)		80.4(9.7)		3270(200)		18.4(7.1)		17.8(6.9)		31.1(6.7)		411(30)		11.6(6.1)		-0.7(5.9)	UJ	-1.5(6.2)	UJ	-1.5(6.5)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-DUP1 (3/16/2011) is a field duplicate of TPGW-L3-58.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

Table 3.1-13. Summary of Groundwater Analytical Results from the June 2011 Historical Well Sampling Event

Parameter	Units	TPGW-L3-18 6/7/2011		TPGW-L3-58 6/7/2011		TPGW-L5-18 6/7/2011		TPGW-L5-58 6/7/2011		TPGW-G21-18 6/8/2011		TPGW-G21-58 6/8/2011		TPGW-G28-18 6/8/2011		TPGW-G28-58 6/8/2011		TPGW-G35-18 6/8/2011		TPGW-G35-58 6/8/2011		TPGW-FB1 6/7/2011		TPGW-FB1 6/8/2011	
Temperature	°C	25.86		28.60		29.92		29.05		24.57		24.72		26.86		24.52		24.53		24.27					
pH	SU	7.39		7.02		7.58		7.15		7.21		6.80	J	8.87		7.83		7.44		7.25					
Dissolved Oxygen	mg/L	0.29		0.26		0.17		0.16		0.20		0.28		0.27		0.25		0.25		0.30					
Specific Conductance	µS/cm	1432		81271		5724		76804		629	J	14355		7130		38862		710	J	18915					
Turbidity	NTU	1.37		0.54		0.92		0.60		1.78		0.67		22.61		25.50		1.25		1.16					
Arsenic	mg/L																								
Barium	mg/L	0.073	I	1.2	I	0.29		1.7	I	0.016	U	0.35		0.023	I	0.081	U	0.016	U	0.081	U	0.00081	U	0.00081	U
Beryllium	mg/L																								
Cadmium	mg/L																								
Copper	mg/L																								
Iron	mg/L	4.7		2.6	I	3		3	I	0.19	I V	0.34	I V	0.23	I V	3.6	I	0.16	I V	3.1	I	0.0027	U	0.0031	I V
Lead	mg/L																								
Manganese	mg/L																								
Molybdenum	mg/L																								
Nickel	mg/L																								
Selenium	mg/L																								
Thallium	mg/L																								
Vanadium	mg/L																								
Zinc	mg/L																								
Silica	mg/L																								
Calcium	mg/L	110		720		170		720		98		560		290		590		87		310		0.1	U	0.1	U
Magnesium	mg/L	19		2200		89		2000		4.2		170		44		870		6.7		370		0.026	I	0.02	U
Potassium	mg/L	6.2		720		26		660		4.9		29		16		200		9.5		110		0.19	U	0.19	U
Sodium	mg/L	140		17000		820		16000		26		2200		1000		6900		41		3200		0.31	U	0.31	U
Boron	mg/L	0.075	J	7.1		0.26	J	6.4		0.047	I J	0.15	J	0.19	J	1.4		0.076	J	1.6		0.075		0.077	
Strontium	mg/L	1		14		1.9		14		0.96		6.7		2.6		7.7		0.94		5		0.001	U	0.001	U
Chromium VI	mg/L																								
Mercury	mg/L																								
Bromide	mg/L	0.87		110		5.3		96		0.27	UJ	17		7		50		0.32	I	19		0.027	U	0.027	U
Chloride	mg/L	260		31000		1500		29000		43	J	4600		2000		13000		65		5900		0.2	U	0.2	U
Fluoride	mg/L	0.083		2.1		0.069		2.1		0.2	UJ	0.65		0.2	U	0.2	U	0.2	U	0.2	U	0.02	U	0.02	U
Sulfate	mg/L	100		310		150		3500		14	J	130		140		1700		62		1100		0.2	U	0.26	I
Total Ammonia	mg/L as N																								
Ammonium Ion (NH^{4+})	mg/L																								
Unionized NH_3	mg/L																								
Nitrate/Nitrite as N	mg/L																								
TKN	mg/L																								
TN	mg/L																								
Orthophosphate	mg/L																								
Phosphorus (P)	mg/L																								
Alkalinity	mg/L ($CaCO_3$)	160		170		200		180		160	J	110	J	45		140		160		32		1	U	1	U
Bicarbonate Alkalinity as $CaCO_3$	mg/L	160		170		200		180		160	J	110	J	45		140		160		32		1	U	1	U
Sulfides	mg/L	1	U	4.5		1.4		1.3		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	820		60000		3100		54000		340		9300		4400		24000		400		10000		16		14	
Dissolved Inorganic Carbon	mg/L	42		46		52		48		63		50		14		56		46		46		10	U	10	U
$\delta^{18}O$	‰	-0.2		5.6		0.6		5.0		-1.3		-0.8		-0.9		2.1		-0.7		-0.6		-1.0		-1.0	
$\delta^{2}H$	‰	3.0		28.0		6.0		26.0		-4.0		4.0		0.0		16.0		-7.0		-1.0		-3.0		-6.0	
$\delta^{13}C$	‰	-10.81		-7.74		-9.94		-7.54		-9.69		-9.31		-10.79		-7.76		-9.70		-7.16		-17.89		-17.24	
Gross Alpha	pCi/L																								
Salinity (PSS-78)		0.7		56.8		3.1		53.2		0.3	J	8.3		3.9		24.7		0.3	J	11.2					
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70912		0.70915		0.70911		0.70915		0.70913		0.70913		0.70912		0.70914		0.7091		0.1		0.1	
Tritium	pCi/L (1σ)	94.7 (8.4)		3730 (210)		113.2 (9.3)		3438 (198)		22.5 (5.8)		24 (5.8)		16.8 (7.9)		410 (27)		7.7 (7.8)	UJ	15.9 (7.8)		8.6 (5.6)		4.8 (5.5)	UJ

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
Text in blue are revised values.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-14. Summary of Groundwater Analytical Results from the September 2011 Historical Well Sampling Event

Parameter	Units	TPGW-L3-18 9/19/2011		TPGW-L3-58 9/19/2011		TPGW-L5-18 9/19/2011		TPGW-L5-58 9/19/2011		TPGW-G21-18 9/20/2011		TPGW-G21-58 9/20/2011		TPGW-G28-18 9/20/2011		TPGW-G28-58 9/20/2011		TPGW-G35-18 9/20/2011		TPGW-G35-58 9/20/2011		TPGW-FB1 9/20/2011		TPGW-FB1 9/19/2011	
Temperature	°C	28.62		29.40		30.12		29.10		25.7		25.26		24.88		25.18		25.59		25.91					
pH	SU	7.16		7.11		7.55		7.00		7.42		6.89	J	8.23		7.09		7.36		7.34					
Dissolved Oxygen	mg/L	0.06		0.07		0.18		0.54		0.14		0.26		0.25		0.24		0.16		0.27					
Specific Conductance	µS/cm	3742		79557		797	J	75568		588	J	14409		7824		38933		697	J	16117					
Turbidity	NTU	1.37		0.37		0.42		0.06		0.65		0.47		15.04		9.67		1.06		0.17					
Arsenic	mg/L																								
Barium	mg/L	0.09	I	0.08	U	0.08	I	0.08	U	0.13	I J	0.34	I J	0.08	U	0.08	U	0.08	U	0.09	I J	0.0012	I	0.0008	U
Beryllium	mg/L																								
Cadmium	mg/L																								
Copper	mg/L																								
Iron	mg/L	0.27	U	1.30	I	0.27	U	1.20	I	6.90		0.51	I V J	0.76	I V J	4.30	I J	0.39	I V J	1.60	I V J	0.0063	I V	0.0027	U
Lead	mg/L																								
Manganese	mg/L																								
Molybdenum	mg/L																								
Nickel	mg/L																								
Selenium	mg/L																								
Thallium	mg/L																								
Vanadium	mg/L																								
Zinc	mg/L																								
Silica	mg/L																								
Calcium	mg/L	150		720		64		730		83		560		290		570		110		250		0.1	U	0.1	U
Magnesium	mg/L	62		2100		8.6		2100		4.3		180		70		870		5.9		310		0.039	I V	0.02	U
Potassium	mg/L	18		660		3.3		630		4.2		26		18		190		8.1		98		0.19	U	0.19	U
Sodium	mg/L	480		17000		79		16000		30		2200		1200		7300		28		2800		0.31	U	0.31	U
Boron	mg/L	0.21		7		0.052	J	6.5		0.045	I	0.15		0.2		1.5		0.068		1.4		0.066		0.066	
Strontium	mg/L	1.5		13		0.66		14		0.98		6.9		3		7.7		1.1		3.9		0.001	U	0.001	U
Chromium VI	mg/L																								
Mercury	mg/L																								
Bromide	mg/L	3.6		97		0.86	I	92		0.25	J	20		8.2		62		0.3		22		0.027	U	0.027	U
Chloride	mg/L	950	J-	32000		150		30000		55	J	4800		2300		14000		43		4600		0.35	I	0.31	I
Fluoride	mg/L	0.4	U	0.4	U	0.4	U	0.4	U	0.095	J	0.4	U	0.4	U	0.4	U	0.097		0.4	U	0.02	U	0.02	U
Sulfate	mg/L	140		3900		17		3600		12	J	170		140		1500		45		870		0.2	U	0.2	U
Total Ammonia	mg/L as N																								
Ammonium Ion (NH^{4+})	mg/L																								
Unionized NH_3	mg/L																								
Nitrate/Nitrite as N	mg/L																								
TKN	mg/L																								
TN	mg/L																								
Orthophosphate	mg/L																								
Phosphorus (P)	mg/L																								
Alkalinity	mg/L ($CaCO_3$)	250		150		120		160		160	J	170		99		190		220		150		1	U	1	U
Bicarbonate Alkalinity as $CaCO_3$	mg/L	250		150		120		160		160	J	170		99		190		220		150		1	U	1	U
Sulfides	mg/L	8.3		2.4		1	U	1	U	1.4		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	1500		56000		450		52000		320		9600		4300		25000		300		9100		5	U	5	U
Dissolved Inorganic Carbon	mg/L	72		53		42		54		57		53		27		60		67		49		10	U	10	U
$\delta^{18}O$	‰	0.00		4.90		0.10		4.60		-1.7		-1		-1.2		1.7		-1.7		-0.8		-1.30		-1.40	
$\delta^{2}H$	‰	3.00		29.00		-1.00		22.00		-9		0		-4		12		-3		-3		-2.00		-8.00	
$\delta^{13}C$	‰	-11.47		-8.13		-11.11		-7.65		-10.54		-9.86		-10.82		-8.02		-11.26		-8.02		-13.71		-12.45	
Gross Alpha	pCi/L																								
Salinity (PSS-78)		2.0		55.4		0.4	J	52.2		0.3	J	8.3		4.3		24.8		0.3	J	9.4					
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70916		0.70916		0.70911		0.7091		0.70914		0.70915		0.70912		0.70915		0.70914		0.1		0.1	
Tritium	pCi/L (1σ)	89 (9)		4010 (250)		5.3 (7.4)	UJ	3350 (210)		14.8 (7.6)		24.7 (8.1)		16.7 (7.7)		430 (30)		2.2 (7.3)	UJ	-1.7 (6.8)	UJ	6.2 (7.4)	UJ	1.1 (6.1)	UJ

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
Text in blue are revised values.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-15. Summary of Groundwater Analytical Results from the December 2011 Historical Well Sampling Event

Parameter	Units	TPGW-L3-18 12/6/2011		TPGW-L3-58 12/6/2011		TPGW-L5-18 12/6/2011		TPGW-L5-58 12/6/2011		TPGW-G21-18 12/7/2011		TPGW-Dup1 [1] 12/7/2011		TPGW-G21-58 12/7/2011		TPGW-G28-18 12/7/2011		TPGW-G28-58 12/7/2011		TPGW-G35-18 12/7/2011		TPGW-G35-58 12/7/2011		TPGW-FB1 12/6/2011		TPGW-FB1 12/7/2011	
Temperature	°C	26.28		27.73		26.27		27.17		24.76				24.34		24.69		24.88		24.62		24.10					
pH	SU	7.41		6.97	J	7.43		6.93	J	7.22				6.80	J	8.18		6.96	J	7.12		7.20					
Dissolved Oxygen	mg/L	0.38		0.52		0.37		0.30		0.25				0.22		0.15		0.23		0.22		0.17					
Specific Conductance	µS/cm	657	J	79760		665	J	76281		538	J			15127		8304		39168		709	J	18279					
Turbidity	NTU	2.87		0.42		3.69		0.80		3.37				1.33		22.78		31.92		1.45		1.38					
Arsenic	mg/L																										
Barium	mg/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.31	I	0.12	I	0.08	U	0.08	U	0.08	U	0.00081	U	0.00081	U
Beryllium	mg/L																										
Cadmium	mg/L																										
Copper	mg/L																										
Iron	mg/L	0.27	U	1.00	I	0.27	U	1.30	I	0.27	U	0.27	U	0.27	U	0.39	I	3.90	I	1.30	I	1.30	I	0.0027	U	0.0034	I
Lead	mg/L																										
Manganese	mg/L																										
Molybdenum	mg/L																										
Nickel	mg/L																										
Selenium	mg/L																										
Thallium	mg/L																										
Vanadium	mg/L																										
Zinc	mg/L																										
Silica	mg/L																										
Calcium	mg/L	65		740		64		700		83		81		570		0.1	U	300		100		320		0.11	I	0.11	I
Magnesium	mg/L	8.1		2000		7.6		1900		3.8		3.6		170		0.021	I	79		5.2		350		0.048	I	0.034	I
Potassium	mg/L	4		700		3.4		600		4.6		4.5		25		0.19	U	19		6.9		120		0.19	U	0.19	U
Sodium	mg/L	54		17000		50		15000		22		22		2200		0.31	U	1100		29		3000		0.31	U	0.31	U
Boron	mg/L	0.033	I	6.9		0.032	I	5.9		0.043	I	0.042	I	0.14		0.019	I	0.2		0.06		1.6		0.062		0.072	
Strontium	mg/L	0.64		13		0.62		14		0.84		0.82		6.2		0.001	U	2.9		0.95		4.8		0.001	U	0.001	U
Chromium VI	mg/L																										
Mercury	mg/L																										
Bromide	mg/L	0.35		110		0.33		110		0.22		0.027	U	18		9.7		50		0.027	U	21		0.027	U	0.027	U
Chloride	mg/L	99		34000		100		32000		37		37		4900		2800		15000		48		5900		0.2	U	0.2	U
Fluoride	mg/L	0.072		0.4	U	0.072		0.4	U	0.11		0.11		0.4	U	0.4	U	0.4	U	0.092		0.4	U	0.035	I	0.02	I
Sulfate	mg/L	8.9		4500		6.4		4300		17		17		170		200		1800		45		890		0.2	U	0.2	U
Total Ammonia	mg/L as N																										
Ammonium ion NH_4	mg/L																										
Unionized NH_3	mg/L																										
Nitrate/Nitrite as N	mg/L																										
TKN	mg/L																										
TN	mg/L																										
Orthophosphate	mg/L																										
Phosphorus (P)	mg/L																										
Alkalinity	mg/L ($CaCO_3$)	190		200		190		220		220		230		220		120		240		270		190		2.2		1	U
Bicarbonate Alkalinity as $CaCO_3$	mg/L	190		200		190		220		220		230		220		120		240		270		190		2.2		1	U
Sulfides	mg/L	1	U	2.1		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	310		57000		330		51000		260		270		8300		3900		23000		350		9500		5	U	5	U
Dissolved Inorganic Carbon	mg/L	49		45		48		54		55		53		45		25		54		61		44		1	U	10	U
$\delta^{18}O$	‰	-1.3		-1.3		-1.1		1.9		-0.7		-0.7		-1.7		-1.9		-1.8		-1.7		-2.5		-1.2		-1	
$\delta^{2}H$	‰	1.00		27.00		-2		23		-9.00	J	-5	J	-5.00		0.00		12.00		-6.00		-3.00		-6		-4	
$\delta^{13}C$	‰	-9.38		-7.66		-10.54		-7.18		-9.92		-9.87		-9.48		-10.89		-7.92		-11.13		-7.43		-10.41		-7.98	
Gross Alpha	pCi/L																										
Salinity (PSS-78)		0.3		55.6		0.3		52.8		0.3				8.8		4.6		24.9		0.3		10.8					
$^{87}Sr/^{86}Sr$	µg/L*																										
Tritium	pCi/L (1σ)	53.9 (8.4)		4040 (240)		44.4 (8)		3440 (210)		4.3 (5.2)	UJ	10.7 (5.4)		22.3 (5.7)		7.5 (5.3)		424 (26)		18.7 (5.5)		12.1 (5.4)		6.5 (8)	UJ	-0.4 (5.4)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPGW-Dup1 (12/7/11) is a duplicate of TPGW-G21-18.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

Table 3.1-16. Summary of Groundwater Analytical Results from the March 2012 Historical Well Sampling Event

Parameter	Units	TPGW-L3-18 3/6/2012		TPGW-L3-58 3/6/2012		TPGW-L5-18 3/6/2012		TPGW-L5-58 3/6/2012		TPGW-G21-18 3/7/2012		TPGW-G21-58 3/7/2012		TPGW-G28-18 3/7/2012		TPGW-Dup1 [1] 3/7/2012		TPGW-G28-58 3/7/2012		TPGW-G35-18 3/7/2012		TPGW-G35-58 3/7/2012		TPGW-EB1 3/1/2012		TPGW-FB1 3/7/2012	
Temperature	°C	25.34		26.53		24.09		25.43		24.05		24.33		24.85				24.63		23.89		23.94					
pH	SU	7.34		7.03		7.27		6.97		7.24		6.82		9.77				7.03		7.30		7.25					
Dissolved Oxygen	mg/L	0.45		0.13		0.35		0.18		0.42		0.65		1.35				0.50		0.47		0.41					
Specific Conductance	µS/cm	976.00		80857.00		971.00		76503.00		536.00		15767.00		6087.00				39655.00		737.00		18874.00					
Turbidity	NTU	1.05		0.18		0.23		0.53		1.43		0.88		26.75				21.62		1.19		1.23					
Arsenic	mg/L																							0.0012	I V		
Barium	mg/L	0.17	I V	0.08	U	0.12	I V	0.08	U	0.17	I V	0.46	I V	0.21	I V	0.17	I V	0.21	I V	0.10	I V	0.08	U	0.0008	U	0.0008	U
Beryllium	mg/L																							0.0002	U		
Cadmium	mg/L																							0.0004	U		
Copper	mg/L																							0.0003	U		
Iron	mg/L	0.31	I	0.88	I	0.27	U	1.20	I	0.52	I	0.27	U	0.90	I	0.54	I	3.90	I	0.53	I	1.40	I	0.0074	I	0.00	I V
Lead	mg/L																							0.0024	U		
Manganese	mg/L																							0.0005	U		
Molybdenum	mg/L																							0.0005	U		
Nickel	mg/L																							0.0014	U		
Selenium	mg/L																							0.0039	I		
Thallium	mg/L																							0.0016	U		
Vanadium	mg/L																							0.0005	U		
Zinc	mg/L																							0.0018	U		
Silica	mg/L																										
Calcium	mg/L	88.00		750.00		99.00		760.00	J	85.00		980.00		350.00		340.00		660.00		90.00		340.00		0.63		1.20	
Magnesium	mg/L	11.00		2100.00		11.00		2000.00	J	3.60		190.00		100.00		97.00		870.00		6.60		380.00		0.23		0.39	
Potassium	mg/L	4.40		720.00		4.00		660.00	J	4.20		32.00		24.00		24.00		220.00		10.00		140.00		4.40		17.00	
Sodium	mg/L	82.00		16000.00		75.00		15000.00	J	21.00		2500.00		1400.00		1400.00		7300.00		45.00		3300.00		79.00		110.00	
Boron	mg/L	0.04	I	7.00		0.06		6.30		0.04	I	0.15		0.22		0.22		1.50		0.08		1.70		0.05		0.05	I
Strontium	mg/L	0.90		13.00		0.89		14.00		0.83		7.00		3.40		3.30		7.80		0.96		5.20		0.00	I	0.00	I
Chromium VI	mg/L																										
Mercury	mg/L																							0.00	U		
Bromide	mg/L	0.84	I	120.00		0.86	I	110.00		0.19		20.00		11.00		9.50		53.00		0.94	I	23.00		0.03	U	0.03	U
Chloride	mg/L	170.00		32000.00	J-	150.00		31000.00		36.00		5300.00		2700.00		2700.00		14000.00		74.00		5700.00		36.00		97.00	
Fluoride	mg/L	1.00		0.40	U	0.53	I	0.40	U	0.12		0.40	U	0.47	I	0.40	U	0.40	U	0.40	U	0.40	U	0.50		0.28	
Sulfate	mg/L	67.00		4700.00		76.00		4100.00		13.00		170.00		200.00		200.00		1700.00		79.00		900.00		0.20	U	0.20	U
Total Ammonia	mg/L as N																							1.30			
Ammonium Ion (NH^{4+})	mg/L																										
Unionized NH_3	mg/L																										
Nitrate/Nitrite as N	mg/L																							0.00	U		
TKN	mg/L																							4.00			
TN	mg/L																										
Orthophosphate	mg/L																										
Phosphorus (P)	mg/L																							0.01	I		
Alkalinity	mg/L ($CaCO_3$)	170.00		190.00		190.00		190.00		170.00		200.00		120.00		110.00		210.00		160.00		170.00		140.00		120.00	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	170.00		190.00		190.00		190.00		170.00		200.00		120.00		110.00		210.00		160.00		170.00		140.00		120.00	
Sulfides	mg/L	1.00	U	2.90		1.00	U	1.00	U	1.00	U	3.00		3.00		1.00	U	1.90		2.40		3.00		1.00	U	1.00	U
Total Dissolved Solids	mg/L	500.00		58000.00		480.00		53000.00		230.00		9300.00		4700.00		4300.00		23000.00		390.00		11000.00		160.00		250.00	
Dissolved Inorganic Carbon	mg/L	51.00		50.00		51.00		40.00		47.00		42.00		29.00		28.00		60.00		36.00		37.00		1.00	U	29.00	
$\delta^{18}O$	‰																										
$\delta^{2}H$	‰																										
$\delta^{13}C$	‰																										
Gross Alpha	pCi/L																										
Salinity (PSS-78)		0.5		56.6		0.5		53.1		0.3		9.2		3.3				25.3		0.4		11.2					
$^{87}Sr/^{86}Sr$	µg/L*																										
Tritium	pCi/L (1σ)																										

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
[1] Sample TPGW-DUP1 (3/7/2012) is a field duplicate of TPGW-G28-18.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.1-17. Summary of Groundwater Analytical Results from the June 2012 Historical Well Sampling Event

		TPGW-L3-18		TPGW-L3-58		TPGW-L5-18		TPGW-L5-58		TPGW-G21-18		TPGW-G21-58		TPGW-G28-18		TPGW-G28-58		TPGW-G35-18		TPGW-G35-58		FB1	
Parameter	**Units**	**6/11/2012**		**6/11/2012**		**6/11/2012**		**6/11/2012**		**6/12/2012**		**6/12/2012**		**6/12/2012**		**6/12/2012**		**6/12/2012**		**6/12/2012**		**6/12/2012**	
Temperature	°C	26.46		27.93		29.04		29.34		26.03		26.35		26.26		25.49		24.29		24.50			
pH	SU	7.21		7.07		7.5		7.04		6.98		6.87		8.49		7.06		6.99		7.28			
Dissolved Oxygen	mg/L	0.17		0.26		0.23		0.24		0.58		0.64		0.22		0.44		0.35		0.48			
Specific Conductance	µS/cm	838		79755		739		75732		543		16058		9012		39290		669		18498			
Turbidity	NTU	0.54		0.12		0.85		0.10		0.72		0.12		30.73		15.03		0.13		0.10			
Arsenic	mg/L																						
Barium	mg/L	0.0059		0.1		0.006		0.12		0.0095		0.42		0.094		0.16		0.014		0.063		0.00035	U
Beryllium	mg/L																						
Cadmium	mg/L																						
Copper	mg/L																						
Iron	mg/L	0.082		0.027	U	0.12		0.51		0.15		0.2		0.49		3.3		0.14		1.6		0.0027	U
Lead	mg/L																						
Manganese	mg/L																						
Molybdenum	mg/L																						
Nickel	mg/L																						
Selenium	mg/L																						
Thallium	mg/L																						
Vanadium	mg/L																						
Zinc	mg/L																						
Silica	mg/L																						
Calcium	mg/L	71		760		77	J3	720		85		980		340		600		99		340	J3	0.1	U
Magnesium	mg/L	9.8		2100		7.8		1900		3.8		200		100		830		5.9		350	J3	0.025	I
Potassium	mg/L	3.3		660		3.5		570		3.9		27		20		190		8.8		110		0.19	U
Sodium	mg/L	77		19000		55	J3	17000		21		2800		1600		7800		26		3300	J3	0.31	U
Boron	mg/L	0.063		6.9		0.043	I	5.9		0.041	I	0.15		0.24	I	1.4		0.069		1.6		0.01	U
Strontium	mg/L	0.73		14		0.77		14		0.87		6.9		3.3		7.5		1		5.1		0.001	U
Chromium VI	mg/L																						
Mercury	mg/L																						
Bromide	mg/L	0.37		110		0.36		120		0.19		19		11		49		0.33		20	J3	0.027	U
Chloride	mg/L	160		32000		110		30000		37		5000		3000		14000		44		5400	J3	0.2	U
Fluoride	mg/L	0.085		0.2	U	0.1		0.2	U	0.12		0.2	U	0.2	U	0.2	U	0.19		0.52		0.02	U
Sulfate	mg/L	21		4300		22		3800		8.8		180		220		1700		60		860	J3	0.2	U
Total Ammonia	mg/L as N																						
Ammonium Ion (NH^{4+})	mg/L																						
Unionized NH_3	mg/L																						
Nitrate/Nitrite as N	mg/L																						
TKN	mg/L																						
TN	mg/L																						
Orthophosphate	mg/L																						
Phosphorus (P)	mg/L																						
Alkalinity	mg/L ($CaCO_3$)	140		180		160		190		220		200		130		220		210		170		1	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	140		180		160		190		220		200		130		220		210		170		1	
Sulfides	mg/L	1.6		1.4		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	450		60000		370		55000		300		9900		5400		26000		380		11000		190	
Dissolved Inorganic Carbon	mg/L	31		47		46		48		55		52		35		62		52		44		1	U
$\delta^{18}O$	‰	-1.7		5.0		-1.8		4.6		-1.8		-1.1		-0.9		1.8		-1.6		-0.9		-0.9	
$\delta^{2}H$	‰	-14		29.0		-15.0		26.0		-13.0		1.0		-2.0		10.0		-5.0		-1.0		-5.0	
$\delta^{13}C$	‰	-11.77		-7.87		-13.03		-7.44		-10.06		-9.42		-10.92		-7.98		-10.22		-7.45		-9.38	
Gross Alpha	pCi/L																						
Salinity (PSS-78)		0.4		55.6		0.4		53.3		0.3		9.4		5.0		25.0		0.3		10.9			
$^{87}Sr/^{86}Sr$	µg/L*																						
Tritium	pCi/L (1σ)																						

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.

Table 3.1-18. Comparison of Historical Well Groundwater Chloride Concentrations to Nearby Discretely Screened Monitoring Wells

Monitoring Well	Well Depth (ft BTOC)	Screen Interval (ft)	Sample Depth (ft BTOC)	Chloride Concentration (mg/L)		Comments
				March 2011	March 2012	
L-3	66.3	62	18	150	170	L-3 shallow sample collected from freshwater lens and TPGW wells all screened below lens. Data at depth comparable.
			58	**33,000**	**32,000**	
TPGW-1S	34.0	2	33	17,000	23,000	
TPGW-1M	55.1	2	54	**29,000**	**28,000**	
TPGW-1D	89.3	4	87	29,000	28,000	
L-5	65.8	65	18	170	150	L-5 shallow sample collected from freshwater lens and TPGW wells all screened below lens. Data at depth comparable.
			58	**31,000**	**31,000**	
TPGW-2S	28.7	4	27	30,000	31,000	
TPGW-2M	52.5	2	51	**34,000**	**31,000**	
TPGW-2D	87.5	2	86	32,000	32,000	
G-21	68.9	62	18	50	36	Concentrations higher in TPGW-5S but location is closer to CCS and Biscayne Bay than G-21. Considering landscape position of G-21 relative to TPGW-5 results at G-21 appear plausible.
			58	**4,900**	**5,300**	
TPGW-5S	32.6	4	31	300	240	
TPGW-5M	54.3	5	52	**10,000**	**11,000**	
TPGW-5D	72.0	5	69	11,000	11,000	
G-28	66.7	50	18	3,300	2,700	Shallow zone at G-28 much higher, possibly due in part to location in relation to TPGW-4. Data at depth comparable.
			58	**15,000**	**14,000**	
TPGW-4S	25.2	2	24	670	500	
TPGW-4M	43.1	5	41	**13,000**	**14,000**	
TPGW-4D	65.6	4	64	16,000	16,000	

Notes:
Well Depth and Screen Intervals for L and G series wells based on USGS borehole camera logs (June 2009).
Bold print indicates closest depth intervals for comparison purposes.

Key:
BTOC = Below top of casing.
ft = Feet.
mg/L – Milligrams per liter.
USGS = United States Geologic Survey.

Table 3.1-19. Range of Ion Concentrations in Groundwater

		Marine				Fresh				TPGW-13			
Parameter	**Units**	**Min**	**Max**	**Average**	**Standard Deviation**	**Min**	**Max**	**Average**	**Standard Deviation**	**Min**	**Max**	**Average**	**Standard Deviation**
Temperature	°C	23.40	29.45	26.09	1.26	22.05	30.12	24.88	1.16	29.31	30.47	29.82	0.37
pH	SU	6.45	8.15	7.03	0.21	6.74	12.10	7.54	1.15	6.52	7.25	7.03	0.14
Dissolved Oxygen	mg/L	0.05	11.00	0.48	0.98	0.05	10.90	0.51	1.05	0.06	9.70	1.00	2.38
Specific Conductance	µS/cm	19640	84800	56973	16587	429	41949	4546	9059	70180	87606	82053	4203
Turbidity	NTU	0.00	7.40	0.67	0.84	0.00	31.92	2.70	5.49	0.00	1.05	0.33	0.28
Barium	mg/L	0.00	3.00	0.14	0.33	0.00	2.20	0.10	0.19	0.03	0.23	0.09	0.04
Iron	mg/L	0.00	97.00	2.28	8.35	0.00	13.00	0.86	1.62	0.03	8.60	2.06	2.02
Calcium	mg/L	400.00	2100.00	619.68	161.62	0.00	97.00	1.88	10.843315	690.00	800.00	759.26	28.27
Magnesium	mg/L	420	2200	1446	491	0	910	70	185	2000	2500	2230	110
Potassium	mg/L	92.00	1400.00	451.26	190.74	0.19	440.00	24.34	55.32	600.00	800.00	694.58	44.13
Sodium	mg/L	3800	21000	11630	3855	0.3	8300	674	1641.4	16000	19000	17481	849
Boron	mg/L	0.58	7.50	4.44	1.91	0.02	1.70	0.21	0.43	6.60	8.30	7.23	0.44
Strontium	mg/L	6.30	15.00	10.30	2.40	0.00	7.80	1.83	1.90	14.00	16.00	14.29	0.55
Bromide	mg/L	0	210	78	33	0	62	4	11	49	130	108	18
Chloride	mg/L	7100	34000	22388	7483	10	15000	1381	3287	26000	38000	34741	2712
Fluoride	mg/L	0.01	130.00	1.19	8.64	0.02	1.00	0.15	0.13	0.02	3.60	1.10	1.10
Sulfate	mg/L	310	4700	2746	1032	0	1800	155	375	3700	5000	4281	355
Alkalinity	mg/L ($CaCO_3$)	1.90	550	210	75	30	580	225	79	54	220	169	33
Bicarbonate Alkalinity as $CaCO_3$	mg/L	2	550	210	74	1	360	201	71	54	220	169	33
Sulfides	mg/L	1	22	3	4	1	8	1	1	1	22	7	9
Total Dissolved Solids	mg/L	12000	64000	38388	12659	160	26000	2626	5573	55000	75000	59852	5142
Dissolved Inorganic Carbon	mg/L	10	140	58	22	3	94	55	17	30	60	47	8

Key:

°C = Degrees Celsius.
$CaCO_3$ = Calcium carbonate.
Max = Maximum.
mg/L = Milligram(s) per liter.
Min = Minimum.
µS/cm = MicroSiemens per centimeter.
NTU = Nephelometric turbidity unit(s).
SU = Salinity Units

Table 3.1-20. Range of Isotope Ratios in Groundwater

		Marine				Fresh				TPGW-13			
Parameter	Units	Min	Max	Average	Standard Deviation	Min	Max	Average	Standard Deviation	Min	Max	Average	Standard Deviation
$\delta^{18}O$	‰	-3.2	5.6	2.5	1.9	-4.0	4.1	-1.2	1.0	3.2	5.6	5.0	0.6
$\delta^{2}H$	‰	-15.8	32.8	18.5	8.8	-32.0	16.0	-4.1	6.2	26.0	36.0	31.5	3.2
$\delta^{13}C$	‰	-13.5	-2.9	-7.9	1.8	-32.0	36.0	3.8	14.5	-8.9	-6.4	-7.4	0.8
$^{87}Sr/^{86}Sr$		0.00000	0.70919	0.70037	0.07855	0.70908	0.70923	0.70914	0.00002	0.70908	0.70915	0.70911	0.00002
Tritium	pCi/L	0.5	4040.0	1264.5	1299.3	-2.0	440.0	37.8	90.7	3460.0	6390.0	4101.2	612.3

Key:

‰ = Parts per mille.
C = Carbon.
H = Hydrogen.
Max = Maximum.
Min = Minimum.
O = Oxygen.
pCi/L = Picocuries per liter.
Sr = Strontium.

Table 3.1-21. SFWMD Synoptic Sampling Results from CCS (February 2009)

Parameter	Units	Detection Limits	Dilution Factor	Equipment Background	Sample										Replicate Sample	
				CCSSW01	CCSSW01T	CCSSW01B	CCSSW02T	CCSSW02B	CCSSW03T	CCSSW03B	CCSSW04T	CCSSW04B	CCSSW05T	CCSSW05B	CCSSW05B	CCSSW05B
				P43409-1	P43409-2	P43409-3	P43409-4	P43409-5	P43409-6	P43409-7	P43409-8	P43409-9	P43409-10	P43409-11	P43409-14	P43409-15
Arsenic	mg/L	0.00008	1	0.00008		0.00035		0.00034		0.00024		0.00021		0.00034	0.0003	0.00045
Barium	mg/L	0.0008	1	0.0008		0.0884		0.0902		0.0893		0.0891		0.0863	0.0884	0.0894
Beryllium	mg/L	2E-06	1	0.000035		0.000002		0.000002		0.000002		0.000002		0.000068	0.000002	0.000136
Cadmium	mg/L	6E-06	1	0.000006		0.000006		0.000006		0.000006		0.000006		0.000006	0.000006	0.000006
Chromium	mg/L	0.00004	1	0.00004		0.00008		0.00008		0.00004		0.00004		0.00006	0.00005	0.000005
Copper	mg/L	1.6E-05	1	0.000016		0.000469		0.000447		0.0004		0.000241		0.000378	0.000387	0.000384
Iron	mg/L	0.008	1	0.008		0.0124		0.0128		0.008		0.0134		0.0098	0.0166	0.013
Lead	mg/L	1.2E-05	1	0.000029		0.000019		0.000026		0.000015		0.000012		0.000097	0.000055	0.000014
Manganese	mg/L	0.0004	1	0.0004		0.0086		0.0078		0.0068		0.01		0.0124	0.0134	0.0132
Molybdenum	mg/L	0.0008	1	0.0008		0.00243		0.00233		0.00241		0.00244		0.00295	0.00298	0.0029
Nickel	mg/L	0.00004	1	0.00004		0.00099		0.00089		0.00084		0.00097		0.00097	0.00096	0.00098
Selenium	mg/L	0.0004	2	0.0004		0.0004		0.0004		0.0004		0.0004		0.0004	0.0004	0.0004
Thallium	mg/L	4E-06	1	0.000004		0.000004		0.000004		0.000004		0.000004		0.000034	0.000005	0.000004
Vanadium	mg/L	0.0016	1	0.0016		0.0016		0.0016		0.0016		0.0016		0.0016	0.0016	0.0016
Zinc	mg/L	0.0002	1	0.0003		0.0008		0.0006		0.0005		0.0004		0.0006	0.0007	0.0007
Mercury	mg/L	0.00008	1	ND		0.0005		0.0005		0.0004		0.0006		0.00049	0.00065	0.00037

Key:
CCSSW = Cooling Canal System Surface Water.
mg/L = Milligram per liter.
ND = Not detected.
SFWMD = South Florida Water Management District.

Table 3.2-1. Summary of Surface Water Analytical Results from the June/July 2010 Event

Parameter	Units	TPBBSW-1T 6/22/2010		TPBBSW-1B 6/22/2010		TPBBSW-2B 6/22/2010		TPBBSW-3B 6/23/2010		TPBBSW-4T 6/23/2010		TPBBSW-4B 6/23/2010		TPBBSW-5T 6/23/2010		TPBBSW-5B 6/23/2010		TPSWID-1T 6/29/2010		TPSWID-1B 6/29/2010		TPSWID-2T 6/29/2010		TPSWID-2B 6/29/2010		TPSWID-3T 7/1/2010		TPSWID-3B 7/1/2010		TPSWC-1T 7/7/2010		TPSWC-1B 7/7/2010	
Temperature	°C	31.36		31.91		31.91		31.51		30.78		30.84		30.0		30.2		31.97		31.65		31.6		29		31.72		30.05		30.53		28.89	
pH	SU	8.45		8.51		8.65		8.57		8.52		8.53		8.37		8.41		8.14		8.09		7.88		6.86		7.64		7.37		7.6		7.59	
Dissolved Oxygen	mg/L	6.45	J	7.65	J	7.8	J	7.63	J	6.23	J	5.86	J	5.71	J	6.1	J	7.1	J	6.46	J	7.91	J	0.86	J	7.15	J	9.14	J	4.59	J	5.54	J
Specific Conductance	µS/cm	45270	J	45670	J	48640	J	48300	J	47750	J	47860	J	45030	J	45040	J	5287	J	5317	J	2994	J	7524	J	2437	J	2420	J	512	J	470	J
Turbidity	NTU	0.94		0.9		0.91		1.12		3.41		3.68		1.17		1.27		1.15		1.08		2.03		5.06		0.52		0.74		1.17		1.19	
Arsenic	mg/L																																
Barium	mg/L	0.0081	U	0.009	I	0.0085	I	0.0081	U	0.0081	U	0.0081	U	0.0081	U	0.0081	U	0.0081	U	0.0081	U	0.0081	U	0.013	I	0.0081	U	0.0081	U	0.0081	U	0.0081	U
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	0.12	I	0.13	I	0.098	I	0.084	I	0.11	I	0.093	I	0.084	I	0.12	I	0.07	I	0.071	I	0.039	I	0.077	I	0.037	IVJ	0.033	IVJ	0.029	IVJ+	0.028	IVJ+
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica	mg/L	0.64		0.81		1.4		0.33	I	0.46	I	0.49	I	1.0		1.0		3.6		3.5		3.2		3.4		4.2		4.3		4		6.4	
Calcium	mg/L	430		420		450		470		470		450		450		450		150		150		140		210		130		130		54		51	
Magnesium	mg/L	1300		1400		1400		1500		1500		1400		1400		1400		100		110		50		150		40		40		8.4		8.3	
Potassium	mg/L	360		370		390		420		410		400		370		380		37	J	38	J	17	J	54		14		14		5.2		5.4	
Sodium	mg/L	10000		10000		11000		12000		12000		12000		11000		11000		980		920		490		1300		390		390		49		47	
Boron	mg/L	4.8		4.9		5.1		5.4		5.3		5.2		5.0		5.0		0.36	I	0.36	I	0.17	I	0.47	I	0.130		0.130		0.072		0.072	
Strontium	mg/L	7.9		8.0		8.3		8.6		8.5		8.3		8.0		8.0		1.8		1.8		1.5		2.6		1.3		1.3		0.51		0.53	
Chromium VI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	66		67		72		73		70		73		63		67		6.1		5.8		3.1		9.4		1.8		1.8		0.17		0.17	
Chloride	mg/L	19000		19000		21000		19000		21000		20000		21000		19000		1900		1800		940		2800		740		720		85		84	
Fluoride	mg/L	0.33		0.39		0.1	U	0.1	UJ-	0.1	U	0.1	U	0.1	U	0.32		0.13	I	3.2		0.1	U	0.1	U	0.098		0.11		0.04	I	0.081	
Sulfate	mg/L	2700		2700		2900		3000		2800		2900		2500		2700		220		210		93		300		65		70		5.9		6.5	
Total Ammonia	mg/L as N	0.085		0.082		0.08		0.12		0.036		0.05		0.042		0.14		0.16		0.15		0.19		0.2		0.18		0.19		0.16		0.21	
Ammonium Ion (NH^{4+})	mg/L	0.088		0.082		0.075		0.118		0.016		0.034		0.024		0.150		0.184		0.175		0.229		0.255		0.223		0.240		0.199		0.263	
Unionized NH_3	mg/L	0.021		0.023		0.028		0.036		0.03	U	0.03	U	0.03	U	0.03	U	0.022		0.018		0.015		0.0025		0.0083		0.0043		0.0063		0.0072	
Nitrate/Nitrite as N	mg/L	0.0047	U	0.0062	I	0.0047	U	0.0047	U	0.0077	I	0.028		0.0098	I	0.0053	I	0.12		0.11		0.011		0.0047	U	0.011		0.016	J+	0.0047	U	0.0047	U
TKN	mg/L	0.25		0.36		0.26		0.11 I		0.24		0.3		0.32		0.41		0.78		0.89		0.8		1.1		0.88		0.86		1.1		1.2	
TN	mg/L	0.25		0.37		0.26		0.25	U	0.25		0.33		0.33		0.42		0.9		1		0.81		1.1		0.87		1.7		1.1		1.2	
Orthophosphate	mg/L	0.042	IJ	0.044	IJ	0.045	IJ	0.048	IJ	0.053	IJ	0.044	IJ	0.044	IJ	0.047	IJ	0.0034	I	0.0036	I	0.0025	I	0.005	I	0.0094	J	0.0022		0.0023	I	0.002	I
Phosphorus (P)	mg/L	0.013	J	0.018	J	0.018	J	0.019	J	0.025	J	0.02	J	0.015	J	0.016	J	0.006	I	0.0054	I	0.0057	I	0.011		0.0044	UJ	0.0066		0.0044	I	0.0072	I
Alkalinity	mg/L ($CaCO_3$)	110		110		110		100		110		100		120		120		230		230		220		310		200		200		140		140	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	98		90		76		86		93		97		120		120		230		230		220		310		200		200		140		140	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L																																
Dissolved Inorganic Carbon	mg/L	22		20		20		20		20		20		25		25		52		52		51		72		47		49		36		34	
$\delta^{18}O$	‰	2.2		2.2		2.3		2.4		2.3		2.3		2.8		2.6		1.0		1.0		0.8		0.7		0.6		0.4		0.3		0.7	
$\delta^{2}H$	‰	15.4		16.5		18.6		15.2		16.9		17.3		14.9		19.6		10.0		7.6		8.1		10.1		7.2		5.5		4.0		9.0	
$\delta^{13}C$	‰	-5.58		-4.5859		-4.2932		-1.82		-3.43		-2.62		-5.26		-3.63		-6.55		-6.99		-6.96		-6.66		-7.63		-8.42		-7.63		-7.42	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		29.1	J	29.4	J	31.5	J	31.3	J	30.9	J	31.0	J	29.0	J	29.0	J	2.8	J	2.8	J	1.5	J	4.1	J	1.2	J	1.2	J	0.2	J	0.2	J
$^{87}Sr/^{86}Sr$	µg/L*	0.70918		0.70916		0.70917												0.70912		0.70916		0.70915		0.70909		0.70918		0.7092		0.70919		0.70918	
Tritium	pCi/L (1σ)	16.3 (4.1)		8.0 (4.5)		11.5 (4.5)												162.24 (6.7)		153.28 (6.4)		108.8 (8.6)		140.48 (6.1)		83.897 (5.7)		79.75 (5.7)		9.6 (6.7)		24.0 (6.7)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (7/1/10) is a duplicate of TPSWC-5B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

Q = Holding time exceeded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-1. Summary of Surface Water Analytical Results from the June/July 2010 Event

Parameter	Units	TPSWC-2T 7/7/2010		TPSWC-2B 7/7/2010		TPSWC-3T 7/7/2010		TPSWC-3B 7/7/2010		TPSWC-4T 7/1/2010		TPSWC-4B 7/1/2010		TPSWC-5B 7/1/2010		TPSWC-DUP1 [1] 7/1/2010		TPSWC-6T 6/21/2010		TPSWC-6B 6/21/2010		TPSWCCS-1B 7/9/2010		TPSWCCS-2B 6/30/2010		TPSWCCS-3B 6/28/2010		TPSWCCS-4T 7/1/2010		TPSWCCS-4B 7/1/2010	
Temperature	°C	31.96		30.25		32.58		30.54		31.96		28.64				N.A.		28.18		27.71		39.04		36.68		34.88		34.93		34.41	
pH	SU	7.93		7.82		8.08		7.6		7.31		6.86				N.A.		7.32		7.27		8.2		8.25		8.19		8.33		8.28	
Dissolved Oxygen	mg/L	6.61	J	5.28	J	8.04	J	5.77	J	4.9	J	0.27	J			N.A.		1.95	J	2.02	J	4.55	J	6.31	J	7.61	J	9.82	J	8.76	J
Specific Conductance	µS/cm	597	J	596	J	877	J	1019	J	23040	J	32300	J			N.A.		839	J	892	J	76510	J	76910	J	70260	J	77500	J	77590	J
Turbidity	NTU	1.79		7.12		1.21		1.55		5.17		45.96				N.A.		0.55		1.25		3.5		8.46		8.57		4.83		5.7	
Arsenic	mg/L																														
Barium	mg/L	0.0081	U	0.011	I	0.0081	U	0.013	I	0.043		0.057				0.026						0.082	I	0.083	I	0.073	I	0.057		0.041	
Beryllium	mg/L																														
Cadmium	mg/L																														
Copper	mg/L																														
Iron	mg/L	0.034	IVJ+	0.07	IVJ+	0.027	U	0.034	I	0.21	J+	0.29	J+			0.088						0.027	U	0.33	I	0.027	U	0.22		0.21	
Lead	mg/L																														
Manganese	mg/L																														
Molybdenum	mg/L																														
Nickel	mg/L																														
Selenium	mg/L																														
Thallium	mg/L																														
Vanadium	mg/L																														
Zinc	mg/L																														
Silica	mg/L	4.7		5		4.4		4.2		3.8		4.6				1.9		2.8		2.8		0.43		1.4	I	1.6	I	1.1		1	
Calcium	mg/L	57		61		82		98		340		410				500		96		95		810		840		790		950		940	
Magnesium	mg/L	9.3		9.3		10		11		630		900				1500		12		13		2500		2600		2500		3000		3000	
Potassium	mg/L	5.0		5.0		5.1		5.2		270		410				470		9.1		9.4		790		840		710		860		870	
Sodium	mg/L	68		67		100		120		5000		7100				12000		82		90		20000		21000		21000		21000		21000	
Boron	mg/L	0.069		0.071		0.067		0.066		1.9		2.8				5.3		0.095	I	0.096	I	8.7		9.2		8.4		11		10	
Strontium	mg/L	0.61		0.65		0.89		0.99		5.3		7				9.1		1.1		1.1		15		16		15		18		18	
Chromium VI	mg/L																														
Mercury	mg/L																														
Bromide	mg/L	0.29		0.29		0.65		0.81		32		44				75		0.47		0.5		130		120		120		130		130	
Chloride	mg/L	130		120		200		250		9300		13000				22000		150		160		36000		38000		37000		37000		37000	
Fluoride	mg/L	0.075		0.04	I	0.1		0.068		0.1	U	0.11				0.1	U	0.087		0.084		0.1	U	0.1	U	0.08	U	0.1	U	0.1	U
Sulfate	mg/L	4.7		5.1		10		14		1200		1700				3000		55		56		5000		5100		4300		5100		5000	
Total Ammonia	mg/L as N	0.22		0.2		0.12		0.17		0.8		0.65				0.036		0.12		0.1		0.083		0.18		0.11		0.13		0.14	
Ammonium Ion (NH^{4+})	mg/L	0.273		0.245		0.139		0.212		1.011		0.832				0.000		0.152		0.127		0.088		0.191		0.121		0.136		0.151	
Unionized NH_3	mg/L	0.0094		0.012		0.015		0.0066		0.018		0.0042						0.0021		0.0015		0.019		0.04		0.02		0.031		0.029	
Nitrate/Nitrite as N	mg/L	0.0047	U	0.0047	U	0.0047	U	0.0047	U	0.017		0.014				0.0073		0.021		0.05		0.0047	U	0.015		0.0047	U	0.014		0.015	
TKN	mg/L	1.3		1.4		1.2		1.1		1.7		1.7				0.56		0.36		0.42		2.2		1.6		1.6		2.5		1.6	
TN	mg/L	1.3		1.4		1.2		1.1		1.7		0.89				0.57		0.38		0.47		2.2		2.6	J	1.6		0.87		1.7	
Orthophosphate	mg/L	0.0018	I	0.0026	I	0.0014	I	0.0018	I	0.024	IJ	0.03	IJ			0.05	IJ	0.014	IJ	0.014	U	0.051	IJ	0.058	J	0.071	IJ	0.076	IJ	0.078	IJ
Phosphorus (P)	mg/L	0.0044	U	0.0065	I	0.0048	I	0.0046	I	0.011	J	0.02	J			0.021	J	0.0044	UJ	0.013		0.029	J-	0.028	J	0.026	J	0.024	J	0.024	J
Alkalinity	mg/L ($CaCO_3$)	120		130		160		180		240		240				160		200		190		150		150		160		150		150	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	120		130		160		180		240		240				160		200		190		150		150		160		130		150	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U			1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L																					77000		80000		71000		79000		78000	
Dissolved Inorganic Carbon	mg/L	33		33		39		44		56		53				30		49		49		30		27		32		25		27	
$\delta^{18}O$	‰	1.1		1.3		0.9		0.4		1.7		2.2		2.5		2.4		-0.6		-0.6		5.5		6.1		6.0		6.1		6.1	
$\delta^{2}H$	‰	7.0		8.0		7.0		4.0		16.8		15.5		20.4		23.9		-2.1		-0.9		31.0		31.2		27.5		32.9		34.0	
$\delta^{13}C$	‰	-6.85		-6.91		-7.05		-8.33		-8.27		-8.83		-5.25		-5.94		-9.67		-10.09		-3.79		-2.86		-3.97		-2.47		-2.69	
Gross Alpha	pCi/L																					15.8 (1.2)		57 (4)		52 (5)		38 (3)		54 (4)	
Salinity (PSS-78)		0.3	J	0.3	J	0.4	J	0.5	J	13.8	J	20.1	J					0.4	J	0.4	J	56.6	J	54.6	J	47.7	J	53.4	J	53.6	J
$^{87}Sr/^{86}Sr$	µg/L*	0.70921		0.70917		0.70918		0.70921		0.70915		0.70917		0.70915		0.70918		0.70919		0.70915		0.70915		0.70910		0.70907		0.70909		0.70908	
Tritium	pCi/L (1σ)	34.24 (7.0)		27.52 (6.7)		35.84 (7.0)		30.08 (7.0)		890.01 (31.9)		1276.0 (44.7)		261.6 (9.6)		--		11.803 (4.1)		7.975 (3.8)		2620.8 (32.0)		3248.0 (35.2)		3052.8 (35.2)		3171.2 (35.2)		3097.6 (35.2)	

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
[1] Sample TPSWC-Dup1 (7/1/10) is a duplicate of TPSWC-5B.
Text in blue are revised values.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-1. Summary of Surface Water Analytical Results from the June/July 2010 Event

Parameter	Units	TPSWCCS-5T 7/9/2010		TPSWCCS-5B 7/9/2010		TPSWCCS-6T 7/15/2010		TPSWCCS-6B 7/15/2010		TPSWCCS-7B 6/28/2010		TPSWCCS-8B 6/30/2010	
Temperature	°C	33.22		32.64		32.78		32.91		36.89		37.87	
pH	SU	8.15		8.14		8.18		8.19		8.24		8.29	
Dissolved Oxygen	mg/L	2.05	J	1.91	J	4.73	J	4.77	J	5.62	J	7.14	J
Specific Conductance	µS/cm	76420	J	76380	J	75290	J	74960	J	75940	J	78060	J
Turbidity	NTU	3.45		4.6		3.56		4.25		6.42		14.14	
Arsenic	mg/L												
Barium	mg/L	0.097		0.1		0.082		0.078		0.041	I	0.073	I
Beryllium	mg/L												
Cadmium	mg/L												
Copper	mg/L												
Iron	mg/L	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.29	I
Lead	mg/L												
Manganese	mg/L												
Molybdenum	mg/L												
Nickel	mg/L												
Selenium	mg/L												
Thallium	mg/L												
Vanadium	mg/L												
Zinc	mg/L												
Silica	mg/L	0.25	U	0.38		0.5	U	0.5	U	1.3	I	1.2	I
Calcium	mg/L	810		830		800		810		830		860	
Magnesium	mg/L	2500		2600		2500		2500		2600		2700	
Potassium	mg/L	800		810		800		810		760		840	
Sodium	mg/L	20000		19000		20000		21000		22000		21000	
Boron	mg/L	8.6		8.8		8.8		8.9		8.9		9.3	
Strontium	mg/L	15		16		16		16		16		16	
Chromium VI	mg/L												
Mercury	mg/L												
Bromide	mg/L	130		120		120		120		120		120	
Chloride	mg/L	37000	J-	37000		37000		36000		39000	J-	40000	
Fluoride	mg/L	0.1	U	0.1	U	0.1	UQ?	0.1	UQ	0.1		0.1	U
Sulfate	mg/L	5100		5000		4900		4900		5200		5400	
Total Ammonia	mg/L as N	0.093		0.13		0.12		0.12		0.11		0.16	
Ammonium Ion (NH^{4+})	mg/L	0.106		0.148		0.135		0.154		0.117		0.165	
Unionized NH_3	mg/L	0.014		0.019		0.019		0.000017	U	0.024		0.041	
Nitrate/Nitrite as N	mg/L	0.0047	U	0.0047	U	0.08		0.03		0.0047	U	0.017	
TKN	mg/L	2.2		2.3		1.7		1.6		1.5		2.2	
TN	mg/L	2.2		2.3		1.8		1.6		1.5		1.5	J
Orthophosphate	mg/L	0.052	IJ	0.062	IJ	0.074	IJ	0.073	IJ	0.069	IJ	0.057	J
Phosphorus (P)	mg/L	0.024	J	0.024	J	0.016	J	0.019	J	0.025	J	0.03	J
Alkalinity	mg/L ($CaCO_3$)	160		150		150		150		150		150	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	160		150		150		150		150		150	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L	75000		79000		78000		77000		77000		81000	
Dissolved Inorganic Carbon	mg/L	32		32		31		29		30		22	
$\delta^{18}O$	‰	5.6		5.7		5.6		5.5		6.2		6.3	
$\delta^{2}H$	‰	31.0		31.0		32.0		29.0		36.4		36.5	
$\delta^{13}C$	‰	-3.31		-3.91		-3.30		-3.20		-2.87		-2.69	
Gross Alpha	pCi/L	16.9 (1.3)		16.5 (1.3)		25 (2)		21 (2)		55 (5)		55 (4)	
Salinity (PSS-78)		52.7	J	52.7	J	51.8	J	51.5	J	54.0	J	56.8	J
$^{87}Sr/^{86}Sr$	µg/L*	0.70916		0.70911		0.70912		0.70914		0.70911		0.70913	
Tritium	pCi/L (1σ)	2582.4 (32.0)		2524.8 (28.8)		2380.8 (28.8)		2339.2 (28.8)		3260.8 (35.2)		3155.2 (35.2)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (7/1/10) is a duplicate of TPSWC-5B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

Q = Holding time exceeded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-2. Summary of Surface Water Analytical Results from the September 2010 Event

Parameter	Units	BBSW-1B 9/28/2010		BBSW-2B 9/23/2010		BBSW-3B 9/27/2010		BBSW-4B 9/24/2010		BBSW-5B 9/24/2010		TPSWC-1T 9/7/2010		TPSWC-1B 9/7/2010		TPSWC-2T 9/7/2010		TPSWC-2B 9/7/2010		TPSWC-3T 9/7/2010		TPSWC-3B 9/7/2010		TPSWC-4T 9/9/2010		TPSWC-4B 9/9/2010		TPSWC-5T 9/9/2010		TPSWC-5B 9/9/2010		TPSWC-6T 9/14/2010		TPSWC-DUP1 [1] 9/14/2010		TPSWC-6B 9/14/2010	
Temperature	°C	28.83		27.9		29.69		28.07		27.71		31.37		29.94		33		30.37		31.45		30.46		30.79		30.61		31.21		33.11		28.37		28.37		28.3	
pH	SU	7.92		8.16		8.29		8.02		7.7		7.69	J	7.59	J	8.05	J	7.93	J	8.83	J	7.84	J	7.3		7.34		7.66		6.53	J	7.23	J	7.23	J	7.19	J
Dissolved Oxygen	mg/L	4		6.81		7.55		5.23		4.48		5.06		3.65		6.72		6		6.07		3.7		4.54		4.2		6.36		0.32		0.98		0.98		1.21	
Specific Conductance	µS/cm	48233		30586		49871		48063		42063		429	J	422	J	521	J	509	J	588	J	584	J	2084		2970		46455		61032		735	J	735	J	734	J
Turbidity	NTU	3.25		0.89		1.12		2.7		2.79		1.14		1.1		1.17		1.3		1		2.1		2.42		4.55		0.67		12.6		0.59		0.59		0.63	
Arsenic	mg/L																																				
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.0081	U	0.0081	U	0.0081	U	0.0081	U	0.0081	U	0.0081	U	0.081	U	0.081	U	0.130	I	0.270	I	0.016	U	0.016	U	0.016	U
Beryllium	mg/L																																				
Cadmium	mg/L																																				
Copper	mg/L																																				
Iron	mg/L	0.410	I V	0.480	I	0.410	I V	0.780	I	0.550	I	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.270	U	0.270	U	0.720	I	1.20	I	0.054	U	0.054	U	0.054	U
Lead	mg/L																																				
Manganese	mg/L																																				
Molybdenum	mg/L																																				
Nickel	mg/L																																				
Selenium	mg/L																																				
Thallium	mg/L																																				
Vanadium	mg/L																																				
Zinc	mg/L																																				
Silica	mg/L																																				
Calcium	mg/L	400		260		410		380		340		46		46		46		44		55		55		59		65		360		510		79		82		80	
Magnesium	mg/L	1200		650		1300		1200		990		6.0		5.8		6.9		6.6		6.1		6.2		35		52		1200		1600		8.0		8.6		8.2	
Potassium	mg/L	540		330		590		360		320		4.3		4.3		3.0		2.8	I	2.5	I	2.5	I	13		20		350		470		8.0		8.1		8.0	
Sodium	mg/L	9500		5400		9800		9200		8000		28		27		43		42		47		47		290		400		8700		12000		49		53		50	
Boron	mg/L	4.30		2.50		4.5		4.2		3.6		0.055	IJ	0.057	IJ	0.046	IJ	0.043	IJ	0.044	IJ	0.045	IJ	0.14	I	0.2		4.2		5.4		0.072	I	0.083	I	0.075	I
Strontium	mg/L	6.80		4.30		7.1		6.8		5.9		0.42		0.43		0.47		0.47		0.54		0.54		0.69		0.8		6.3		9.1		0.85		0.86		0.86	
Chromium VI	mg/L																																				
Mercury	mg/L																																				
Bromide	mg/L	0.27	U	32		60		79	J	54		0.027	U	0.027	U	0.18		0.19		0.24		0.25		1.6		2.9		56		76		0.46		0.46		0.47	
Chloride	mg/L	16000		11000		16000	J+	18000	J	15000		39		42		72		88		92		92		460		860		15000		23000		87		88		88	
Fluoride	mg/L	0.77		0.47	I	0.20	U	0.20	UJ	0.20	U	0.097		0.093		0.091		0.099		0.096		0.089		0.094		0.11		0.020	U	0.020	U	0.11		0.10		0.11	
Sulfate	mg/L	2100		1200		2200	J-	3300	J	2200		6.3		6.6		3.1		2.7		2.0		2.1		44		96		2100		2800		33		34		33	
Total Ammonia	mg/L as N																																				
Ammonium Ion (NH^{4+})	mg/L																																				
Unionized NH_3	mg/L																																				
Nitrate/Nitrite as N	mg/L																																				
TKN	mg/L																																				
TN	mg/L																																				
Orthophosphate	mg/L																																				
Phosphorus (P)	mg/L																																				
Alkalinity	mg/L ($CaCO_3$)	120		170		120		120	J	130		110		110		100		97		110		110		110		110		110		220		160		160		170	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	120		170		120		120	J	130		110		110		100		97		110		110		110		110		110		220		160		160		170	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L																																				
Dissolved Inorganic Carbon	mg/L	30		39		28		29		32		27		27		25		26		29		27		26		27		27		55		43		42		43	
$\delta^{18}O$	‰	1.6		0.7		1.6		1.6		1.4		-0.4		-0.5		0.3		0.4		0.5		0.5		0.4		0.4		1.4		2.7		-0.5	J	-0.8	J	-0.7	
$\delta^{2}H$	‰	11.0		9.0		13.0		9.0		13.0		3.0		6.0		8.0		5.0		4.0		9.0		13.0		2.0		15.0		23.0		1.0	J	-6.0	J	2.0	
$\delta^{13}C$	‰	-4.10		-5.60		-3.02		-2.57		-5.11		-8.02		-8.34		-7.5		-8.64		-8.49		-8.22		-8.58		-8.68		-4.45		-6.41		-11.79		-11.86		-11.8	
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		31.3		18.9		32.5		31.2		26.9		0.21	J	0.20	J	0.25	J	0.25	J	0.28	J	0.28	J	1.1		1.5		30.0		40.7		0.36	J			0.36	J
$^{87}Sr/^{86}Sr$	µg/L*	0.70916		0.70917		0.70914		0.70916		0.70917		0.70919		0.70914		0.70914		0.70916		0.70917		0.70916		0.70915		0.70915		0.70913		0.70915		0.70917		0.70915		0.70914	
Tritium	pCi/L (1σ)	16.9 (6.2)		12.6 (5.9)		13.6 (6)		6.9 (6.1)		15.2 (6.3)		8.4 (9.3)	UJ	12.3 (9.2)		47.6 (10)		92 (10.5)		44.6 (10)		41 10.1)		55.9 (10.2)		74 (10.7)		178 (11)		801 (31)		17.3 (6.8)		15.3 (8.4)		43.3 (7.6)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (9/14/2010) is a duplicate of TPSWC-6T.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-2. Summary of Surface Water Analytical Results from the September 2010 Event

Parameter	Units	TPSWCCS-1B 9/8/2010		TPSWCCS-2B 9/9/2010		TPSWCCS-3B 9/8/2010		TPSWCCS-4T 9/11/2010		TPSWCCS-4B 9/11/2010		TPSWCCS-5T 9/11/2010		TPSWCCS-5B 9/11/2010		TPSWCCS-6T 9/11/2010		TPSWCCS-6B 9/11/2010		TPSWCCS-7B 9/8/2010		TPSWID-1T 9/8/2010		TPSWID-1B 9/8/2010		TPSWID-2T 9/8/2010		TPSWID-2B 9/8/2010		TPSWID-3T 9/8/2010		TPSWID-3B 9/8/2010	
Temperature	°C	38.25		36.31		33.75		33.7		33.54		32.81		32.9		33.3		33.47		37.14		31.84		30.77		30.82		29.16		30.98		28.91	
pH	SU	8.4		8.23		8.34		8.34		8.34		8.28		8.28		8.3		8.29		8.53		8.19		8.23		7.88		7.09		7.73		7.22	
Dissolved Oxygen	mg/L	3.88		7.35		3.42		6.7		6.12		3.91		4.12		4.99		5.01		5.61		6		5.88		5.68		0.2		5.09		0.22	
Specific Conductance	µS/cm	82182		82550		80056		81626		81369		80967		80899		81050		81547		80784		3749		3815		2432		4473		2076		2576	
Turbidity	NTU	4.74		7.34		7.05		5.8		4.2		3.98		5.9		4.1		3.32		9.31		1.31		2.49		1.92		14.76		0.89		3.54	
Arsenic	mg/L																																
Barium	mg/L	0.160	I	0.580	I	0.370	I	0.054	I	0.034	I	0.043	I	0.038	I	0.036	I	0.026	I	0.160	U	0.160	U	0.0081	U	0.0081	U	0.027	I	0.015	I	0.019	I
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	1.50	I	3.60	I	1.60	I	0.160	I	0.200	I	0.260	I	0.180	I	0.230	I	0.220	I	1.90	I	0.540		0.037	I	0.038	I	0.062	I	0.034	I	0.030	I
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica	mg/L																																
Calcium	mg/L	730		650		740		680	J	680		690		680		670	J	670		730		120		120		98		180		94		130	
Magnesium	mg/L	2200		2200		2300		2200	J	2200		2200		2100		2100	J	2100		2200		64		62		35		72		28		34	
Potassium	mg/L	670		670		660		670	J	640		620		670		650	J	620		670		21		21		15		26		12		14	
Sodium	mg/L	18000		17000		18000		17000	J	17000		16000		18000		17000	J	17000		18000		550		540		330		670		290		340	
Boron	mg/L	7.8		8.0		7.8		7.8		7.8		7.8		7.8		7.8		7.8		7.8		0.25	I	0.24	I	0.13		0.24	I	0.11	I	0.12	I
Strontium	mg/L	14.0		13.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		14.0		1.30		1.30		1.10		1.90		1.0		1.2	
Chromium VI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	93		100		110		100	J	110		110	J	98		110	J	110		100		3.0		3.2	J-	1.8		3.7		1.5		1.9	
Chloride	mg/L	31000		32000		31000		37000	J	34000		33000	J	33000		34000	J	33000		32000		960		960		510		1200		460		580	
Fluoride	mg/L	0.020	U	0.020	U	0.020	U	0.020	UJ	0.020	U	0.020	UJ	0.020	U	0.020	UJ	0.020	U	0.020	U	0.12		0.14		0.12		0.14		0.12		0.11	
Sulfate	mg/L	4000		4000		3900		4800	J	4300	J-	4200	J	4200		4600	J	4200		3900		82		83	J-	40		93		30		41	
Total Ammonia	mg/L as N																																
Ammonium Ion (NH^{4+})	mg/L																																
Unionized NH_3	mg/L																																
Nitrate/Nitrite as N	mg/L																																
TKN	mg/L																																
TN	mg/L																																
Orthophosphate	mg/L																																
Phosphorus (P)	mg/L																																
Alkalinity	mg/L ($CaCO_3$)	130		120		140		130	J	130		130	J	130		130	J	130		130		200		210		170		280		160		210	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	130		120		140		130	J	130		130	J	130		110	J	130		110		200		210		170		280		160		210	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.4		1.0	U	1.1		1.1		1.0	U	1.9	
Total Dissolved Solids	mg/L																																
Dissolved Inorganic Carbon	mg/L	26		24		23		25		25		24		25		25		24		27		54		53		48		80		46		57	
$\delta^{18}O$	‰	4.2		4.4		4.2		4.5		4.4		4.3		4.3		4.3		4.4		4.1		0.8		0.8		0.7		0.6		0.8		0.1	
$\delta^{2}H$	‰	33.0		28.0		24.0		26.0		24.0		24.0		23.0		23.0		26.0		24.0		10.0		9.0		8.0		10.0		6.0		8.0	
$\delta^{13}C$	‰	-6.01		-4.94		-		-5.66		-5.52		-6.05		-5.73		-5.54		-5.6		-5.16		-7.12		-7.07		-7.81		-9.2		-8.12		-6.03	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		60.70	J	58.90	J	55.6		56.9		56.6		56.4		56.3		56.4		56.8		58.3	J	2.0		2.0		1.2		2.4		1.0		1.3	
$^{87}Sr/^{86}Sr$	µg/L*	0.70913		0.70914		0.7091		0.70915		0.70913		0.70908		0.70912		0.70917		0.70913		0.70917		0.70913		0.70917		0.70915		0.70912		0.70914		0.70918	
Tritium	pCi/L (1σ)	5020 (175)		4980 (180)		4810 (170)		5250 (190)		4990 (170)		5140 (180)		5260 (190)		5240 (180)		4030 (130)		5230 (180)		131.8 (10.7)		135.5 (12)		102.5 (11.3)		92.2 (10.9)		96.3 (10.8)		52.6 (7.5)	

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
[1] Sample TPSWC-Dup1 (9/14/2010) is a duplicate of TPSWC-6T.
Text in blue are revised values.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-2. Summary of Surface Water Analytical Results from the September 2010 Event

Parameter	Units	FB1 9/7/2010		FB1 9/8/2010		EB1 9/9/2010		FB1 9/11/2010		FB1 9/14/2010		FB1 9/24/2010		FB1 9/27/2010		FB1 9/28/2010	
Temperature	°C																
pH	SU																
Dissolved Oxygen	mg/L																
Specific Conductance	µS/cm																
Turbidity	NTU																
Arsenic	mg/L																
Barium	mg/L	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U
Beryllium	mg/L																
Cadmium	mg/L																
Copper	mg/L																
Iron	mg/L	0.0027	U	0.0027	U	0.011	I	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0035	I V
Lead	mg/L																
Manganese	mg/L																
Molybdenum	mg/L																
Nickel	mg/L																
Selenium	mg/L																
Thallium	mg/L																
Vanadium	mg/L																
Zinc	mg/L																
Silica	mg/L																
Calcium	mg/L	0.10	U	0.10	U	0.10	U	0.25	I	0.10	U	0.10	U	0.10	U	0.12	I
Magnesium	mg/L	0.020	U	0.020	U	0.020	U	0.050	I	0.020	U	0.020	U	0.020	U	0.026	I
Potassium	mg/L	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	0.31	U	0.31	U	0.31	U	0.34	I	0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	0.012	I	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U
Strontium	mg/L	0.001	U	0.001	U	0.001	U	0.0019	I	0.001	U	0.001	U	0.001	U	0.001	U
Chromium VI	mg/L																
Mercury	mg/L																
Bromide	mg/L	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
Fluoride	mg/L	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
Sulfate	mg/L	0.20	U	0.27	I	0.20	U	0.20	U	0.20	U	0.20	U	0.20	I	0.20	U
Total Ammonia	mg/L as N																
Ammonium Ion (NH^{4+})	mg/L																
Unionized NH_3	mg/L																
Nitrate/Nitrite as N	mg/L																
TKN	mg/L																
TN	mg/L																
Orthophosphate	mg/L																
Phosphorus (P)	mg/L																
Alkalinity	mg/L ($CaCO_3$)	1.0	U	1.7		1.0	U	2.3		1.0	U	1.5		1.2		1.6	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	1.0	U	1.7		1.0		2.3		1.0	U	1.5		1.2		1.6	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L																
Dissolved Inorganic Carbon	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
$\delta^{18}O$	‰	-1.3		-1.3		-1.0		-1.2		-1.1		-1.2		-1.1		-1.2	
$\delta^{2}H$	‰	-6.0		-4.0		-1.0		-11.0		-7.0		-4.0		-8.0		-6.0	
$\delta^{13}C$	‰	-9.32		-9.54		-11.67		-6.39		-12.90		-15.77		-14.30		-24.63	
Gross Alpha	pCi/L																
Salinity (PSS-78)																	
$^{87}Sr/^{86}Sr$	µg/L*	0.01	U	0.022		0.803		0.024		0.023		0.01	U	0.01	U	0.01	U
Tritium	pCi/L (1σ)	3 (8.4)	UJ	6.8 (8.1)	UJ	53.1 (8.9)				21.3 (8.4)		11.9 (8.2)		38 (7.7)		13.8 (7.4)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (9/14/2010) is a duplicate of TPSWC-6T

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-3. Summary of Surface Water Analytical Results from the December 2010 Sampling Event

Parameter	Units	TPBBSW-1B 12/13/2010		TPBBSW-2B 12/13/2010		TPBBSW-3B 12/13/2010		TPBBSW-4B 12/13/2010		TPBBSW-5B 12/13/2010		TPSWC-1T 12/1/2010		TPSWC-1B 12/1/2010		TPSWC-2T 12/1/2010		TPSWC-2B 12/1/2010		TPSWC-3T 12/1/2010		TPSWC-3B 12/1/2010		TPSWC-4T 12/10/2010		TPSWC-4B 12/10/2010		TPSWC-5T 12/10/2010		TPSWC-DUP [1] 12/10/2010		TPSWC-5B 12/10/2010		TPSWC-6T 12/7/2010		TPSWC-6B 12/7/2010	
Temperature	°C	17.17		17.45		17.02		17.03		17.02		25.55		25.32		25.58		24.5		26.4		25.11		21.96		19.89		19.64				20.72		20.48		20.71	
pH	SU	8.5		8.57		8.47		8.41		8.17		7.8		7.68		8.03		7.95		7.78		7.51		7.33		7.33		7.77				7.29		7.72		7.57	
Dissolved Oxygen	mg/L	8.38		9.12		7.75		7.67		7.58		8.02		4.71		7.44		7.6		7.86		3.61		0.27		3.49		6.49				2.4		2.9		2.62	
Specific Conductance	µS/cm	51601		43821		46471		50029		46715		533	J	538	J	721	J	701	J	881	J	993	J	29584		42032		50080				52914		943	J	941	J
Turbidity	NTU	7.16		11.97		1.01		8.62		0.65		1.01		18.81		1.4		5.59		1.34		1.08		8.13		14.93		1.14				34.5		1.27		0.34	
Arsenic	mg/L																																				
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.021	I	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.024	I	0.016	U	0.023	I
Beryllium	mg/L																																				
Cadmium	mg/L																																				
Copper	mg/L																																				
Iron	mg/L	0.390	I	0.410	I	0.390	I	0.370	I	0.360	I	0.063	I	0.054	U	0.310	I	0.054	U	0.054	U	0.069	I	0.360	I	0.460	I	0.400	I	0.350	I	1.1		0.054	U	0.054	U
Lead	mg/L																																				
Manganese	mg/L																																				
Molybdenum	mg/L																																				
Nickel	mg/L																																				
Selenium	mg/L																																				
Thallium	mg/L																																				
Vanadium	mg/L																																				
Zinc	mg/L																																				
Silica	mg/L																																				
Calcium	mg/L	410		360		380		390		370		56		57		69		68		83		94		300		380		410		420		460		98		98	
Magnesium	mg/L	1200		1000		1100		1200		1100		7.3		7.3		7.8		7.7		8.6		9.3		630		960		1200		1200		1300		10		10	
Potassium	mg/L	420		340		370		400		360		2.7		2.7		3.2		3.1		3.3		3.6		200		310		380		380		420		7.5		7.6	
Sodium	mg/L	11000		9100		9600		10000		9500		41		39		61		59		82		98		5700		8400		10000		10000		11000		73		74	
Boron	mg/L	4.3		3.6		3.7		4.1		3.7		0.034	I	0.035	I	0.035	I	0.034	I	0.038	I	0.041	I	2.1		3.3		4.1		4.2		4.4		0.074		0.074	
Strontium	mg/L	7.3		6.3		6.6		7.0		6.4		0.590		0.560		0.750		0.740		0.830		0.900		5.1		6.7		7.7		7.6		8.5		1.0		1.0	
Chromium VI	mg/L																																				
Mercury	mg/L																																				
Bromide	mg/L	55		46		44		53		49		0.13		0.027	U	0.29		0.25		0.43		0.56		29		44		55		55		60		0.58		0.54	
Chloride	mg/L	19000		16000		17000		19000		17000		79		73		150		110		160		200		11000		16000		19000		19000		21000		140		170	
Fluoride	mg/L	0.59		0.54		0.56		0.56		0.51		0.048	I	0.045	I	0.049	I	0.049	I	0.050		0.051		0.27	I	0.46	I	0.67		0.54		0.49	I	0.092		0.11	
Sulfate	mg/L	2500		2100		2000		2400		2200		2.0		2.4		3.8	J	3.4		6.7		8.8		1400		2000		2600		2500		2700		45		43	
Total Ammonia	mg/L as N																																				
Ammonium Ion (NH^{4+})	mg/L																																				
Unionized NH_3	mg/L																																				
Nitrate/Nitrite as N	mg/L																																				
TKN	mg/L																																				
TN	mg/L																																				
Orthophosphate	mg/L																																				
Phosphorus (P)	mg/L																																				
Alkalinity	mg/L ($CaCO_3$)	130		150		150		130		140		140		140		160		150		180		200		230		190		150		150		170		210		210	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	130		150		150		130		140		140		140		160		150		180		200		230		190		150		150		170		210		210	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L																																				
Dissolved Inorganic Carbon	mg/L	33		39		40		37		37		36		37		40		40		47		51		60		51		42		43		47		56		55	
$\delta^{18}O$	‰	1.4		1.1		1.3		1.2		1.0		-0.4		-0.5		0.2		0.2		-1.4		-0.8		1.3		1.3		1.5		0.7		1.7		-1.2		-1.3	
$\delta^{2}H$	‰	13.4		8.7		8.9		11.5		13.0		-2.0		-3.0		1.9		-0.1		-3.0		-7.8		7.0		14.3		12.7		12.2		19.1		-6.3		-5.9	
$\delta^{13}C$	‰	-0.45		-2.14		-2.13		-1.03		-1.82		-6.23		-6.95		-5.72		-5.95		-6.89		-7.79		-8.23		-7.06		-3.82		-5.67		-5.46		-9.74		-9.63	
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		34.0		28.3		30.2		32.8		30.4		0.3	J	0.3	J	0.4	J	0.3	J	0.4	J	0.5	J	18.3		27.0		32.9				34.9		0.5	J	0.5	J
$^{87}Sr/^{86}Sr$	µg/L*	0.70915		0.70916		0.70915		0.70917		0.70914		0.70915		0.70915		0.70916		0.70916		0.70914		0.70914		0.70913		0.70915		0.7091		0.70914		0.70912		0.70916		0.70915	
Tritium	pCi/L (1σ)	11.4(7.8)	J	23.6(8.2)	J	30.5(8.3)	J	26.7(8.3)	J	24.6(9.6)	J	110(8.4)		85.8(6.9)		114(8)		125 (8.0)		66.4(6.4)		40.8(5.9)		405(28)		310(23)		479(26)		464(28)		946(57)		10.1(6.6)		3.5(6.5)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup (12/10/2010) is a duplicate of TPSWC-5T.

[2] Sample TPSWCCS-Dup1 (12/9/2010) is a duplicate of TPSWCCS-2B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-3. Summary of Surface Water Analytical Results from the December 2010 Sampling Event

Parameter	Units	TPSWID-1T 12/2/2010		TPSWID-1B 12/2/2010		TPSWID-2T 12/2/2010		TPSWID-2B 12/2/2010		TPSWID-3T 12/2/2010		TPSWID-3B 12/2/2010		TPSWCCS-1B 12/2/2010		TPSWCCS-2B 12/9/2010		TPSWCCS-DUP1 [2] 12/9/2010		TPSWCCS-3B 12/2/2010		TPSWCCS-4T 12/3/2010		TPSWCCS-4B 12/3/2010		TPSWCCS-5T 12/3/2010		TPSWCCS-5B 12/3/2010		TPSWCCS-6T 12/3/2010		TPSWCCS-6B 12/3/2010	
Temperature	°C	24.22		24.23		24.48		24.4		23.48		23.56		30.08		19.43				24.29		22.05		22.17		20.9		20.88		21.76		21.7	
pH	SU	7.94		7.94		7.58		7.82		7.81		7.65		7.92		8.08				7.91		7.95		8.01		7.92		7.94		7.97		8.02	
Dissolved Oxygen	mg/L	6.35		5.59		4.18		3.41		3.85		4.5		4.55		7.18				3.31		8.03		7.52		4.5		4.98		6.29		6.14	
Specific Conductance	µS/cm	2625		2641		3034		3078		2143		2195		73120		73894				68344		72956		72880		71979		72132		72784		72835	
Turbidity	NTU	1.51		2.01		0.59		0.75		0.35		0.34		8.68		8.63				9.64		8.22		6.62		7.72		9.07		6.83		7.96	
Arsenic	mg/L																																
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	1.6		0.016	U	0.017	I V	0.041	I	0.016	U	0.024	I J	0.016	U	0.016	U	0.016	U	0.016	U
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	0.054	U	0.054	U	0.054	U	0.062	I J	0.054	U	0.054	U	0.054	U	0.410	I	0.420	I	0.540	I	0.490	I	0.380	I	0.400	I	0.640	I	0.430	I	0.360	I
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica	mg/L																																
Calcium	mg/L	87		87		120		110		100		100		610		630		640		580		610		620		620	J	610		630		610	
Magnesium	mg/L	45		45		48		47		31		30		1900		2000		2000		1800		1800		1800		1800	J	1800		1800		1800	
Potassium	mg/L	22		23		25		25		16		16		570		650		660		560		560		560		570	J	560		580		570	
Sodium	mg/L	370		370		430		420		300		300		15000		17000		17000		15000		15000		15000		16000	J	15000		15000		15000	
Boron	mg/L	0.180		0.190		0.170		0.170		0.110		0.100		6.9		7.3		7.5		6.5		6.2		6.2		6.3		6.2		6.4		6.3	
Strontium	mg/L	1.0		1.0		1.4		1.4		1.1		1.1		12.0		13.0		13.0		12.0		12.0		12.0		12.0		12.0		12.0		12.0	
Chromium VI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	1.9		1.9		2.3	J	2.1		1.8		1.8		0.27	U	99		88		86		55		89		52	J	87		140		32	
Chloride	mg/L	110		850		1300	J	620		570		490		30000		31000		28000		27000		29000		28000		33000	J	28000		28000		28000	
Fluoride	mg/L	0.10		0.097		0.12	J	0.10		0.087		0.084	J-	0.78	I	94		54		0.86	I	1.9		0.20	U	0.20	UJ	1.9		0.20	U	2.1	
Sulfate	mg/L	51	J-	46		110	J	61		36		37	J-	3600		3700		3700		3200		2100		3300		1900	J	3200		3800		1300	
Total Ammonia	mg/L as N																																
Ammonium Ion (NH^{4+})	mg/L																																
Unionized NH_3	mg/L																																
Nitrate/Nitrite as N	mg/L																																
TKN	mg/L																																
TN	mg/L																																
Orthophosphate	mg/L																																
Phosphorus (P)	mg/L																																
Alkalinity	mg/L ($CaCO_3$)	210		210		240	J	240		190		200		130		130		140		140		130		130		130	J	130		120		130	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	210		210		240	J	240		190		200		130		130		140		140		130		130		130	J	130		120		130	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L																																
Dissolved Inorganic Carbon	mg/L	52		52		60		60		51		51		32		42		41		34		35		50		37		34		32		36	
$\delta^{18}O$	‰	-0.6		-0.7		0.9		0.3		-0.1		0.0		3.3		3.9		3.7		2.4		3.4		3.3		3.7		3.5		3.4		3.5	
$\delta^{2}H$	‰	-1.0		-4.0		7.0		12.0		4.0		2.0		17.0		23.6		19.4		14.0		16.2		21.8		21.8		17.2		16.5		17.4	
$\delta^{13}C$	‰	-7.24		-7.50		-7.88		-7.95		-8.43		-8.26		-5.04		-8.40		-3.67		-5.53		-4.61		-4.61		-5.04		-5.02		-4.95		-4.71	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		1.4		1.4		1.6		1.6		1.1		1.1		50.2		51.0				46.6		50.3		50.2		49.5		49.7		50.2		50.2	
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70914		0.70915		0.70913		0.70916		0.70914		0.70911		0.70908		0.7091		0.7091		0.70908		0.70909		0.70908		0.70907		0.7091		0.7091	
Tritium	pCi/L (1σ)	325(13)		316(13)		205(10)		178(10)		180(10)		173(10)		13340(850)		12010(750)		12200(750)		11830(380)		13530(850)		13340(850)		14280(850)		13720(850)		13340(850)		13910(850)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup (12/10/2010) is a duplicate of TPSWC-5T.

[2] Sample TPSWCCS-Dup1 (12/9/2010) is a duplicate of TPSWCCS-2B.

Text in blue are revised values.

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-3. Summary of Surface Water Analytical Results from the December 2010 Sampling Event

Parameter	Units	TPSWCCS-7B 12/2/2010		EB1 12/1/2010		FB1 12/2/2010		EB1 12/3/2010		FB1 12/13/2010	
Temperature	°C	28.6									
pH	SU	8.06									
Dissolved Oxygen	mg/L	5.9									
Specific Conductance	µS/cm	72843									
Turbidity	NTU	9.24									
Arsenic	mg/L										
Barium	mg/L	0.024	I	0.00081	U	0.00081	U	0.0015	I V	0.00081	I
Beryllium	mg/L										
Cadmium	mg/L										
Copper	mg/L										
Iron	mg/L	0.880	I	0.0027	U	0.030	I	0.0027	U	0.0092	I V
Lead	mg/L										
Manganese	mg/L										
Molybdenum	mg/L										
Nickel	mg/L										
Selenium	mg/L										
Thallium	mg/L										
Vanadium	mg/L										
Zinc	mg/L										
Silica	mg/L										
Calcium	mg/L	570		0.10	U	0.11	I	0.10	U	0.21	I
Magnesium	mg/L	1800		0.020	U	0.020	U	0.020	U	0.029	I
Potassium	mg/L	580		0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	15000		0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	6.6		0.010	U	0.010	U	0.010	U	0.010	U
Strontium	mg/L	12.0		0.001	U	0.001	U	0.001	U	0.0021	I
Chromium VI	mg/L										
Mercury	mg/L										
Bromide	mg/L	85		0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	28000		0.20	U	0.20	U	0.20	U	0.29	I
Fluoride	mg/L	0.80	I	0.020	U	0.020	U	0.020	U	0.020	U
Sulfate	mg/L	3000		0.20	U	0.20	U	0.20	U	0.20	U
Total Ammonia	mg/L as N										
Ammonium Ion (NH^{4+})	mg/L										
Unionized NH_3	mg/L										
Nitrate/Nitrite as N	mg/L										
TKN	mg/L										
TN	mg/L										
Orthophosphate	mg/L										
Phosphorus (P)	mg/L										
Alkalinity	mg/L ($CaCO_3$)	130		1.0	U	1.0		1.7		2.2	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	130		1.0	U	1.0		1.7		2.2	
Sulfides	mg/L	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Total Dissolved Solids	mg/L										
Dissolved Inorganic Carbon	mg/L	31		1.0	U	1.0	U	18		1.0	U
$\delta^{18}O$	‰	3.1		-1.4		-1.3		-1.0		-1.1	
$\delta^{2}H$	‰	19.0		-10.0		-6.0		-9.3		-5.0	
$\delta^{13}C$	‰	-4.63		-13.33		-9.44		-18.13		-	
Gross Alpha	pCi/L										
Salinity (PSS-78)		50.0									
$^{87}Sr/^{86}Sr$	µg/L*	0.7091		0.013		0.008		0.024		0.616	
Tritium	pCi/L (1σ)	13810(470)		3.4 (5.7)	UJ	4.4(5.4)	UJ	-0.4(7.5)	UJ	23.6(8.2)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup (12/10/2010) is a duplicate of TPSWC-5T.

[2] Sample TPSWCCS-Dup1 (12/9/2010) is a duplicate of TPSWCCS-2B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-4. Summary of Surface Water Analytical Results from the March 2011 Sampling Event

Parameter	Units	TPBBSW-1B 3/8/2011		TPBBSW-2B 3/8/2011		TPBBSW-3B 3/8/2011		TPBBSW-4B 3/8/2011		TPBBSW-5B 3/8/2011		TPSWC-1T 3/23/2011		TPSWC-1B 3/23/2011		TPSWC-2T 3/23/2011		TPSWC-2B 3/23/2011		TPSWC-DUP [1] 3/23/2011		TPSWC-3T 3/21/2011		TPSWC-3B 3/21/2011		TPSWC-4T 3/18/2011		TPSWC-4B 3/18/2011		TPSWC-5T 3/18/2011		TPSWC-5B 3/18/2011		TPSWC-6T 3/22/2011		TPSWC-6B 3/22/2011	
Temperature	°C	24.56		25.10		24.44		23.45		24.26		28.07		24.04		25.54		24.60				26.04		25.71		25.30		25.66		24.37		24.12		24.21		23.69	
pH	SU	8.12		8.21		8.30		8.15		8.07		8.32		7.30		7.98		8.02				8.37		8.23		7.53		7.71		8.12		8.18		8.59		8.24	
Dissolved Oxygen	mg/L	9.22	J	8.62	J	7.59	J	5.95	J	7.13	J	5.61	J	2.43	J	8.80	J	8.69	J			5.26	J	5.59	J	4.31	J	3.53	J	6.82	J	7.90	J	6.33	J	5.75	J
Specific Conductance	µS/cm	53323		55593		55893		55205		52986		726	J	856	J	1390		1379				1945		2830		29669		45172		56874		57135		776	J	775	J
Turbidity	NTU	1.75		3.97		0.88		2.23		2.18		26.27		25.93		5.18		7.02				2.51		3.60		7.26	J	13.49	J	1.17	J	3.21	J	1.10		1.38	
Arsenic	mg/L																																				
Barium	mg/L	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U
Beryllium	mg/L																																				
Cadmium	mg/L																																				
Copper	mg/L																																				
Iron	mg/L	0.720	I V	0.680	I V	0.760	I V	0.760	I V	0.680	I V	0.054	U	0.054	U	0.170	I	0.054	U	0.058	I	0.056	I	0.054	U	0.250	I	0.330	I	0.320	I	0.250	I	0.054	U	0.054	U
Lead	mg/L																																				
Manganese	mg/L																																				
Molybdenum	mg/L																																				
Nickel	mg/L																																				
Selenium	mg/L																																				
Thallium	mg/L																																				
Vanadium	mg/L																																				
Zinc	mg/L																																				
Silica	mg/L																																				
Calcium	mg/L	450		460		460		460		440		68		76		97		100		98		110		120		320		410		460		470		82	J	81	
Magnesium	mg/L	1300		1400		1400		1400		1300		9.3		11		14		15		14		23		41		580	V	960	V	1200	V	1200	V	8.5	J	8.4	
Potassium	mg/L	420		440		440		440		410		3		3.7		5.1		5.2		5.1		7.5		13		200		340		440		440		11	J	11	
Sodium	mg/L	10000		11000		11000		11000		10000		62		77		150		160		150		230		380		5300		8600		11000		11000		54	J	54	
Boron	mg/L	4.4		4.6		4.6		4.6		4.3		0.037	I	0.044	I	0.056		0.058		0.056		0.092	J	0.14	J	2		3.4		4.5		4.5		0.087	J	0.086	J
Strontium	mg/L	7.7		8		8.1		8.1		7.6		0.71		0.77		1.1		1.1		1.1		1.2		1.2		5		6.9		8.2		8.3		1		0.99	
Chromium VI	mg/L																																				
Mercury	mg/L																																				
Bromide	mg/L	68		77		72		95		66		0.16		0.26		0.81	J+	0.91		0.93		1.3	J+	2.6	J	36		55	J	100	J	80	J	0.48	J	0.47	
Chloride	mg/L	20000		21000		21000		21000		20000		120		150		310		310		310		470	J-	750	J	10000		20000	J	21000	J	21000	J	100	?	99	
Fluoride	mg/L	0.74		0.76		0.74		0.78		0.76		0.085		0.11		0.095		0.093		0.12		0.096		0.2	UJ	0.27	I	0.44	IJ	0.61	J	0.58	J	0.095	J	0.1	
Sulfate	mg/L	2600		2700		2700		3700		2500		18		18		28		29		30		43	J-	78	J	1300		2100	J	4000	J	3000	J	73	?	71	
Total Ammonia	mg/L as N	0.053	J	0.072	J	0.052	J	0.065	J	0.064	J	0.16		0.2		0.11		0.081		0.082		0.097		0.1		0.38		0.13		0.036	I	0.038	I	0.029	I	0.026	U
Ammonium Ion (NH^{4+})	mg/L	0.064		0.085		0.06		0.078		0.077		0.18		0.25		0.13		0.098				0.11		0.12		0.48		0.16		0.043		0.045		0.031		0.03	U
Unionized NH_3	mg/L	0.004		0.007		0.006		0.005		0.004		0.024		0.003		0.007		0.005		0.000		0.013		0.010		0.008		0.005		0.003		0.004		0.006		0.002	
Nitrate/Nitrite as N	mg/L	0.032	J	0.04	J	0.027	J	0.021	J	0.018	J	0.11		0.0047	U	0.099		0.29	J+	0.59	J	0.0047	U	0.0047	U	0.015	J+	0.017	J+	0.0092	I	0.013		0.0047	UJ	0.0047	UJ
TKN	mg/L	0.31	J	0.2	J	0.26	J	0.25	J	0.24	J	1.3		0.47		0.84		0.49	J	0.16	IJ	0.54		0.57		0.92		1.1	J-	0.33		0.18	I	0.2	J	0.29	J
TN	mg/L	0.34		0.25	U	0.29		0.27		0.26		1.4		0.47		0.94		0.78		0.75		0.54		0.57		0.94		1.1		0.34		0.25	U	0.25	U	0.29	
Orthophosphate	mg/L	0.0034	IJ	0.0062	IJ	0.0061	IJ	0.0039	IJ-	0.0049	IJ	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.0071	I	0.0035	I	0.0014	UJ-	0.0014	U	0.0014	U
Phosphorus (P)	mg/L	0.017		0.017		0.016		0.016		0.017		0.033		0.042		0.018		0.011		0.0094	I	0.013		0.016		0.018		0.025		0.021		0.025		0.0089	I	0.013	
Alkalinity	mg/L ($CaCO_3$)	130		130		130		130		130		130		160		170		170		170		200		970	J	220		180	J	140	J	150	J	160	J	160	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	130		130		120		130		130		130		160		170		170		170		190		970	J	220		180	J	140	J	150	J	160	J	160	
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																																				
Dissolved Inorganic Carbon	mg/L	43		41		39		40		44		45		51		58		58		49		63		64		73		59		43		43		47		45	
$\delta^{18}O$	‰	2.0		1.9		1.9		1.8		2.0		0.5		0.3		0.0		0.0		0.2		0.0		0.0		1.4		1.9		1.9		2.1		-0.5		-0.5	
$\delta^{2}H$	‰	17.0		23.0		18.0		18.0		18.0		6.0		5.0		1.0		-1.0		1.0		1.0		3.0		8.0		15.0		18.0		17.0		1.0		-1.0	
$\delta^{13}C$	‰	-1.61		-0.26		-0.15		-0.45		-1.61		-3.64		-6.42		-5.08		-5.18		-5.07		-5.78		-5.63		-7.60		-6.05		-1.55		-1.68		-8.27		-7.99	
Gross Alpha	pCi/L																																				
Salinity (PSS-78)		35.2		36.9		37.1		36.6		35.0		0.4	J	0.4	J	0.7		0.7				1.0		1.5		18.3		29.2		37.9		38.1		0.4	J	0.4	J
$^{87}Sr/^{86}Sr$	µg/L*	0.70914		0.70915		0.70914		0.70918		0.70914		0.70915		0.70914		0.70914		0.70916		0.70913		0.70921		0.70917		0.70912		0.70914		0.70915		0.70914		0.70912		0.70912	
Tritium	pCi/L (1σ)	19.3(7.3)		13.1(7.3)		13.4(7.7)		34.5(8.4)		26.4(7.9)		102.5(12.4)		69.1(10.4)		63(9.9)		46.9(8.9)	J	81.1(11.1)	J	35.8(7.1)	J	26.8(6.6)	J	403(26)		226(18)		136(12)		152(13)		4(7.2)	UJ	24.7(8)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (3/23/2011) is a duplicate of TPSWC-2B.

[2] Sample TPSWCCS-Dup1 (3/15/2011) is a duplicate of TPSWCCS-1B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-4. Summary of Surface Water Analytical Results from the March 2011 Sampling Event

Parameter	Units	TPSWID-1T 3/15/2011		TPSWID-1B 3/15/2011		TPSWID-2T 3/15/2011		TPSWID-2B 3/15/2011		TPSWID-3T 3/15/2011		TPSWID-3B 3/15/2011		TPSWCCS-1B 3/15/2011		TPSWCCS-DUP1 [2] 3/15/2011		TPSWCCS-2B 3/9/2011		TPSWCCS-3B 3/15/2011		TPSWCCS-4B 3/22/2011		TPSWCCS-4T 3/22/2011		TPSWCCS-5B 3/22/2011		TPSWCCS-5T 3/22/2011		TPSWCCS-6B 3/22/2011		TPSWCCS-6T 3/22/2011	
Temperature	°C	28.37		25.41		25.08		26.27		23.97		24.32		32.07				25.99		23.74		24.64		24.44		24.33		24.33		25.46		25.36	
pH	SU	7.38		7.32		7.35		7.08		7.86		7.31		8.05				7.96		8.00		8.36		8.24		8.27		8.09		8.28		8.36	
Dissolved Oxygen	mg/L	3.85	J	4.95	J	3.05	J	0.04	J	6.98	J	1.10	J	6.80	J			5.72	J	4.71	J	6.09	J	6.27	J	4.10	J	4.22	J	6.09	J	5.36	J
Specific Conductance	µS/cm	18197		18785		12172		27020		4223		7935		82288				82938		80314		82638		82098		81929		81516		81426		81457	
Turbidity	NTU	1.05		1.42		0.83		47.92		0.35		0.89		6.45				10.08		6.58		5.44		8.07		5.93		5.70		5.67		6.22	
Arsenic	mg/L																																
Barium	mg/L	0.019	I	0.018	I	0.016	U	0.016	U	0.016	U	0.016	U	0.020	I	0.016	U	0.016	U	0.030	I	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U	0.016	U
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	0.250	I	0.270	I	0.130	I	0.320	I	0.054	U	0.140	I	0.440	I	0.480	I	0.880	I V	0.470	I	0.960	I	0.870	I	0.860	I	0.850	I	0.920	I	0.850	I
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica	mg/L													4.20	J	0.25	UJ	5.20		4.20		1.60	J	0.25	UJ	0.25	UJ	0.25	UJ	0.25	UJ	0.75	IJ
Calcium	mg/L	250		250		210		330		140		180		750		770		780		780		770	J	780		770		760		760		760	
Magnesium	mg/L	360		370		230		590		60		130		2100		2100		2200		2100		2200	J	2200		2200		2200		2200		2200	
Potassium	mg/L	130		130		77		190		23		47		700		720		690		720		700	J	700		690		690		690		690	
Sodium	mg/L	3200		3300		2000		4900		590		1200		17000		17000		17000		17000		17000	J	18000		18000		17000		17000		17000	
Boron	mg/L	1.3	J	1.3	J	0.74	J	1.8		0.19	IJ	0.39	J	6.8		7		7.2		7		7.1		7.1		6.9		6.9		7		6.9	
Strontium	mg/L	3.5		3.5		2.7		5.1		1.5		2.1		13		14		14		14		14		15		14		14		14		14	
Chromium VI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	21		22	J	13		32		4.1		9		120	J	110		120		110		120	J	120		270		120		220		120	
Chloride	mg/L	5900		7200	J	4000		9600		1200		2700		35000	J	37000		33000		34000		36000	J	35000		35000		35000		35000		35000	
Fluoride	mg/L	0.2	U	0.21	IJ	0.027	I	0.2	U	0.038	I	0.2	U	1.1	J	1		0.2	U	0.53		0.54	J	0.43	I	0.58		0.52		0.49	I	0.48	I
Sulfate	mg/L	790		730	J	460		1200		100		280		4200	J	3900		4300		4100		4600	J	4600		4800		4500		4800		4500	
Total Ammonia	mg/L as N	0.51		0.52		0.52		1		0.2		0.32		0.3		0.3		0.54		0.32		0.17		0.17		0.18		0.19		0.17		0.18	
Ammonium Ion (NH^{4+})	mg/L	0.64		0.66		0.66		1.3		0.25		0.41		0.35				0.66		0.39		0.19		0.2		0.21		0.23		0.2		0.2	
Unionized NH_3	mg/L	0.011		0.007		0.007		0.007		0.010		0.004		0.027				0.038		0.019		0.020		0.020		0.021		0.014		0.022		0.023	
Nitrate/Nitrite as N	mg/L	0.0096	I	0.014		0.0082	I	0.077		0.093		0.0083	I	0.048	J	0.071	J	0.029		0.039		0.018	J	0.024	J	0.02	J	0.018	J+	0.049	J	0.12	J
TKN	mg/L	1.2		1.3		1		1.8		0.8		0.78		1.8		1.9		2.3		2.4		2.1		2		1.8		1.6		2.3		2.2	
TN	mg/L	1.2096		1.314		1.0082		1.877		0.893		0.7883		1.848		1.971		2.3		2.439		2.1		2		1.8		1.6		2.3		2.3	
Orthophosphate	mg/L	0.041	J	0.0014	UJ-	0.034	J	0.04	J	0.029	J	0.034	J	0.077	J	0.082		0.0014	U	0.087	J	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.0042	I	0.0026	I
Phosphorus (P)	mg/L	0.011	J	0.015		0.0077	IJ	0.014	J	0.0067	IJ	0.01	J	0.032	J	0.032		0.03		0.036	J-	0.039		0.041		0.039		0.039		0.039		0.04	J-
Alkalinity	mg/L ($CaCO_3$)	300		310	J	270		270		230		250		180	J	180		180		170		190	J	180		180		180		190		190	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	300		310	J	270		270		230		250		180	J	180		180		170		190	J	180		180		180		190		190	
Sulfides	mg/L	1	U	1	U	1	U	2.2		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																																
Dissolved Inorganic Carbon	mg/L	86		96		78		79		74		83		51		54		51		52		46		49		50		51		45		46	
$\delta^{18}O$	‰	0.9		0.6		0.9		1.4		0.2		0.1		6.4		5.6		6.0		5.4		6.3		6.2		6.1		6.0		5.9		6.0	
$\delta^{2}H$	‰	8.0		7.0		12.0		11.0		6.0		4.0		34.0		34.0		39.0		35.0		34.0		32.0		42.0		34.0		36.0		32.0	
$\delta^{13}C$	‰	-7.79		-8.38		-8.62		-9.80		-8.11		-9.03		-1.37		-1.41		-1.42		-1.52		-1.86		-1.64		-2.30		-2.34		-1.99		-2.02	
Gross Alpha	pCi/L													40 (2)	J	28 (2)	J	20 (2)		34 (2)		35 (2)		40 (2)		31 (2)		40 (2)		34 (2)		41 (2)	
Salinity (PSS-78)		10.7		11.1		7.0		16.5		2.2		4.4		57.5				58.3		56.2		58.1		57.6		57.5		57.1		57.0		57.1	
$^{87}Sr/^{86}Sr$	µg/L*	0.70911		0.70911		0.70913		0.70913		0.70911		0.70914		0.70909		0.7091		0.7091		0.70908		0.7091		0.70909		0.7091		0.7091		0.70909		0.7091	
Tritium	pCi/L (1σ)	395(27)		5677(310)		366(26)		1070(66)		102(11.4)		169(14)		358(26)		5330(320)		4880(290)		4600(280)		7130(430)		7020(420)		6710(400)		7010(420)		4690(470)		5270(420)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (3/23/2011) is a duplicate of TPSWC-2B.

[2] Sample TPSWCCS-Dup1 (3/15/2011) is a duplicate of TPSWCCS-1B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-4. Summary of Surface Water Analytical Results from the March 2011 Sampling Event

Parameter	Units	TPSWCCS-7B 3/15/2011		FB1 3/8/2011		FB1 3/15/2011		TPSWC-FB1 3/18/2011		TPSWC-FB1 3/21/2011		TPSWCCS-FB1 3/22/2011	
Temperature	°C	29.01											
pH	SU	8.08											
Dissolved Oxygen	mg/L	7.87	J										
Specific Conductance	µS/cm	81860											
Turbidity	NTU	8.91											
Arsenic	mg/L												
Barium	mg/L	0.016	U	0.001	U	0.001	U	0.001	I V	0.001	I	0.001	U
Beryllium	mg/L												
Cadmium	mg/L												
Copper	mg/L												
Iron	mg/L	0.490	I	0.003	U	0.003	U	0.003	U	0.003	U	0.003	U
Lead	mg/L												
Manganese	mg/L												
Molybdenum	mg/L												
Nickel	mg/L												
Selenium	mg/L												
Thallium	mg/L												
Vanadium	mg/L												
Zinc	mg/L												
Silica	mg/L	4.40										3.60	
Calcium	mg/L	780		0.1	U	0.1	U	0.1	U	0.1	U	0.1	U
Magnesium	mg/L	2200		0.034	I	0.02	U	0.06	I V	0.031	I	0.02	U
Potassium	mg/L	730		0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	17000		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	7.1		0.01	U	0.14		0.01	U	0.038	I	0.037	I
Strontium	mg/L	14		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chromium VI	mg/L												
Mercury	mg/L												
Bromide	mg/L	120		0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	34000		0.2	U	0.2	U	0.33	I	0.2	U	0.26	I
Fluoride	mg/L	1		0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Sulfate	mg/L	4200		0.2	U	0.55		0.2	U	0.2	U	0.2	U
Total Ammonia	mg/L as N	0.33		0.039	I	0.026	U	0.026	U	0.026	U	0.026	U
Ammonium Ion (NH^{4+})	mg/L	0.39											
Unionized NH_3	mg/L	0.028											
Nitrate/Nitrite as N	mg/L	0.067	J+	0.42		0.0047	U	0.087		0.0047	U	0.066	
TKN	mg/L	1.8		0.079	I	0.056	I	0.05	U	0.05	U	0.092	I
TN	mg/L	1.867		0.5		0.0607		0.25	U	0.25	U	0.25	U
Orthophosphate	mg/L	0.075	J	0.0014	I	0.0018	I J-	0.0014	U	0.0014	U	0.0014	U
Phosphorus (P)	mg/L	0.035	J	0.0044	U?	0.0044	U	0.0044	U	0.0044	U	0.0044	U
Alkalinity	mg/L ($CaCO_3$)	170		2.1		1.5		3		2.6		1	U
Bicarbonate Alkalinity as $CaCO_3$	mg/L	170		2.1		1.5		3		2.6		1	U
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L												
Dissolved Inorganic Carbon	mg/L	53		10	U	10	U	10	U	10	U	10	U
$\delta^{18}O$	‰	5.7		-1.1		-1.0		-2.4		-1.4		1.7	
$\delta^{2}H$	‰	33.0		-1.0		-5.0		-6.0		-6.0		4.0	
$\delta^{13}C$	‰	-0.94		-13.44		-25.61		-17.86		-21.29		-14.40	
Gross Alpha	pCi/L	42 (3)										0.4 (0.5)	UJ
Salinity (PSS-78)		57.3											
$^{87}Sr/^{86}Sr$	µg/L*	0.70907		0.005	U	0.005	U	0.01		0.005	U	0.005	U
Tritium	pCi/L (1σ)	6750(410)		-2.1(7.1)	UJ	-0.8(6.8)	UJ	10.7(5.9)		9.3(6.4)		-4.5(5.8)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (3/23/2011) is a duplicate of TPSWC-2B.

[2] Sample TPSWCCS-Dup1 (3/15/2011) is a duplicate of TPSWCCS-1B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-5. Summary of Surface Water Analytical Results from the June 2011 Sampling Event

Parameter	Units	TPBBSW-1B 6/14/2011		TPBBSW-2B 6/14/2011		TPBBSW-3B 6/14/2011		TPBBSW-4B 6/14/2011		TPBBSW-5B 6/14/2011		TPSWC-1T 6/10/2011		TPSWC-1B 6/10/2011		TPSWC-2T 6/10/2011		TPSWC-2B 6/10/2011		TPSWC-3T 6/10/2011		TPSWC-DUP1 [1] 6/10/2011		TPSWC-3B 6/10/2011		TPSWC-4T 6/15/2011		TPSWC-4B 6/15/2011		TPSWC-5T 6/15/2011		TPSWC-5B 6/15/2011	
Temperature	°C	30.49		30.95		31.36		31.02		31.42		29.1		28.6		29.78		29.61		29.3				29.26		31.76		31.3		32.1		31.07	
pH	SU	8.3		8.39		8.31		8.24		8		8.32		8.32		8.15		7.81		8.09				7.25		7.84		7.85		8.15		8.26	
Dissolved Oxygen	mg/L	4.56		5.29	J	6.41		5.75		4.13		8.16		7.34		6.76		3.72		7.5				0.92		3.28		3.39		5.88		5.83	
Specific Conductance	µS/cm	66855		64198		64512		61153		62727		1321		1288		6120		7942		5788				16610		63385		63421		61665		61770	
Turbidity	NTU	2.31		0.85		1.33		1.62		1.58		11.45		11.97		3.66		5.89		3.22				17.82		6.06		10.53		1.3		2.47	
Arsenic	mg/L																																
Barium	mg/L	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.016	U	0.016	U	0.016	U	0.056	I	0.018	I	0.025	I	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	0.27	U	0.6	I V	0.68	I V	0.71	I V	0.72	I V	0.077	I	0.5	I	0.054	U	0.054	U	0.054	U	0.054	U	0.27	U	0.61	I	0.72	I	0.66	I	0.73	I
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica	mg/L																																
Calcium	mg/L	540	J	500	J	500	J	480	J	500		75		73		150		160		140		140		230		520		520		500		500	
Magnesium	mg/L	1700	J	1700	J	1700	J	1600	J	1600		19		19		100		140		86		85		320		1700		1600		1600		1600	
Potassium	mg/L	570	J	550	J	560	J	530	J	540		6.5		6.4		36		48		30		29		100		540		530		510		520	
Sodium	mg/L	14000	J	14000	J	14000	J	13000	J	13000		140		140		920		1300		780		790		2600		13000		13000		12000		12000	
Boron	mg/L	5.5		5.4		5.4		5.2		5.4		0.078		0.076		0.35		0.48		0.29		0.29		1.1		5.5		5.5		5.2		5.3	
Strontium	mg/L	9.9		9.4		9.5		9.0		9.3		0.93		0.91		1.8		2.0		1.7		1.7		3.0		9.0		8.8		8.5		8.5	
Chromium VI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	100	J	96	J	92	J	91	J	95	J	0.84		0.88		6.8		7.8		5.4		5.1		19		96	J	110	J	94	J	93	J
Chloride	mg/L	28000	J	28000	J	26000	J	26000	J	26000	J	300		300		1700		2500		1600		1600		5300		28000	J	27000	J	27000	J	27000	J
Fluoride	mg/L	0.6	J	0.67	J	0.7	J	0.67	J	0.66	J	0.77		0.79		0.68		0.69		0.88	J	0.68	J	0.72		2	U J	2	U J	2	U J	2	U J
Sulfate	mg/L	3400	J	3200	J	3100	J	3000	J	3100	J	29		30		190		250		150		140		640		3200	J	3900	J	3100	J	3100	J
Total Ammonia	mg/L as N																																
Ammonium Ion (NH^{4+})	mg/L																																
Unionized NH_3	mg/L																																
Nitrate/Nitrite as N	mg/L																																
TKN	mg/L																																
TN	mg/L																																
Orthophosphate	mg/L																																
Phosphorus (P)	mg/L																																
Alkalinity	mg/L ($CaCO_3$)	77	J	92	J	82	J	58	J	82	J	160		160		200		200		190		190		200		42	J	81	J	76		88	J
Bicarbonate Alkalinity as $CaCO_3$	mg/L	76	J	91	J	81	J	57	J	82	J	160		160		200		200		190		190		200		42	J	81	J	76		88	J
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																																
Dissolved Inorganic Carbon	mg/L	27		28		29		29		32		45		42		54		54		59		54		58		31		32		33		31	
$\delta^{18}O$	‰	2.8		2.4		2.3		1.9		2.1		2.7		2.6		2.0		1.9		1.8		2.0		1.5		2.2		2.3		2.0		2.1	
$\delta^{2}H$	‰	20.0		17.0		17.0		16.0		23.0		16.0		17.0		7.0		12.0		10.0	J	6.0	J	8.0		23.2		20.9		16.2		25.7	
$\delta^{13}C$	‰	-5.18		-3.22		-2.46		-0.83		-4.25		-0.62		-0.32		-4.28		-5.16		-4.67		-4.61		-7.68		-4.92		-4.85		-2.01		-1.88	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		45.3		43.2		43.4		40.9		42.1		0.7		0.6		3.3		4.4		3.1				9.7		42.5		42.6		41.2		41.3	
$^{87}Sr/^{86}Sr$	µg/L*	0.70915		0.70913		0.70913		0.70914		0.70913		0.70911		0.70912		0.70913		0.70913		0.70912		0.70914		0.70915		0.70915		0.70914		0.70917		0.70915	
Tritium	pCi/L (1σ)	16.4 (5.4)	J	12.1 (4.9)	J	19.1 (5.1)	J	9.8 (4.8)	J	13.9 (5)	J	93.3 (10.5)	J	84.5 (7.7)	J	75.4 (7.6)	J	74.3 (6.9)	J	55 (6.1)	J	74.5 (7.9)	J	35 (5.1)	J	12.6 (4.5)		8.6 (4.4)		3.7 (4.3)	UJ	12.2 (4.8)	

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
[1] Sample TPSWC-DUP1 (6/10/2011) is a duplicate of TPSWC-3T.
[2] Sample TPSWCCS-DUP1 (6/23/2011) is a duplicate of TPSWCCS-1B.
[3] Sample TPSWID-DUP1 (6/20/11) is a duplicate of TPSWID-1T.
Text in blue are revised values.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-5. Summary of Surface Water Analytical Results from the June 2011 Sampling Event

Parameter	Units	TPSWC-6T 6/16/2011		TPSWC-6B 6/16/2011		TPSWCCS-1B 6/23/2011		TPSWCCS-DUP1 [2] 6/23/2011		TPSWCCS-2B 6/9/2011		TPSWCCS-3B 6/20/2011		TPSWCCS-4T 6/23/2011		TPSWCCS-4B 6/23/2011		TPSWCCS-5T 6/23/2011		TPSWCCS-5B 6/23/2011		TPSWCCS-6T 6/23/2011		TPSWCCS-6B 6/23/2011		TPSWCCS-7B 6/20/2011		TPSWID-1T 6/20/2011		TPSWID-Dup1 [3] 6/20/2011		TPSWID-1B 6/20/2011	
Temperature	°C	32.72		32.91		39.54				30.51		33.89		33.22		33.36		31.71		31.72		32.77		32.73		38.16		30.98				29.61	
pH	SU	7.51		7.35		8.23				8.38		8.24		8.35		8.36		8.11		8.15		8.23		8.26		8.23		7.28				7.04	
Dissolved Oxygen	mg/L	5.83		1.06		3.41				5.26	J	6.08		6.84		7.78		2.28		2.05		5.59		5.09		4.84		1.05				0.44	
Specific Conductance	µS/cm	33763		59045		88184				87350		87805		88902		88496		88186		88139		87799		87842		87634		36249				37557	
Turbidity	NTU	6.59		10.78		8.81				8.87		8.59		8.08		9.27		10.55		9.8		11.37		10.98		9.96		3.85				5.98	
Arsenic	mg/L																																
Barium	mg/L	0.081	U	0.081	U	0.081	U	0.081	U	0.16		0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	0.27	I	0.71	I	1	I	0.87	I	0.87		1.0	I	0.86	I	0.8	I	0.88	I	0.91	I	0.84	I	0.86	I	0.93	I	0.27	U	0.29	I	0.27	U
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica	mg/L																																
Calcium	mg/L	410	J	510		810		800		810	J	810		830	J	810	J	810	J	830	J	820	J	820	J	800		380		400		380	
Magnesium	mg/L	960	J	1500		2400		2400		2300	J	2500		2500	J	2400	J	2500	J	2500	J	2500	J	2500	J	2400		800		860		830	
Potassium	mg/L	320	J	490		820		820		770	J	810		820	J	800	J	830	J	830	J	810	J	820	J	810		270		290		280	
Sodium	mg/L	7700	J	12000		18000		18000		18000	J	19000		19000	J	19000	J	18000	J	19000	J	18000	J	19000	J	19000		6700		6800		6900	
Boron	mg/L	2.9		4.6		7.7		7.7		7.7		7.8		8		7.8		7.8		8		7.9		8		7.7		2.6		2.7		2.6	
Strontium	mg/L	6.1		8.4		15		15		15		15		15		15		15		15		15		15		15		6.0		6.3		6.2	
Chromium VI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	55	J	85	J	120		120		120	J	130		130	J	130	J	120	J	120	J	130	J	130	J	110		41		48		42	
Chloride	mg/L	15000	J	25000	J	36000		37000		37000	J	38000		38000	J	38000	J	37000	J	38000	J	38000	J	37000	J	37000		13000		13000		14000	J-
Fluoride	mg/L	0.61	J	0.6	J	4.7	I	4.6	I	6.5	J	0.2	U	5.2	J	4.6	I J	4.7	I J	4.9	I J	4.6	I J	5.1	J	0.45	I	0.2	U	2	U	0.48	I
Sulfate	mg/L	1800	J	2800	J	4400		4600		4100	J	4400		4600	J	4800	J	4600	J	4700	J	4600	J	4600	J	3700		1400		1400		1200	
Total Ammonia	mg/L as N																																
Ammonium Ion (NH^{4+})	mg/L																																
Unionized NH_3	mg/L																																
Nitrate/Nitrite as N	mg/L																																
TKN	mg/L																																
TN	mg/L																																
Orthophosphate	mg/L																																
Phosphorus (P)	mg/L																																
Alkalinity	mg/L ($CaCO_3$)	130	J	110	J	130		140				95		140	J	140	J	130	J	140	J	140	J	130	J	73		260		270		260	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	130	J	110	J	130		140				95		140	J	140	J	130	J	140	J	140	J	120	J	73		260		270		260	
Sulfides	mg/L	1	U	1.1		1	U	1	U			1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	2.7		3.4	
Total Dissolved Solids	mg/L																																
Dissolved Inorganic Carbon	mg/L	44		38		43.00		43.00		38		44		40.00		39.00		44.00		42.00		41.00		41.00		43		77		77		78	
$\delta^{18}O$	‰	1.6		14.3		5.6		5.9		6.0		6.4		6.1		6.1		6.2		6.2		6.0		5.9		5.7		2.1		2.0		2.2	
$\delta^{2}H$	‰	11.6		24.0		31.0		26.0		35.0		31.0		30.0		32.0		35.0		35.4		28.0		29.0		29.0		15.4	J	12.0	J	13.0	
$\delta^{13}C$	‰	-7.98		-7.89		-3.30		-3.28		-3.57		-2.88		-2.29				-3.79		-3.67		-3.15		-3.15		-3.11		-7.86		-8.82		-9.00	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		21.0		39.2		67.1	J			61.7		61.9		62.9		62.5		62.4		62.3		62.0		62.0		65.4	J	22.7				23.7	
$^{87}Sr/^{86}Sr$	µg/L*	0.70911		0.70914		0.70911		0.70909		0.7091		0.70911		0.70909		0.70909		0.70915		0.7091		0.70911		0.70909		0.70911		0.70913		0.7091		0.7091	
Tritium	pCi/L (1σ)	16.7 (4.6)		5.6 (4.3)		2973 (177)		2842 (169)		2810 (170)		2480 (140)		2704 (163)		2894 (172)		2648 (159)		2716 (161)		2430 (150)		2770 (170)		2690 (160)		1391 (8.3)		1510 (9)		1597 (9.6)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-DUP1 (6/10/2011) is a duplicate of TPSWC-3T.

[2] Sample TPSWCCS-DUP1 (6/23/2011) is a duplicate of TPSWCCS-1B.

[3] Sample TPSWID-DUP1 (6/20/11) is a duplicate of TPSWID-1T.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-5. Summary of Surface Water Analytical Results from the June 2011 Sampling Event

Parameter	Units	TPSWID-2T 6/20/2011		TPSWID-2B 6/20/2011		TPSWID-3T 6/20/2011		TPSWID-3B 6/20/2011		TPSWC-FB1 6/10/2011		TPBBSW-FB1 6/14/2011		TPSWID-FB1 6/20/2011		TPSWC-FB1 6/23/2011	
Temperature	°C	31.22		30.37		30.43		30.21									
pH	SU	7.58		6.91		7.26		7.11									
Dissolved Oxygen	mg/L	7.44		0.31		2.74		0.57									
Specific Conductance	µS/cm	41662		66251		45986		64951									
Turbidity	NTU	3.3		3.99		2.19		1.37									
Arsenic	mg/L																
Barium	mg/L	0.094	I J	0.081	U	0.081	U	0.081	U	0.00081	U	0.00081	I	0.0011	I	0.00081	U
Beryllium	mg/L																
Cadmium	mg/L																
Copper	mg/L																
Iron	mg/L	0.57	I	0.6	I	0.4	I	0.62	I	0.0027	U	0.0027	U	0.0027	U	0.0027	U
Lead	mg/L																
Manganese	mg/L																
Molybdenum	mg/L																
Nickel	mg/L																
Selenium	mg/L																
Thallium	mg/L																
Vanadium	mg/L																
Zinc	mg/L																
Silica	mg/L																
Calcium	mg/L	440		610		440		580		0.1	U	0.1	U	0.1	U	0.1	U
Magnesium	mg/L	980		1700		1100		1700		0.02	U	0.025	I	0.02	U	0.026	I
Potassium	mg/L	330		560		360		550		0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	8400		14000		8800		14000		0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	3.1		5.3		3.4		5.3		0.078		0.082		0.084		0.082	
Strontium	mg/L	7.1		11		7.1		10		0.001	U	0.001	U	0.001	U	0.001	U
Chromium VI	mg/L																
Mercury	mg/L																
Bromide	mg/L	48		85		55		67		0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	15000		27000		17000		26000		0.37	I	25		0.31	I	0.67	
Fluoride	mg/L	0.47	I	0.2	U	0.49	I	0.45	I	0.02	U	0.02	U	0.02	U	0.02	U
Sulfate	mg/L	1400		2900		1800		2300		0.28	I	0.2	U	0.2	U	0.29	I
Total Ammonia	mg/L as N																
Ammonium Ion (NH^{4+})	mg/L																
Unionized NH_3	mg/L																
Nitrate/Nitrite as N	mg/L																
TKN	mg/L																
TN	mg/L																
Orthophosphate	mg/L																
Phosphorus (P)	mg/L																
Alkalinity	mg/L ($CaCO_3$)	210		160		140		120		1.2		1.8		1	U	1.4	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	210		160		140		120		1.2		1.8		1	U	1.4	
Sulfides	mg/L	1	U	13		1	U	4		1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																
Dissolved Inorganic Carbon	mg/L	62		53		51		42		10.00	U	10.00	U	10.00	U	10.00	U
$\delta^{18}O$	‰	2.3		4.2		2.5		3.5		-1.1		-1.4		-1.2		-1.4	
$\delta^{2}H$	‰	17.3		27.0		11.0		24.4		-8.0		-8.0		-3.0		-13.0	
$\delta^{13}C$	‰	-6.41		-8.86		-7.70		-8.38		-16.11		-20.40		-20.60		-15.84	
Gross Alpha	pCi/L																
Salinity (PSS-78)		26.5		44.8		29.7		43.8									
$^{87}Sr/^{86}Sr$	µg/L*	0.7091		0.70912		0.70913		0.70913		0.1		0.1	U	0.1	U	0.1	U
Tritium	pCi/L (1σ)	1920 (110)		4350 (260)		1330 (80)		1990 (230)		13.6 (7.1)		11.4 (9.5)		8.1 (4.5)		8.3 (5)	

Notes:

* Strontium samples are reported as a ratio and hence unitl
while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-DUP1 (6/10/2011) is a duplicate of TPS\

[2] Sample TPSWCCS-DUP1 (6/23/2011) is a duplicate of T

[3] Sample TPSWID-DUP1 (6/20/11) is a duplicate of TPSW

Text in blue are revised values.

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-6. Summary of Surface Water Analytical Results from the September 2011 Sampling Event

		TPBBSW-1B		TPBBSW-2B		TPBBSW-3B		TPBBSW-4B		TPBBSW-5B		TPSWC-1T		TPSWC-DUP1 [1]		TPSWC-1B		TPSWC-2T		TPSWC-2B		TPSWC-3T		TPSWC-3B		TPSWC-4T		TPSWC-4B		TPSWC-5T		TPSWC-5B	
Parameter	**Units**	**9/8/2011**		**9/8/2011**		**9/9/2011**		**9/8/2011**		**9/8/2011**		**9/14/2011**		**9/14/2011**		**9/14/2011**		**9/14/2011**		**9/14/2011**		**9/14/2011**		**9/14/2011**		**9/13/2011**		**9/13/2011**		**9/14/2011**		**9/14/2011**	
Temperature	°C	31.62		31.15		31.22		31.19		31.11		31.31				29.28		31.56		30.61		31.68		30.84		32.31		30.29		32.03		32.4	
pH	SU	8.94		8.45		8.18		8.21		8.33		7.47	J			7.33	J	7.66	J	7.74	J	8.19	J	7.64	J	7.66	J	7.24	J	7.72	J	7.72	J
Dissolved Oxygen	mg/L	4.66		4.47		5.05		4.69		4.72		4.37				3.72		3.27		3.16		4.91		0.46		2.19		0.22		0.45		3.17	
Specific Conductance	µS/cm	53742		54062		55918		55450		52959		952	J			888	J	742	J	753	J	663	J	651	J	9906	J	45758	J	55387		59712	
Turbidity	NTU	1.95		0.58		0.69		0.44		0.9		0.87				0.78		0.93		0.82		0.73		1.14		2.16		107.8		0.57		1.74	
Arsenic	mg/L																																
Barium	mg/L	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.1	I	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	5.5		0.6	I	1.9	I V	0.56	I	0.76	I	0.27	U	0.27	U	0.27	U	0.36	I	0.27	U	0.27	U	0.39	I	0.27	U	0.52	I V	1.2	I	0.58	I
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica	mg/L																																
Calcium	mg/L	440	J	450		500		480	J	460		67	J	68		62		54	J	60	J	55	J	59	J	130		440		510		560	J
Magnesium	mg/L	1300	J	1400		1500		1500	J	1400		12	J	12		11		8.4	J	8.8	J	6.9	J	6.7	J	190		1100		1500		1600	J
Potassium	mg/L	420	J	430		470		450	J	420		4.6	J	4.6		3.7		2.9	J	3.4	J	3.4	J	3.5	J	60		320		460		510	J
Sodium	mg/L	11000	J	11000		11000		12000	J	11000		100	J	110		99		74	J	76	J	60	J	58	J	1600		8500		11000		13000	J
Boron	mg/L	4.7		4.8		5.2		5		4.7		0.062		0.063		0.06		0.05		0.056		0.048	I	0.048	I	0.65		3.4		5.2		5.7	
Strontium	mg/L	7.8		7.9		8.5		8.4		8.1		0.65		0.65		0.62		0.59		0.64		0.58		0.6		1.9		7.3		8.6		9.6	
Chromium VI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	70		71		73		75	J	69	J	0.35		0.41		0.37		0.3		0.3		0.26		0.31		10		53		74		78	J
Chloride	mg/L	20000		19000		20000		21000	J	19000	J	170		180		190	J-	120		120		95		91		3000		16000		20000		22000	J
Fluoride	mg/L	0.51	I	0.53	I	0.76	I	0.46	I J	0.42	I J	0.06		0.12	J-	0.073		0.072		0.078		0.07		0.11		0.4	U	0.4	U	0.74	I	0.79	I J
Sulfate	mg/L	2500		2600		2600		2600	J	2500	J	26		27	J-	16		11		12		8.8		15		350		2200		2700		2900	J
Total Ammonia	mg/L as N	0.1	J	0.063	J	0.053		0.06	J	0.076	J	0.23		0.23		0.23		0.22		0.22		0.23		0.37		0.34		0.34		0.11		0.17	
Ammonium Ion (NH^{4+})	mg/L	0.072		0.065		0.06		0.068		0.082		0.29				0.29		0.27		0.27		0.26		0.46		0.42		0.43		0.13		0.21	
Unionized NH_3	mg/L	0.0474		0.0155		0.0073		0.0082		0.0127		0.0069				0.0043		0.0104		0.0104		0.0316		0.0140		0.0160		0.0052		0.0052		0.0080	
Nitrate/Nitrite as N	mg/L	0.06		0.018		0.034		0.032		0.021		0.018		0.033		0.015		0.016	J+	0.55		0.3		0.023		0.017		0.039		0.028		0.028	
TKN	mg/L	0.28	J	0.37	J	0.34		0.43	J	0.63	J	1		1.1		0.94		1.1		1	J-	1		1.1		1.1		0.97		0.34		0.42	
TN	mg/L	0.34		0.39		0.37		0.46		0.65		1		1.1		0.96		1.1		1.6		1.3		1.1		1.1		1		0.37		0.45	
Orthophosphate	mg/L	0.011		0.0016	I	0.0014	U	0.0014	U J-	0.0014	U	0.0014	U	0.0041	I	0.0037	I	0.0014	U	0.0014	U	0.0049	I	0.0045	I J-	0.0014	U J-	0.0022	I	0.0014	U	0.0014	U J-
Phosphorus (P)	mg/L	0.052		0.048	I	0.022	U	0.047	I	0.049	I J-	0.0044	U	0.0044	U	0.0044	U	0.0044	U	0.0044	U	0.0044	U	0.0044	U	0.0051	I	0.14		0.033	I	0.022	U
Alkalinity	mg/L ($CaCO_3$)	120		120		120		120	J	130	J	100		96		93		91		100		110		1	U	140		240		130		130	J
Bicarbonate Alkalinity as $CaCO_3$	mg/L	120		120		120		120	J	130	J	100		96		93		91		100		110		1	U	140		240		130		130	J
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																									4800		28000					
Dissolved Inorganic Carbon	mg/L	39	J	44	J	41		44	J	47	J	35		10	U	10	U	36		35		37		41		54		88		10	U	10	U
$\delta^{18}O$	‰	1.6		1.6		2.1		2.3		2.4		-0.5		-0.5		-0.4		0.2		0.2		0.1		0.0		0.5		2.1		2.4		2.2	
$\delta^{2}H$	‰	9.0		10.0		7.0		12.0		17.0		0.0		2.0		4.0		2.0		7.0		1.0		6.0		-1.0		14.0		8.0		19.0	
$\delta^{13}C$	‰	-2.01		-2.21		-1.86		-3.01		-4.47		-9.9		-9.74		-9.28		-8.94		-8.93		-8.95		-10.17		-9.34		-10.26		-3.75		-4.64	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		35.28		35.54		36.92		36.57		34.72		0.464	J			0.433	J	0.358	J	0.365	J	0.319	J	0.314	J	5.51	J	29.49	J	36.49		39.72	
$^{87}Sr/^{86}Sr$	µg/L*	0.70916		0.70913		0.70917		0.70914		0.70915		0.70911		0.70916		0.70917		0.70916		0.70913		0.70914		0.70915		0.70914		0.70914		0.70913		0.70915	
Tritium	pCi/L (1σ)	32.6 (6.9)	J	26.5 (6.8)	J	21.9 (7)	J	30.6 (6.6)	J	23.9 (6.5)	J	18.1 (6)	J	11.4 (6)	J	17.6 (6.4)	J	13.7 (5.2)	J	15.4 (6.2)	J	15.2 (6.4)	J	10.3 (5.1)	J	209 (15)		449 (28)		41.6 (7)	J	231 (17)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-DUP1 (9/14/2011) is a field duplicate of sample TPSWC-1T.

[2] Sample TPSWCCS-DUP1 (9/12/2011) is a field duplicate of sample TPSWCCS-1B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

NR = Not recorded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-6. Summary of Surface Water Analytical Results from the September 2011 Sampling Event

		TPSWC-6T		TPSWC-6B		TPSWID-1T		TPSWID-1B		TPSWID-2T		TPSWID-2B		TPSWID-3T		TPSWID-3B		TPSWCCS-1B		TPSWCCS-DUP1 [2]		TPSWCCS-2B		TPSWCCS-3B		TPSWCCS-4T		TPSWCCS-4B		TPSWCCS-5T		TPSWCCS-5B	
Parameter	**Units**	9/1/2011		9/1/2011		9/12/2011		9/12/2011		9/12/2011		9/12/2011		9/12/2011		9/12/2011		9/12/2011		9/12/2011		9/7/2011		9/14/2011		9/1/2011		9/1/2011		9/1/2011		9/1/2011	
Temperature	°C	26.96		26.96		28.7		29.4		30.14		30.07		30.67		29.47		40.31				36.19		34.35		33.46		33.67		32.16		32.36	
pH	SU	7.59		7.58		7.57	J	7.3	J	8.1	J	7.38	J	8.52	J	7.96	J	8.94	J			8.68		8.24	J	8.45		8.48		8.3		8.37	
Dissolved Oxygen	mg/L	2.91		2.71		2.29		0.43		2.4		0.09		5.73		0.27		4.2				5.55	J	3.65		5.89		6.13		2.45		2.11	
Specific Conductance	µS/cm	933	J	928	J	7162		23723		6789		53912		3494		11236		83866				81722		81641		85563		85590		84785		84992	
Turbidity	NTU	0.68		0.66		3.54		6.34		1.15		8.31		1.04		8.23		3.18				6.03		5.57		5.65		4.99		5.61		4.72	
Arsenic	mg/L																																
Barium	mg/L	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U	0.081	U
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	0.27	U	0.27	U	0.27	U	0.27	U	0.27	U	0.63	I	0.27	U	0.27	U	0.88	I	0.86	I	0.64	I V	1.1	I	0.72	I	0.71	I	0.65	I	0.7	I
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica	mg/L																	1.5		1.5		1.3		1.5		0.14	I J	0.14	I J	0.17	I J	0.17	I J
Calcium	mg/L	99		98		150		280		150		530		110		190		750		760		810		730	J	790		820		790		810	
Magnesium	mg/L	11		11		140		520		120		1300		56		230		2300		2300		2300		2200	J	2200		2300		2300		2300	
Potassium	mg/L	9.4		9.3		47		160		40		400		19		72		680		710		720		660	J	670		710		750		690	
Sodium	mg/L	76		74		1100		4100		1000		10000		500		1800		17000		18000		18000		17000	J	18000		19000		19000		18000	
Boron	mg/L	0.085	J	0.084	J	0.54	J	1.7		0.41	J	4.3		0.2	J	0.79		7.5		7.8		8		7.3		7.7		8		7.6		7.9	
Strontium	mg/L	1		1		1.7		4.2		1.9		9.2		1.3		2.7		14		15		15		14		14		15		14		15	
Chromium VI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	0.54	U	0.83	I	8.7		26		9.2		67		5		12		110		110		110		120	J	120		120		120		120	
Chloride	mg/L	140		130		1900		7300		1900		19000		900		3200	J-	33000		34000		33000		32000	J	35000		35000		34000		35000	
Fluoride	mg/L	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.4	U	0.49	I	0.4	U	0.4	U J	2	U	2	U	2	U	2	U
Sulfate	mg/L	44		43		240		800		220		2300		110		430	J-	3600		3600		4200		3900	J	4500		4500		4400		4400	
Total Ammonia	mg/L as N	0.11		0.097		0.38		1.1		0.35		1.9		0.17	J	0.41		0.12		0.087	J	0.11		0.15	J+	0.067	J	0.074	J	0.1	J	0.082	J
Ammonium Ion (NH^{4+})	mg/L	0.14		0.12		0.48		1.4		0.41		2.4		0.17		0.49		0.065				0.089		0.16		0.067		0.073		0.11		0.086	
Unionized NH_3	mg/L	0.0034		0.0030		0.0130		0.0204		0.0391		0.0457		0.0419		0.0359		0.0568				0.0385		0.0206		0.0165		0.0182		0.0168		0.0167	
Nitrate/Nitrite as N	mg/L	0.025		0.022		0.024		0.0047	U	0.0061	I	0.0047	U	0.041	J+	0.0047	U	0.01		0.015		1		0.038		0.052	J	0.13	J	0.061	J	0.054	J
TKN	mg/L	0.51		0.4		1.2	J	1.8		0.94	J	2.4		0.79	J	1	J	2.3		2.2		2		1.7		2.2		2.1		2.3		2.1	
TN	mg/L	0.54		0.42		1.2		1.8		0.95		2.4		0.83		1		2.3		2.2		3		1.7		2.3		2.2		2.4		2.2	
Orthophosphate	mg/L	0.0014	U	0.0022	I	0.0025	I	0.017		0.0014	U	0.0028	I	0.0014	U	0.0014	U	0.0014	U	0.0015	I	0.0028	I	0.0026	I	0.0027	I	0.0032	I	0.0014	U	0.0034	I
Phosphorus (P)	mg/L	0.0044	U	0.0044	U	0.0044	U	0.03		0.0044	U	0.04		0.0044	U	0.0044	U	0.073		0.072		0.025	I	0.0044	U	0.0044	U	0.0044	U	0.0044	U	0.0044	U
Alkalinity	mg/L ($CaCO_3$)	190		200		250		270		190		200		160		200		130		130		130		120	J	130		140		130		130	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	190		200		250		270		190		200		160		200		120		110		130		120	J	130		130		130		130	
Sulfides	mg/L	1	U	1	U	1	U	8.5		1	U	12		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L	440		450																													
Dissolved Inorganic Carbon	mg/L	10	U	63		71		79		66		76		53		70		36		34		42		39		41		41		43		41	
$\delta^{18}O$	‰	-		-		0.2		1.3		0.1		3.2		0.3		0.1		4.7		4.5		4.5		-		4.7		4.7		4.8		4.7	
$\delta^{2}H$	‰	-		-		6.0		8.0		2.0		18.0		1.0		5.0		19.0		24.0		25.0		-		27.0		28.0		28.0		25.0	
$\delta^{13}C$	‰	-		-		-7.86		-9		-6.41		-9.39		-7.95		-9.29		-4.9		-5.15		-5.19		-2.88		-4.64		-4.48		-5.64		-5.59	
Gross Alpha	pCi/L																																
Salinity (PSS-78)		0.455	J	0.455	J	3.91		14.28		3.68		35.47		1.81		6.34		64.23	J			57.99	J	56.82		60.08		60.09		59.51		59.67	
$^{87}Sr/^{86}Sr$	µg/L*	0.70915		0.70913		0.70913		0.70914		0.70914		0.70912		0.70917		0.70915		0.70911		0.70912		0.70912		0.70907		0.70911		0.70911		0.70909		0.70912	
Tritium	pCi/L (1σ)	19.8 (4.9)	J	31.4 (5.5)	J	186 (15)		890 (60)		221 (15)		3030 (180)		83 (8)		371 (23)		1450 (90)		1270 (80)		1460 (90)		1260 (80)		1463 (84)		1575 (91)		1550 (89)		1546 (88)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-DUP1 (9/14/2011) is a field duplicate of sample TPSWC-1T.

[2] Sample TPSWCCS-DUP1 (9/12/2011) is a field duplicate of sample TPSWCCS-1B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

NR = Not recorded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-6. Summary of Surface Water Analytical Results from the September 2011 Sampling Event

Parameter	Units	TPSWCCS-6T 9/1/2011		TPSWCCS-6B 9/1/2011		TPSWCCS-7B 9/12/2011		TPSWCCS-EB1 9/1/2011		TPSWC-FB1 9/8/2011		TPSWC-FB1 9/12/2011		TPSWCCS-FB1 9/13/2011		TPSWC-FB1 9/22/2011	
Temperature	°C	31.86		31.8		37.44											
pH	SU	8.4		8.43		8.84	J										
Dissolved Oxygen	mg/L	4.45		4.28		4.56											
Specific Conductance	µS/cm	83338		83516		76581											
Turbidity	NTU	5.13		4.67		6.25											
Arsenic	mg/L																
Barium	mg/L	0.081	U	0.081	U	0.081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00094	I
Beryllium	mg/L																
Cadmium	mg/L																
Copper	mg/L																
Iron	mg/L	0.66	I	0.62	I	0.93	I	0.0027	U	0.0027	U	0.0027	U	0.0027	U	0.0027	U
Lead	mg/L																
Manganese	mg/L																
Molybdenum	mg/L																
Nickel	mg/L																
Selenium	mg/L																
Thallium	mg/L																
Vanadium	mg/L																
Zinc	mg/L																
Silica	mg/L	0.26	I J	0.19	I J	1.6		8.1						5.1			
Calcium	mg/L	760		760		680		0.1	U	0.1	U	0.12	I	0.1	U	0.1	U
Magnesium	mg/L	2200		2200		2000		0.02	U	0.043	I V	0.04	I	0.02	U	0.022	I
Potassium	mg/L	670		650		620		0.19	U	0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	17000		17000		16000		0.31	U	0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	7.5		7.5		6.9		0.073		0.09		0.064		0.064		0.068	
Strontium	mg/L	14		14		13		0.001	U	0.001	U	0.001	U	0.001	U	0.001	U
Chromium VI	mg/L																
Mercury	mg/L																
Bromide	mg/L	120		120		100		0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	34000		34000		30000		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Fluoride	mg/L	2	U	2	U	0.42	I	0.02	U	0.02	U	0.02	U	0.02	U	0.02	U
Sulfate	mg/L	4400		4300		3500		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Total Ammonia	mg/L as N	0.14	J	0.11	J	0.13	J	0.041	I	0.037	I	0.026	I	0.026	U	0.026	U
Ammonium Ion (NH^{4+})	mg/L	0.15		0.11		0.087											
Unionized NH_3	mg/L	0.0286		0.0224		0.0532											
Nitrate/Nitrite as N	mg/L	0.056	J	0.052	J+	0.031		0.021		0.0047	U	0.0047	U	0.0047	U	0.09	
TKN	mg/L	2.3		2		2.1		0.15	I	0.075	I	0.14	I	0.092	I	0.061	I
TN	mg/L	2.4		2.1		2.1		0.25	U	0.25	U	0.25	U	0.25	U	0.25	U
Orthophosphate	mg/L	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.0014	U	0.01	U
Phosphorus (P)	mg/L	0.029	I J-	0.0044	U	0.067	J-	0.0044	U	0.0044	U	0.0044	U	0.0044	U	0.0044	U
Alkalinity	mg/L ($CaCO_3$)	130		130		130		1	U	1	U	1	U	1.4		4.1	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	130		130		120		1	U	1	U	1	U	1.4		4.1	
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																
Dissolved Inorganic Carbon	mg/L	44		43		35		10	U	42		10	U	10	U	10	U
$\delta^{18}O$	‰	4.6		4.5		4.2		-1.5		-1.2		-1.2		-1.2		-1.1	
$\delta^{2}H$	‰	28.0		28.0		27.0		-2.0		-6.0		-1.0		-7.0		-7.0	
$\delta^{13}C$	‰	-4.66		-5.19		-5.17		-11.53		-9.87		-11.96		-11.07		-9.79	
Gross Alpha	pCi/L																
Salinity (PSS-78)		58.34		58.49		54.589	J										
$^{87}Sr/^{86}Sr$	µg/L*	NR		0.70912		0.7091		0.05	U	0.1		0.1		0.1		0.1	
Tritium	pCi/L (1σ)	1530 (90)		1610 (100)		1320 (80)		6.6 (6.3)		7.6 (6.3)		5.1 (7.2)	UJ	-0.8 (5.4)	UJ	2.2 (7.3)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-DUP1 (9/14/2011) is a field duplicate of sample TPSWC-1T.

[2] Sample TPSWCCS-DUP1 (9/12/2011) is a field duplicate of sample TPSWCCS-1B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

NR = Not recorded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-7. Summary of Surface Water Analytical Results from the December 2011 Sampling Event

Parameter	Units	TPBBSW-1B 12/15/2011		TPBBSW-2B 12/15/2011		TPBBSW-DUP1 [1] 12/15/2011		TPBBSW-3B 12/15/2011		TPBBSW-4B 12/15/2011		TPBBSW-5B 12/15/2011		TPSWC-1T 12/6/2011		TPSWC-1B 12/6/2011		TPSWC-2T 12/6/2011		TPSWC-Dup [2] 12/6/2011		TPSWC-2B 12/6/2011		TPSWC-3T 12/6/2011		TPSWC-3B 12/6/2011		TPSWC-4T 12/13/2011		TPSWC-4B 12/13/2011		TPSWC-5T 12/5/2011		TPSWC-5B 12/5/2011	
Temperature	°C	21.94		22.15				21.81		22.21		21.91		22.89		22.86		24.10				22.76		24.65		23.49		25.82		25.40		22.73		25.52	
pH	SU	8.33		8.37				8.31		8.25		8.18		8.01		7.92		8.57				8.29		8.70		8.21		7.30		7.56		8.27		7.61	
Dissolved Oxygen	mg/L	8.16		8.16				8.28		6.87		6.86		7.01		6.52		8.64				8.34		9.44		0.73		2.43		3.39		6.99		3.78	
Specific Conductance	µS/cm	34410		35005				37725		46029		46289		506	J	509	J	560	J			561	J	614	J	618	J	32123		41629		48863		56332	
Turbidity	NTU	9.24		6.88				3.29		4.42		2.64		1.86		2.54		2.82				8.66		3.28		3.75		2.24		8.26		1.79		2.68	
Arsenic	mg/L																																		
Barium	mg/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.10	I	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U
Beryllium	mg/L																																		
Cadmium	mg/L																																		
Copper	mg/L																																		
Iron	mg/L	0.27	I	0.27	U	0.27	U	0.30	I	0.38	I	0.38	I	0.27	U	0.31	I	0.27	U	0.27	U	0.56	I	0.27	U	0.27	U	0.29	I V	0.44	I V	0.48	I	0.93	I
Lead	mg/L																																		
Manganese	mg/L																																		
Molybdenum	mg/L																																		
Nickel	mg/L																																		
Selenium	mg/L																																		
Thallium	mg/L																																		
Vanadium	mg/L																																		
Zinc	mg/L																																		
Silica	mg/L																																		
Calcium	mg/L	320		320		320		330		380		390		49		51		52		52		53		55		55		370		390		380		490	
Magnesium	mg/L	810		820		810		870		1100		1100		6.1		6.2		6.7		6.7		6.7		7.4		7.8		730		980		1000		1400	
Potassium	mg/L	260		270		270		280		350		360		3		3		3.7		3.7		3.6		3.6		3.6		230		320		330		440	
Sodium	mg/L	6600		6500		6700		7200		8800		9000		38		38		45		45		45		51		53		5800		7700		7900		11000	
Boron	mg/L	2.8		2.9		2.8		3.1		3.8		3.9		0.025	I	0.025	I	0.028	I	0.028	I	0.028	I	0.031	I	0.033	I	2.4		3.4		3.5		4.5	
Strontium	mg/L	5		5		5		5.4		6.5		6.7		0.54		0.55		0.56		0.55		0.54		0.52		0.51		5.7		6.3		6		8.4	
Chromium VI	mg/L																																		
Mercury	mg/L																																		
Bromide	mg/L	46		44		45		49		58		60	J	0.17		0.18	J	0.2		0.21		0.21		0.27		0.29		39	J	53	J	57		78	
Chloride	mg/L	12000		12000		13000		14000		17000		18000	J	74		79	J	84		85		84		90		90		12000	J	16000	J	16000		20000	
Fluoride	mg/L	0.78	I J	0.78	I J	0.77	I J	0.82	I J	0.96	I J	0.96	I J	0.074		0.09	J	0.097	J	0.07	J	0.06		0.059		0.071		0.4	UJ	0.59	IJ	0.89	I	0.52	I
Sulfate	mg/L	1800		1800		1800		2000		2400		2300	J	4.2		4.8	J	6		6.1		6.3		8.1		9.1		1600	J	2200	J	2100		2900	
Total Ammonia	mg/L as N																																		
Ammonium Ion (NH^{4+})	mg/L																																		
Unionized NH_3	mg/L																																		
Nitrate/Nitrite as N	mg/L																																		
TKN	mg/L																																		
TN	mg/L																																		
Orthophosphate	mg/L																																		
Phosphorus (P)	mg/L																																		
Alkalinity	mg/L ($CaCO_3$)	180	J	180	J	180	J	170	J	160	J	150	J	150		82	J	150		150		140		160		150		270	J	210	J	170		190	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	180	J	170	J	170	J	170	J	160	J	150	J	140		82	J	140		140		140		150		150		270	J	210	J	170		190	
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																																		
Dissolved Inorganic Carbon	mg/L	34	J	35	J	35	J	34	J	32	J	31	J	41		40		41		41		41		35		38		67	J	48	J	38		47	
$\delta^{18}O$	‰	0.5		0.4	J	0.6	J	0.7		-		1.0		0.3		0.2		0.3	J	0.0	J	0.1		-0.3		-0.3		4.8		-0.7		0.7		2.1	
$\delta^{2}H$	‰	5.0		3.0	J	7.0	J	5.0		-		9.0		0.5		5.8		2.5	J	-4.1	J	4.0		-2.8		-2.3		13.3		13.1		6.8		12.3	
$\delta^{13}C$	‰	-3.48		-3.26		-3.28		-2.53		-1.46		-1.75		-6.35		-6.67		-5.49		-5.57		-6.09		-6.06		-6.70		-8.35		-6.31		-2.24		-4.79	
Gross Alpha	pCi/L																																		
Salinity (PSS-78)		21.640		22.060				23.960		29.880		30.080		0.245		0.247		0.272				0.272		0.298		0.301		20.010		26.660		31.940		37.420	
$^{87}Sr/^{86}Sr$	µg/L*																																		
Tritium	pCi/L (1σ)	4.9 (7.4)	UJ	0 (7.3)	UJ	-1.3 (7.3)	UJ	-1.5 (6.5)	UJ	6.9 (7.1)	UJ	7.5 (6.9)		46.3 (8.3)		50.8 (8.4)		56.6 (6.7)		59.1 (6.9)		60.9 (7)		40.1 (6.2)		45.9 (6.3)		780 (50)		297 (20)		40.9 (5.6)		470 (30)	

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPBBSW-DUP1 (12/15/2011) is a duplicate of TPBBSW-2B.

[2] Sample TPSWC-DUP (12/6/2011) is a duplicate of TPSWC-2T.

[3] Sample TPSWCCS-DUP1 (12/2/2011) is a duplicate of TPSWCCS-5B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-7. Summary of Surface Water Analytical Results from the December 2011 Sampling Event

Parameter	Units	TPSWC-6T 12/2/2011		TPSWC-6B 12/2/2011		TPSWCCS-1B 12/12/2011		TPSWCCS-2B 12/5/2011		TPSWCCS-3B 12/12/2011		TPSWCCS-4T 12/2/2011		TPSWCCS-4B 12/2/2011		TPSWCCS-5T 12/2/2011		TPSWCCS-5B 12/2/2011		TPSWCCS-DUP1 [3] 12/2/2011		TPSWCCS-6T 12/2/2011		TPSWCCS-6B 12/2/2011		TPSWCCS-7B 12/12/2011		TPSWID-1T 12/12/2011		TPSWID-1B 12/12/2011	
Temperature	°C	22.78		22.72		32.77		26.37		28.32		22.27		22.39		22.09		21.95				22.38		22.30		31.06		26.36		26.66	
pH	SU	7.45		7.39		8.60		8.76		8.51		8.85		8.89		8.77		8.83				8.83		8.84		8.60		7.19		7.03	
Dissolved Oxygen	mg/L	1.42		1.29		5.39		6.14		5.32		7.56		7.28		5.91		8.08				5.67		6.24		6.37		0.36		0.17	
Specific Conductance	µS/cm	899	J	940	J	84315		84424		79113		83863		83921		83400		83739				83679		83593		80075		8607		12771	
Turbidity	NTU	0.57		1.19		16.77		14.60		17.27		13.10		13.33		13.57		13.29				13.68		13.75		16.80		14.01		15.83	
Arsenic	mg/L																														
Barium	mg/L	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.10	I	0.12	I
Beryllium	mg/L																														
Cadmium	mg/L																														
Copper	mg/L																														
Iron	mg/L	0.27	U	0.27	U	0.86	I	1.10	I	0.82	I	1.50	I J	1.30	I J	1.50	I J	1.50	I J	1.50	I J	1.50	I J	1.40	I J	0.78	I	0.27	U	0.27	U
Lead	mg/L																														
Manganese	mg/L																														
Molybdenum	mg/L																														
Nickel	mg/L																														
Selenium	mg/L																														
Thallium	mg/L																														
Vanadium	mg/L																														
Zinc	mg/L																														
Silica	mg/L																														
Calcium	mg/L	98		100		810		780		730	J	770		780		780		780		790		780		780		770		180		210	
Magnesium	mg/L	9.8		10		2300		2300		2100	J	2200		2200		2200		2200		2200		2200		2200		2100		160		250	
Potassium	mg/L	8.1		8.3		760		740		680	J	690		720		720		710		720		710		720		680		55		84	
Sodium	mg/L	67		75		18000		17000		17000	J	17000		18000		18000		17000		18000		17000		18000		16000		1300		2000	
Boron	mg/L	0.072	J	0.074	J	7.8		7.5		7		7.2		7.5		7.4		7.4		7.5		7.4		7.4		7.2		0.63	J	0.93	
Strontium	mg/L	0.97		0.98		15		14		14		14		14		14		14		14		14		14		14		2.2		2.7	
Chromium VI	mg/L																														
Mercury	mg/L																														
Bromide	mg/L	0.54		0.58		120		120	J	110	J	120		120		120		120		120		160		120		110	J	9.3		13	J
Chloride	mg/L	120		120		36000		33000	J	34000	J	34000		34000		34000		34000		34000		34000		34000		34000	J	2700		640	J
Fluoride	mg/L	0.4	U	0.099		0.4	U	1.3	J	2	J	0.82	I	0.94	I	1		1.1		1		1.1		1		1.3	J	0.4	U	0.4	UJ
Sulfate	mg/L	46		50		5000		4500	J	4700	J	4700		4700		4800		4800		4700		4700		4700		4700	J	320		490	J
Total Ammonia	mg/L as N																														
Ammonium Ion (NH^{4+})	mg/L																														
Unionized NH_3	mg/L																														
Nitrate/Nitrite as N	mg/L																														
TKN	mg/L																														
TN	mg/L																														
Orthophosphate	mg/L																														
Phosphorus (P)	mg/L																														
Alkalinity	mg/L ($CaCO_3$)	250		250		160		160	J	170	J	160		160		150		160		160		160		160		170	J	380		400	J
Bicarbonate Alkalinity as $CaCO_3$	mg/L	250		250		140		99	J	160	J	86		83		120		95		97		93		92		130	J	380		400	J
Sulfides	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1.6		3.2	
Total Dissolved Solids	mg/L																														
Dissolved Inorganic Carbon	mg/L	57		57		39		35		38		28		30		26		27		25		27		27		38		99		100	
$\delta^{18}O$	‰	-1.4		-0.8		4.6		4.6		4.5		-1.2		1.8		-1.4		-1.3		-0.8		1.6		2.0		4.4		0.6		0.5	
$\delta^{2}H$	‰	-13.0		-11.0		24.0		26.0		24.0		23.0		30.0		28.0		24.0		27.0		23.0		21.0		24.0		0.0		4.0	
$\delta^{13}C$	‰	-9.93		-9.85		-0.40		-0.07		-2.45		1.34		0.97		0.60		0.44	J	0.33	J	0.63		0.66		-1.72		-9.81		-9.82	
Gross Alpha	pCi/L																														
Salinity (PSS-78)		0.443		0.464		59.100		59.470		55.070		59.090		59.130		58.710		58.990				58.940		58.870		55.730		4.781		7.309	
$^{87}Sr/^{86}Sr$	µg/L*																														
Tritium	pCi/L (1σ)	16.4 (4.4)		37.9 (5.5)		7100 (400)		7300 (400)		6700 (400)		6200 (400)		6100 (400)		6900 (400)		6900 (400)		7300 (400)		6000 (400)		5800 (300)		6900 (400)		205 (14)		320 (21)	

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
[1] Sample TPBBSW-DUP1 (12/15/2011) is a duplicate of TPBBSW-2B.
[2] Sample TPSWC-DUP (12/6/2011) is a duplicate of TPSWC-2T.
[3] Sample TPSWCCS-DUP1 (12/2/2011) is a duplicate of TPSWCCS-5B.
Text in blue are revised values.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-7. Summary of Surface Water Analytical Results from the December 2011 Sampling Event

Parameter	Units	TPSWID-2T 12/12/2011		TPSWID-2B 12/12/2011		TPSWID-3T 12/12/2011		TPSWID-3B 12/12/2011		TPSWCCS-FB1 12/2/2011		TPSWCCS-EB1 12/12/2011		TPSWC-FB1 12/13/2011		TPSWC-FB1 12/14/2011		TPSWC-FB1 12/15/2011	
Temperature	°C	26.18		26.69		24.66		24.42											
pH	SU	7.40		6.94	J	7.77		7.63											
Dissolved Oxygen	mg/L	2.59		0.19		7.43		6.01											
Specific Conductance	µS/cm	3605		11329		3154		3200											
Turbidity	NTU	1.35		2.70		0.62		0.58											
Arsenic	mg/L																		
Barium	mg/L	0.08	U	0.08	U	0.08	U	0.08	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U	0.00081	U
Beryllium	mg/L																		
Cadmium	mg/L																		
Copper	mg/L																		
Iron	mg/L	0.27	U	0.27	U	0.27	U	0.27	U	0.0029	I	0.0027	U	0.0027	U	0.0027	U	0.0027	U
Lead	mg/L																		
Manganese	mg/L																		
Molybdenum	mg/L																		
Nickel	mg/L																		
Selenium	mg/L																		
Thallium	mg/L																		
Vanadium	mg/L																		
Zinc	mg/L																		
Silica	mg/L																		
Calcium	mg/L	140		250		120		120		0.13	I	0.12	I	0.51		0.55		0.44	I
Magnesium	mg/L	52		200		45		46		0.039	I	0.043	I	0.16		0.18		0.14	
Potassium	mg/L	20		68		17		18		0.4	I	0.19	U	3.5		4.1		3.2	
Sodium	mg/L	450		1800		410		420		0.31	U	0.31	U	52		64		50	
Boron	mg/L	0.19	J	0.68	J	0.16	J	0.16	J	0.075		0.076		0.062		0.057		0.061	
Strontium	mg/L	1.6		3.3		1.3		1.4		0.001	U	0.001	U	0.0025	I	0.0029	I	0.0023	I
Chromium VI	mg/L																		
Mercury	mg/L																		
Bromide	mg/L	3.9		13	J	3.5		3.2		0.027	U	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	960		870	J	860	J-	840		0.2	U	0.2	U	30		35		28	
Fluoride	mg/L	0.4	U	0.4	UJ	0.4	U	0.4	U	0.021	I	0.02	U	0.18		0.2		0.16	
Sulfate	mg/L	110		420	J	84		82		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
Total Ammonia	mg/L as N																		
Ammonium Ion (NH^{4+})	mg/L																		
Unionized NH_3	mg/L																		
Nitrate/Nitrite as N	mg/L																		
TKN	mg/L																		
TN	mg/L																		
Orthophosphate	mg/L																		
Phosphorus (P)	mg/L																		
Alkalinity	mg/L ($CaCO_3$)	290		360	J	240		250		1.4		1	U	110		130		98	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	290		360	J	240		250		1.4		1	U	110		130		98	
Sulfides	mg/L	1	U	3		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																		
Dissolved Inorganic Carbon	mg/L	71		84		60		62		10	U	10	U	28		27		21	
$\delta^{18}O$	‰	-0.1		0.5		0.3		-0.1		-1.4		-1.3		-0.3		-1.3		-1.1	
$\delta^{2}H$	‰	1.0		2.0		4.0		6.0		-2.0		-7.0		1.6		-7.0		-7.0	
$\delta^{13}C$	‰	-9.11		-9.57		-7.71		-8.37		-8.22		-6.43		-4.24		-3.82		-3.77	
Gross Alpha	pCi/L																		
Salinity (PSS-78)		1.890		6.422		1.644		1.670											
$^{87}Sr/^{86}Sr$	µg/L*																		
Tritium	pCi/L (1σ)	103 (8)		199 (14)		116 (9)		105 (9)		-3.2 (7)	UJ	-0.4 (5.8)	UJ	0.5 (5.1)	UJ	2.8 (7.8)	UJ	3.5 (8.3)	UJ

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPBBSW-DUP1 (12/15/2011) is a duplicate of TPBBSW-2B.

[2] Sample TPSWC-DUP (12/6/2011) is a duplicate of TPSWC-2T.

[3] Sample TPSWCCS-DUP1 (12/2/2011) is a duplicate of TPSWCCS-5B.

Text in blue are revised values.

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-8. Summary of Surface Water Analytical Results from the March 2012 Sampling Event

		TPBBSW-1B		TPBBSW-2B		TPSWCSC-Dup1 [1]		TPBBSW-3B		TPBBSW-4B		TPBBSW-5B		TPSWCCS-1B		TPSWCCS-Dup1 [2]		TPSWCCS-2B		TPSWCCS-3B		TPSWCCS-4T		TPSWCCS-4B		TPSWCCS-5T		TPSWCCS-5B	
Parameter	**Units**	**3/14/2012**		**3/14/2012**		**3/14/2012**		**3/13/2012**		**3/14/2012**		**3/14/2012**		**3/12/2012**		**3/12/2012**		**3/9/2012**		**3/12/2012**		**3/2/2012**		**3/2/2012**		**3/2/2012**		**3/2/2012**	
Temperature	°C	24.77		25.33				23.73		24.51		24.79		29.99				24.93		26.77		28.27		27.60		27.39		27.48	
pH	SU	8.50		8.56				8.47		8.45		8.37		8.61				8.54		8.59		8.71		8.75		8.68		8.67	
Dissolved Oxygen	mg/L	7.79		7.70				6.78		6.64		6.81		3.18				4.55		7.04		6.31		6.26		4.27		5.06	
Specific Conductance	µS/cm	48834.00		54595.00				54398.00		54757.00		52933.00		88599.00				88382.00		85129.00		89970.00		89768.00		89289.00		89158.00	
Turbidity	NTU	2.16		0.88				0.55		1.07		0.97		23.11				33.99		26.81		19.43		20.57		19.57		19.60	
Arsenic	mg/L																												
Barium	mg/L	0.08	U	0.08	U	0.08	U	0.08	U	0.10	I V	0.10	I V	0.11	I	0.11	I	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U	0.08	U
Beryllium	mg/L																												
Cadmium	mg/L																												
Copper	mg/L																												
Iron	mg/L	0.54	I	0.54	I	0.63	I	0.80	I	0.54	I	0.50	I	1.20	I	1.10	I	1.30	I	1.10	I	1.10	I	1.10	I	1.00	I	1.10	I
Lead	mg/L																												
Manganese	mg/L																												
Molybdenum	mg/L																												
Nickel	mg/L																												
Selenium	mg/L																												
Thallium	mg/L																												
Vanadium	mg/L																												
Zinc	mg/L																												
Silica	mg/L													8.30		8.30		8.10		8.20		8.30		8.40		8.30		8.50	
Calcium	mg/L	520.00	J3	510.00		490.00		490.00		500.00		480.00		880.00		890.00		890.00		890.00	J3	860.00		870.00		840.00		850.00	
Magnesium	mg/L	1300.00	V J3	1400.00	V	1400.00	V	1400.00		1400.00	V	1300.00	V	2500.00		2500.00		2500.00	V	2500.00	J3	2400.00		2400.00		2300.00		2400.00	
Potassium	mg/L	480.00	J3	490.00		480.00		490.00		490.00		460.00		880.00		890.00		870.00		890.00	J3	810.00		820.00		790.00		810.00	
Sodium	mg/L	9700.00	J3	11000.00	V	11000.00	V	10000.00		11000.00	V	10000.00	V	18000.00		19000.00		19000.00		18000.00	J3	18000.00		19000.00		18000.00		18000.00	
Boron	mg/L	4.70		4.80		4.70		4.80		4.80		4.60		8.10		8.20		8.30		8.00	J3	8.30		8.40		8.00		8.10	
Strontium	mg/L	8.00		8.10		7.90		8.00		8.00		7.60		15.00		15.00		16.00		15.00	J3	15.00		15.00		15.00		15.00	
Chromium VI	mg/L																												
Mercury	mg/L																												
Bromide	mg/L	68.00		72.00		74.00		70.00		73.00		71.00		93.00	I	90.00	I	130.00		86.00	I	130.00		130.00		130.00		130.00	
Chloride	mg/L	17000.00	J3	20000.00		21000.00		21000.00		20000.00		20000.00		38000.00		37000.00		36000.00		46000.00		39000.00		37000.00		36000.00		36000.00	
Fluoride	mg/L	0.81	I J3	0.71	I	0.67	I	0.99	I	0.75	I	0.72	I	8.00	U	8.00	U	0.40	U	8.00	U	1.50		2.20		3.80		1.90	
Sulfate	mg/L	2700.00	J3	3000.00		3000.00		2900.00		3000.00		2900.00		5200.00		5200.00		5000.00		5000.00		5700.00		5200.00		5400.00		5400.00	
Total Ammonia	mg/L as N	0.06	J3	0.14		0.14		0.06		0.16		0.12		0.21		0.10		0.15		0.09		0.11		0.18		0.15		0.16	
Ammonium Ion (NH^{4+})	mg/L	0.06		0.15				0.06		0.18		0.12		0.20				0.16		0.10		0.10		0.17		0.15		0.16	
Unionized NH_3	mg/L																												
Nitrate/Nitrite as N	mg/L	0.01	I J3	0.01		0.01		0.00	U	0.01		0.02		0.03		0.03		0.03		0.03		0.02	U	0.03		0.01	U	0.02	U
TKN	mg/L	0.35		0.36		0.25		0.31		0.27	J3	0.31		4.10		4.20		4.80		5.10		3.40		2.80		5.30		4.10	
TN	mg/L	0.36	I	0.37	I	0.26	I	0.31	I	0.28	I	0.33	I	4.10		4.20		4.80		5.10									
Orthophosphate	mg/L	0.00	U J3	0.00	U	0.00	U	0.00	I V	0.00	U	0.00	U	0.04	U Q	0.04	U Q	0.01	I J3	0.04	U Q	0.01	I	0.00	U	0.00	I	0.01	I
Phosphorus (P)	mg/L	0.02		0.02		0.02		0.02		0.02		0.02		0.06		0.07		0.06		0.05		0.06		0.06		0.06		0.06	
Alkalinity	mg/L ($CaCO_3$)	150.00		130.00		130.00		130.00		130.00		140.00		160.00		160.00		170.00		170.00		170.00		170.00		170.00		170.00	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	140.00		120.00		120.00		130.00		130.00		140.00		160.00		160.00		160.00		150.00		140.00		110.00		150.00		130.00	
Sulfides	mg/L	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	2.40		1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U
Total Dissolved Solids	mg/L																												
Dissolved Inorganic Carbon	mg/L	37.00		28.00		31.00		30.00		29.00		34.00		2.90		10.00		16.00		25.00	Q	22.00		27.00		29.00		29.00	
$\delta^{18}O$	‰																												
$\delta^{2}H$	‰																												
$\delta^{13}C$	‰																												
Gross Alpha	pCi/L																												
Salinity (PSS-78)																													
$^{87}Sr/^{86}Sr$	µg/L*																												
Tritium	pCi/L (1σ)																												

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (3/14/2012) is a duplicate of TPBBSW-2B.

[2] Sample TPSWCCS-Dup1 (3/12/2012) is a duplicate of TPSWCCS-1B.

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-8. Summary of Surface Water Analytical Results from the March 2012 Sampling Event

Parameter	Units	TPSWCCS-6T 3/2/2012		TPSWCCS-6B 3/2/2012		TPSWCCS-7B 3/12/2012		TPSWC-1T 3/6/2012		TPSWC-1B 3/6/2012		TPSWC-2T 3/6/2012		TPSWC-2B 3/6/2012		TPSWC-3T 3/8/2012		TPSWC-3B 3/8/2012		TPSWC-4T 3/8/2012		TPSWC-4B 3/8/2012		TPSWC-5T 3/8/2012		TPSWC-5B 3/8/2012		TPSWC-6T 3/2/2012		TPSWC-6B 3/2/2012	
Temperature	°C	27.01		27.00		27.17		22.69		22.74		23.10		22.90		23.45		24.07		25.14		24.97		25.30		25.13		24.94		24.80	
pH	SU	8.61		8.63		8.64		7.94		7.91		8.13		8.05		7.97		7.95		7.78		7.80		8.18		7.76		7.22		7.28	
Dissolved Oxygen	mg/L	2.97		2.91		6.14		7.26		6.61		7.79		7.36		7.35		7.63		6.41		6.93		6.61		1.71		1.85		1.91	
Specific Conductance	µS/cm	88529.00		88892.00		88696.00		926.00		926.00		896.00		894.00		967.00		995.00		41711.00		45172.00		52061.00		54763.00		953.00		998.00	
Turbidity	NTU	19.38		19.93		26.49		9.10		9.40		3.55		3.05		2.78		1.73		2.67		5.01		0.55		2.67		0.66		0.88	
Arsenic	mg/L																														
Barium	mg/L	0.08	U	0.08	U	0.08	I	0.10	I V	0.10	I V	0.18	I V	0.22	I V	0.13	I V	0.16	I V	0.15	I V	0.10	I V	0.08	U	0.08	U	0.08	U	0.08	U
Beryllium	mg/L																														
Cadmium	mg/L																														
Copper	mg/L																														
Iron	mg/L	1.10	I	1.10	I	1.10	I	0.71	I	0.27	U	0.27	U	0.27	U	0.27	U	0.28	I	0.43	I	2.60	I	0.57	I	0.60	I	0.00	U	0.00	U
Lead	mg/L																														
Manganese	mg/L																														
Molybdenum	mg/L																														
Nickel	mg/L																														
Selenium	mg/L																														
Thallium	mg/L																														
Vanadium	mg/L																														
Zinc	mg/L																														
Silica	mg/L	8.40	J3	8.20		8.20																									
Calcium	mg/L	830.00		840.00		920.00		89.00		88.00		89.00		90.00		90.00		91.00		450.00		460.00		470.00		500.00		89.00		89.00	
Magnesium	mg/L	2300.00		2300.00		2600.00		11.00	V	11.00	V	10.00	V	9.90	V	10.00	V	9.90	V	960.00	V	1000.00	V	1300.00	V	1400.00	V	10.00		11.00	
Potassium	mg/L	790.00		800.00		920.00		4.40		4.20		4.60		4.60		4.80		4.70		320.00		340.00		430.00		470.00		9.90		9.90	
Sodium	mg/L	18000.00		18000.00		19000.00		83.00		81.00		76.00		76.00		87.00		84.00		7800.00		8000.00		10000.00		11000.00		72.00		78.00	
Boron	mg/L	8.00		8.10		8.30		0.04	I	0.04	I	0.04	I	0.04	I	0.05	I	0.05	I	3.10		3.20		4.30		4.60		0.08		0.08	
Strontium	mg/L	15.00		15.00		16.00		0.92		0.91		0.94		0.95		0.85		0.85		7.10		7.30		7.50		8.20		0.97		0.97	
Chromium VI	mg/L																														
Mercury	mg/L																														
Bromide	mg/L	130.00		130.00		89.00	I	0.36		0.34		0.27		0.28		0.82	I	0.84	I	54.00		57.00		75.00		76.00		1.20		1.00	
Chloride	mg/L	40000.00		38000.00		42000.00		160.00		150.00		140.00		140.00		160.00		150.00		14000.00		14000.00		18000.00		19000.00		120.00		140.00	
Fluoride	mg/L	1.80		3.70		8.00	U	0.10		0.09		0.09		0.09		0.58	I	1.20		0.45	I	0.44	I	0.67	I	0.63	I	0.70	I	0.77	I
Sulfate	mg/L	7000.00		5600.00		5200.00		72.00		71.00		77.00		76.00		57.00		56.00		2000.00		2000.00		2700.00		2600.00		63.00		64.00	
Total Ammonia	mg/L as N	0.18		0.15		0.17		0.28		0.26		0.25		0.34		0.05	I	0.15		0.03	I	0.47		0.12		0.55		0.16		0.12	
Ammonium Ion (NH^{4+})	mg/L	0.18		0.15		0.17		0.35		0.32		0.30		0.41		0.06		0.18		0.04		0.58		0.14		0.68		0.20		0.15	
Unionized NH_3	mg/L																														
Nitrate/Nitrite as N	mg/L	0.02	U	0.03		0.03		0.04		0.04		0.04	J3	0.04		0.04		0.25		0.06		0.06		0.02		0.02	U	0.03		0.03	
TKN	mg/L	5.40		5.30		3.90		1.20		1.30		1.10		1.30		1.10		0.77		1.10		0.93		0.29		0.77		0.24		0.26	
TN	mg/L					3.90		1.20		1.30		1.10		1.30		1.10		1.00		1.20		0.99		0.31	I	0.79					
Orthophosphate	mg/L	0.01	I	0.00	U	0.04	U Q	0.00	U J3	0.00	U	0.00	U	0.00	U	0.00	U	0.00	U	0.00	U	0.00	U	0.00	U	0.00	U	0.00	I	0.00	I J3
Phosphorus (P)	mg/L	0.06		0.06		0.06		0.00	U	0.00	U	0.00	U	0.00	U	0.00	U	0.00	U	0.02		0.02		0.02		0.03		0.00	U	0.00	U
Alkalinity	mg/L ($CaCO_3$)	170.00		170.00		160.00		150.00		150.00		140.00		140.00		140.00		150.00		230.00		230.00		160.00		160.00		190.00		190.00	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	150.00		170.00		160.00		150.00		150.00		140.00		140.00		140.00		150.00		230.00		230.00		160.00		160.00		190.00		190.00	
Sulfides	mg/L	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.10		1.00	U	1.10		1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U
Total Dissolved Solids	mg/L																														
Dissolved Inorganic Carbon	mg/L	30.00		20.00		34.00	Q	35.00		33.00		29.00		35.00		34.00		33.00		46.00		56.00		36.00		44.00		41.00		39.00	
$\delta^{18}O$	‰																														
$\delta^{2}H$	‰																														
$\delta^{13}C$	‰																														
Gross Alpha	pCi/L																														
Salinity (PSS-78)																															
$^{87}Sr/^{86}Sr$	µg/L*																														
Tritium	pCi/L (1σ)																														

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (3/14/2012) is a duplicate of TPBBSW-2B.

[2] Sample TPSWCCS-Dup1 (3/12/2012) is a duplicate of TPSWCCS-1B.

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-8. Summary of Surface Water Analytical Results from the March 2012 Sampling Event

		TPSWID-1T		TPSWID-1B		TPSWID-2T		TPSWID-2B		TPSWID-3T		TPSWID-3B		TPSWCCS-EB1		TPSWCCS-FB1		TPBBSW-FB1		TPSWC-FB1		TPSWC-FB1	
Parameter	**Units**	**3/12/2012**		**3/12/2012**		**3/12/2012**		**3/12/2012**		**3/12/2012**		**3/12/2012**		**3/9/2012**		**3/12/2012**		**3/14/2012**		**3/2/2012**		**3/6/2012**	
Temperature	°C	24.60		24.60		25.26		25.27		26.00		25.40											
pH	SU	7.74		7.73		8.02		7.78		7.74		7.83											
Dissolved Oxygen	mg/L	5.61		6.55		6.55		5.81		6.23		6.62											
Specific Conductance	µS/cm	8084.00		8065.00		6288.00		6292.00		4800.00		5449.00											
Turbidity	NTU	1.10		1.18		0.73		0.85		0.51		0.71											
Arsenic	mg/L																						
Barium	mg/L	0.08	U	0.20	I	0.11	I	0.11	I	0.08	U	0.10	I	0.00	U	0.08	U	0.00	I V	0.00	U	0.00	U
Beryllium	mg/L																						
Cadmium	mg/L																						
Copper	mg/L																						
Iron	mg/L	0.27	U	0.27	U	0.40	I	0.27	U	0.27	U	0.27	U	0.00	I V	0.27	I V	0.00	I	0.00	U	0.00	U
Lead	mg/L																						
Manganese	mg/L																						
Molybdenum	mg/L																						
Nickel	mg/L																						
Selenium	mg/L																						
Thallium	mg/L																						
Vanadium	mg/L																						
Zinc	mg/L																						
Silica	mg/L													4.70		4.80							
Calcium	mg/L	170.00		180.00		170.00		170.00		150.00		150.00		1.30		1.30		1.30		0.59		0.70	
Magnesium	mg/L	160.00		160.00		110.00		120.00		79.00		93.00		0.47	V	0.45		0.43	V	0.22		0.21	V
Potassium	mg/L	60.00		62.00		43.00		44.00		31.00		36.00		20.00		20.00		18.00		4.30		4.30	
Sodium	mg/L	1200.00		1300.00		960.00		970.00		710.00		820.00		110.00		110.00		100.00		86.00		86.00	
Boron	mg/L	0.54		0.55		0.36		0.37		0.26		0.30		0.05	I	0.05	I	0.05	I	0.05		0.05	
Strontium	mg/L	2.00		2.10		1.90		1.90		1.60		1.60		0.01		0.01		0.01		0.00	I	0.00	I
Chromium VI	mg/L																						
Mercury	mg/L																						
Bromide	mg/L	5.50	I	6.60		4.50	I	4.50	I	3.20	I	3.80	I	0.03	U	1.00	U	0.03	U	0.03	U	0.03	U
Chloride	mg/L	3000.00	J3	2300.00		1900.00		1900.00		1400.00		1600.00		110.00		120.00		96.00		35.00		34.00	
Fluoride	mg/L	0.80	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.27		0.20	U	0.27		0.44		0.39	
Sulfate	mg/L	300.00		310.00		220.00		220.00		150.00		180.00		0.54		2.60	U	0.20	U	0.27	I	0.20	U
Total Ammonia	mg/L as N	0.28		0.23		0.30		0.31		0.18		1.50		4.20		6.50		6.50		3.00	V	3.30	J3
Ammonium Ion (NH^{4+})	mg/L	0.35		0.29		0.36		0.39		0.22		1.90											
Unionized NH_3	mg/L																						
Nitrate/Nitrite as N	mg/L	0.21	J3	0.14		0.11		0.11		0.08		0.11		0.00	U	0.02		0.00	U	0.02		0.00	U
TKN	mg/L	0.97		0.95		0.80		0.71		0.73		0.67		6.10		5.90		6.50		4.40		4.70	
TN	mg/L	1.20		1.10		0.91		0.82		0.81		0.78		6.10		5.90		6.50				4.70	
Orthophosphate	mg/L	0.00	U Q J3	0.00	U Q	0.00	U Q	0.00	U Q	0.00	U Q	0.00	U Q	0.00	I	0.01	Q V	0.00	U	0.00	I	0.00	I
Phosphorus (P)	mg/L	0.01	I	0.00	U	0.00	U	0.00	U	0.00	I	0.00	U	0.00	U	0.00	U	0.00	U	0.00	U	0.00	U
Alkalinity	mg/L ($CaCO_3$)	240.00		280.00		250.00		250.00		240.00		240.00		130.00		140.00		150.00		170.00		170.00	
Bicarbonate Alkalinity as $CaCO_3$	mg/L	240.00		280.00		250.00		250.00		240.00		240.00		130.00		140.00		150.00		170.00		170.00	
Sulfides	mg/L	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U	1.00	U
Total Dissolved Solids	mg/L																						
Dissolved Inorganic Carbon	mg/L	62.00		63.00		58.00	Q	58.00	Q	56.00	Q			28.00		30.00		38.00		41.00		39.00	
$\delta^{18}O$	‰																						
$\delta^{2}H$	‰																						
$\delta^{13}C$	‰																						
Gross Alpha	pCi/L																						
Salinity (PSS-78)																							
$^{87}Sr/^{86}Sr$	µg/L*																						
Tritium	pCi/L (1σ)																						

Notes:

* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).

[1] Sample TPSWC-Dup1 (3/14/2012) is a duplicate of TPBBSW-2B.

[2] Sample TPSWCCS-Dup1 (3/12/2012) is a duplicate of TPSWCCS-1B.

Key:

? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-9. Summary of Surface Water Analytical Results from the June 2012 Sampling Event

Parameter	Units	TPBBSW-1B 6/6/2012		TPBBSW-2B 6/6/2012		TPBBSW-3B 6/6/2012		TPBBSW-4B 6/6/2012		TPBBSW-5B 6/6/2012		TPSWC-1T 6/11/2012		TPSWC-1B 6/11/2012		DUP1 [1] 6/11/2012		TPSWC-2T 6/11/2012		TPSWC-2B 6/11/2012		TPSWC-3T 6/11/2012		TPSWC-3B 6/11/2012		TPSWC-4T 6/8/2012		TPSWC-4B 6/8/2012	
Temperature	°C	29.56		29.73		29.69		29.87		29.48		30.08		29.83				32.52		30.90		31.19		30.37		30.60		30.35	
pH	SU	8.27		8.66		8.56		8.34		8.34		7.69		7.20				7.01		7.40		7.50		7.11		7.51		7.40	
Dissolved Oxygen	mg/L	2.91		6.77		6.43		7.22		5.78		4.85		0.23				7.07		4.04		5.59		1.75		2.88		1.70	
Spec Cond	µS/cm	47074		45561		44994		44765		39332		679		755				686		691		607		626		5352		8007	
Turbidity	NTU	17.73		0.52		1.00		0.67		0.71		0.51		3.73				0.61		0.92		0.81		0.80		2.14		2.99	
Arsenic	mg/L																												
Barium	mg/L	0.011	I	0.0097	I	0.0084	I	0.0084	I	0.011	I	0.0029	I	0.19		0.18		.0035	I	0.012	I	0.005		0.016		0.013		0.019	
Beryllium	mg/L																												
Cadmium	mg/L																												
Copper	mg/L																												
Iron	mg/L	0.027	U	0.027	U	0.04	I	0.028	I	0.03	I	0.021	I	0.023	I	0.027	I	0.02	I	0.057	I V	0.024	I	0.029	I	0.023	I	0.034	I
Lead	mg/L																												
Manganese	mg/L																												
Molybdenum	mg/L																												
Nickel	mg/L																												
Selenium	mg/L																												
Thallium	mg/L																												
Vanadium	mg/L																												
Zinc	mg/L																												
Silica, dissolved	mg/L																												
Calcium	mg/L	400		380		390		370		330		56		62		62		52		55		53		55		93		130	
Magnesium	mg/L	1100		1100		1100		1000		910		8.2		8.6		8.5		6.9		7.1		5.8		5.9		93		170	
Potassium	mg/L	360		340		350		330		290		2.8		2.8		2.8		3.1		3.3		3.4		3.4		30		54	
Sodium	mg/L	9300		9100		9100		8600		7500		61		68		68		62		61		52		53		760		1400	
Boron	mg/L	3.9		3.8		3.8		3.5		3.1		0.048	I	0.045	I	0.044	I	0.037	I	0.043	I	0.037	I	0.038	I	0.31		0.56	
Strontium	mg/L	6.6		6.3		6.4		6		5.4		0.56		0.65		0.64		0.6		0.63		0.55		0.55		1.2		1.8	
ChromiumVI	mg/L																												
Mercury	mg/L																												
Bromide	mg/L	60		59		57		58		49		0.19		0.28		0.27		0.23		0.23		0.21		0.23		5.2		8.9	
Chloride	mg/L	17000		17000		16000		17000		14000		120		140		130		130		120		100		100		1400		2500	
Fluoride	mg/L	1.1		1.1		1.2		1.2		1.1		0.091		0.09		0.1		0.11		0.094		0.11		0.11		0.2	U	0.2	U
Sulfate	mg/L	2400		2300		2300		2300		2000		11		11		11		4.8		6		4.7		4.9		200		340	
Ammonia	mg/L as N																												
Ammonium Ion (NH^{4+})	mg/L																												
Unionized NH3	mg/L																												
Nitrate/Nitrite as N	mg/L																												
TKN	mg/L																												
TN	mg/L																												
Orthophosphate	mg/L																												
Phosphorus (P)	mg/L																												
Alkalinity	mg/L ($CaCO_3$)	130		110		120		120		130		120		130		130		110		120		120		130		140		150	
Bicarbonate Alkalinity as CaCO3	mg/L	130		84		100		120		130		120		130		130		110		120		120		130		140		150	
Sulfide	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	14		1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																												
Dissolved Inorganic Carbon	mg/L	32		30		33		32		36		40		41		40		36		37		37		38		43		48	
$d^{18}O$	‰																												
$d^{2}H$	‰																												
$d^{13}C$	‰																												
Gross Alpha	pCi/L																												
Salinity		30.5		29.4		29.0		28.8		24.9		0.3		0.4				0.3	J	0.3		0.3		0.3		2.9		4.4	
$^{87}Sr/^{86}Sr$	µg/L*																												
Tritium	pCi/L (1σ)																												

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
[1] Sample DUP1 (6/11/12) is a duplicate of TPSWC-1B.
[2] Sample TPGW-Dup1 (6/8/2012) is a duplicate of TPSWC-5T.
Text in blue are revised values.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
MCL = Maximum Contaminant Levels.
N.A. = Not applicable.
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-9. Summary of Surface Water Analytical Results from the June 2012 Sampling Event

Parameter	Units	TPSWC-5T 6/8/2012		DUP1 [2] 6/8/2012		TPSWC-5B 6/8/2012		TPSWC-6T 6/14/2012		TPSWC-6B 6/14/2012		TPSWID-1T 6/15/2012		TPSWID-1B 6/15/2012		TPSWID-2T 6/15/2012		TPSWID-2B 6/15/2012		TPSWID-3T 6/15/2012		TPSWID-3B 6/15/2012		TPSWCCS-1B 6/15/2012		TPSWCCS-2B 6/7/2012		TPSWCCS-3B 6/15/2012		TPSWCCS-4T 6/8/2012		TPSWCCS-4B 6/8/2012	
Temperature	°C	28.65				28.90		27.63		27.38		31.84		30.42		30.21		28.71		29.77		29.42		37.77		34.14		31.06		30.63		30.80	
pH	SU	8.27				7.59		6.99		7.09		7.87		7.47		7.80		6.95		7.84		7.47		9.13		9.47		9.13		9.34		9.35	
Dissolved Oxygen	mg/L	6.27				0.42		1.39		1.41		5.47		4.36		5.57		0.28		5.21		2.60		3.17		8.72		3.73		5.53		5.69	
Spec Cond	µS/cm	38337				59492		858		873		2986		3328		2626		5657		2375		2490		73714		71681		72347		72203		72203	
Turbidity	NTU	0.51				20.46		1.03		0.56		1.91		1.08		0.98		4.50		0.49		0.61		49.41		63.00		47.87		42.78		45.09	
Arsenic	mg/L																																
Barium	mg/L	0.0098	I	0.0091	I	0.031	I	0.013		0.012		0.007		0.014		0.009		0.027		0.0098		0.01		0.062		0.062		0.062		0.058		0.057	J3
Beryllium	mg/L																																
Cadmium	mg/L																																
Copper	mg/L																																
Iron	mg/L	0.027	U	0.027	U	0.071	I	0.055	V	0.057	V	0.048	V	0.04	I V	0.023	I V	0.013	I V	0.021	I V	0.019	I V	0.08	I V	0.15	I	0.09	I V	0.13	I	0.047	I
Lead	mg/L																																
Manganese	mg/L																																
Molybdenum	mg/L																																
Nickel	mg/L																																
Selenium	mg/L																																
Thallium	mg/L																																
Vanadium	mg/L																																
Zinc	mg/L																																
Silica, dissolved	mg/L																																
Calcium	mg/L	340		340		560		90		88	J3	82		88		89		170		89		90		700		660		690		680		680	J3
Magnesium	mg/L	870		860		1500		9.3		9.4		49		56		41		84		35		36		1900		1800		1900		1900		1800	J3
Potassium	mg/L	280		280		470		8.9		8.6		17		20		15		32		12		13		620		580		610		580		570	
Sodium	mg/L	7900		7900		13000		59		61	J3	400		450		340		800		310	J3	330		15000		15000		15000		15000		16000	J3
Boron	mg/L	3.1		3.1		5		0.073		0.071		0.22		0.24		0.16		0.27		0.13		0.14		6.7		6.3		6.5		6.4		6.4	
Strontium	mg/L	5.4		5.3		9.2		0.98		0.95		0.93		1		1		2		0.98		1		13		12		13		12		12	
ChromiumVI	mg/L																																
Mercury	mg/L																																
Bromide	mg/L	49		49		72		0.53		0.56		2.3		2.5		1.9		5.4		2.7	U J3	2.1		100		100		100		94		88	J3
Chloride	mg/L	14000		13000		21000		100		110		680		810		580		1500		780	J3	550		29000		28000		29000		27000		27000	J3
Fluoride	mg/L	1		0.94		1		0.13		0.14		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.73		0.2	U	0.81		0.79	J3
Sulfate	mg/L	1900		1900		2900		47		44		96		110		83		140		97	J3	78		4000		4000		4100		3800		3600	J3
Ammonia	mg/L as N																																
Ammonium Ion (NH^{4+})	mg/L																																
Unionized NH3	mg/L																																
Nitrate/Nitrite as N	mg/L																																
TKN	mg/L																																
TN	mg/L																																
Orthophosphate	mg/L																																
Phosphorus (P)	mg/L																																
Alkalinity	mg/L ($CaCO_3$)	130		130		200		210		210		180		200		170		300		160		170		100		110		110		110		100	
Bicarbonate Alkalinity as CaCO3	mg/L	130		130		200		210		210		180		200		170		300		160		170		44		30		46		15		19	
Sulfide	mg/L	1	U	1	U	1	U	1	U	1	U													1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																																
Dissolved Inorganic Carbon	mg/L	39		38		56		61		62		53		56		60		92		56		56		49		13		68		53		78	
$d^{18}O$	‰																																
$d^{2}H$	‰																																
$d^{13}C$	‰																																
Gross Alpha	pCi/L																																
Salinity		24.3				39.7		0.4		0.4		1.5		0.2		1.3		3.0		1.2		1.3		53.0	J	48.9		49.6		49.5		49.4	
$^{87}Sr/^{86}Sr$	µg/L*																																
Tritium	pCi/L (1σ)																																

Notes:

* Strontium samples are reported as a ratio and hence unitless while blanks are reported in parts per billion (µg/L).

[1] Sample DUP1 (6/11/12) is a duplicate of TPSWC-1B.

[2] Sample TPGW-Dup1 (6/8/2012) is a duplicate of TPSWC-5

Key:

? = Questionable data.

I = Value between the MDL and PQL.

J = Estimated (+/- indicate bias).

MCL = Maximum Contaminant Levels.

N.A. = Not applicable.

Q = Holding time exceeded.

U = Analyzed for but not detected at the reported value.

V = Detected in method blank.

Table 3.2-9. Summary of Surface Water Analytical Results from the June 2012 Sampling Event

Parameter	Units	TPSWCCS-5T 6/8/2012		TPSWCCS-5B 6/8/2012		TPSWCCS-6T 6/7/2012		TPSWCCS-6B 6/7/2012		TPSWCCS-7B 6/15/2012		FB1 6/6/2012		FB1 6/8/2012		FB1 6/11/2012		TPSWCCS-FB1 6/15/2012	
Temperature	°C	30.92		30.87		30.71		30.73		34.82									
pH	SU	9.38		9.39		9.13		9.13		9.19									
Dissolved Oxygen	mg/L	5.45		5.55		3.21		3.12		5.26									
Spec Cond	µS/cm	72342		72326		71974		72173		74151									
Turbidity	NTU	41.76		43.56		40.40		42.34		45.76									
Arsenic	mg/L																		
Barium	mg/L	0.061		0.061		0.06		0.061		0.062	J3	0.00039	I	0.00035	U	0.00035	U	0.00035	U
Beryllium	mg/L																		
Cadmium	mg/L																		
Copper	mg/L																		
Iron	mg/L	0.071	I	0.091	I	0.07	I	0.1	I	0.081	I V	0.0048	I	0.0027	U	0.0027	U	0.0033	I V
Lead	mg/L																		
Manganese	mg/L																		
Molybdenum	mg/L																		
Nickel	mg/L																		
Selenium	mg/L																		
Thallium	mg/L																		
Vanadium	mg/L																		
Zinc	mg/L																		
Silica, dissolved	mg/L																		
Calcium	mg/L	700		680		640		670		710	J3	0.1	U	0.1	U	0.1	U	0.1	U
Magnesium	mg/L	2000		1900		1800		1900		2000	J3	0.02	U	0.02	U	0.02	U	0.02	U
Potassium	mg/L	610		590		570		600		630		0.19	U	0.19	U	0.19	U	0.19	U
Sodium	mg/L	16000		15000		15000		15000		16000	J3	0.31	U	0.31	U	0.31	U	0.31	U
Boron	mg/L	6.6		6.4		6.1		6.4		6.8		0.01	U	0.001	U	0.01	U	0.01	U
Strontium	mg/L	13		12		12		12		13		0.001	U	0.001	U	0.001	U	0.001	U
ChromiumVI	mg/L																		
Mercury	mg/L																		
Bromide	mg/L	91		91		94		91		100	J3	0.027	U	0.027	U	0.027	U	0.027	U
Chloride	mg/L	26000		27000		27000		28000		29000	J3	0.75		0.35	I	0.35	I	0.2	U
Fluoride	mg/L	0.74		0.91		0.2	U	0.2	U	0.2	U J3	0.02	U	0.02	U	0.02	U	0.02	U
Sulfate	mg/L	3800		3700		3900		3800		4100	J3	0.2	U	0.2	U	0.2	U	0.2	U
Ammonia	mg/L as N																		
Ammonium Ion (NH^{4+})	mg/L																		
Unionized NH3	mg/L																		
Nitrate/Nitrite as N	mg/L																		
TKN	mg/L																		
TN	mg/L																		
Orthophosphate	mg/L																		
Phosphorus (P)	mg/L																		
Alkalinity	mg/L ($CaCO_3$)	100		100		100		100		100		1	U	1	U	1	U	1	U
Bicarbonate Alkalinity as CaCO3	mg/L	32		34		47		35		38		1	U	1	U	1	U	1	U
Sulfide	mg/L	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Total Dissolved Solids	mg/L																		
Dissolved Inorganic Carbon	mg/L	34		44		7.3		22		61		1	U	1	U	1	U	1	U
$d^{18}O$	‰																		
$d^{2}H$	‰																		
$d^{13}C$	‰																		
Gross Alpha	pCi/L																		
Salinity		49.6		49.5		49.3		49.4		50.8									
$^{87}Sr/^{86}Sr$	µg/L*																		
Tritium	pCi/L (1σ)																		

Notes:
* Strontium samples are reported as a ratio and hence unitless, while blanks are reported in parts per billion (µg/L).
[1] Sample DUP1 (6/11/12) is a duplicate of TPSWC-1B.
[2] Sample TPGW-Dup1 (6/8/2012) is a duplicate of TPSWC-5T.
Text in blue are revised values.

Key:
? = Questionable data.
I = Value between the MDL and PQL.
J = Estimated (+/- indicate bias).
MCL = Maximum Contaminant Levels.
N.A. = Not applicable.
Q = Holding time exceeded.
U = Analyzed for but not detected at the reported value.
V = Detected in method blank.

Table 3.2-10. Range of Ion Concentrations in Surface Water

Parameter	Units	Biscayne Bay				Interceptor Ditch				L-31E				Cooling Canals			
		Min	Max	Average	Standard Deviation	Min	Max	Average	Standard Deviation	Min	Max	Average	Standard Deviation	Min	Max	Average	Standard Deviation
Temperature	°C	17.02	31.91	26.65	4.74	23.48	31.97	28.04	2.80	22.69	33.00	27.84	3.33	19.43	40.31	30.2	5.2
pH	SU	7.70	8.94	8.33	0.22	6.86	8.52	7.58	0.39	7.01	8.83	7.87	0.38	7.91	9.47	8.5	0.4
Dissolved Oxygen	mg/L	2.91	9.22	6.56	1.51	0.04	9.14	3.91	2.69	0.23	9.44	5.65	2.30	1.91	9.82	5.3	1.7
Specific Conductance	µS/cm	30586	66855	49872	7802	2076	66251	12023	16077	422	16610	1432	2536	68344	89970	80740	5897
Turbidity	NTU	0.44	17.73	2.76	3.43	0.34	47.92	3.57	7.09	0.51	26.27	4.46	5.89	46.639	67.06	56.7	4.9
Barium	mg/L	0.01	0.10	0.04	0.04	0.01	0.20	0.05	0.05	0.00	0.22	0.05	0.05	0.016	1.6	0.1	0.2
Iron	mg/L	0.03	5.50	0.57	0.82	0.01	0.63	0.20	0.17	0.02	0.71	0.16	0.16	0.027	3.6	0.7	0.6
Calcium	mg/L	260	540	426	64	82	610	194	127	44	230	75	34	570	950	758	83.8
Magnesium	mg/L	650	1700	1266	246	28	1700	260	405	6	320	21	48	1800	3000	2223	260.1
Potassium	mg/L	260	590	415	84	12	560	88	131	3	100	8	15	15000	22000	17500	1671
Sodium	mg/L	5400	14000	10167	1910	290	14000	2164	3298	27	2600	178	405	15000	22000	17500.0	1671
Boron	mg/L	2.50	5.50	4.39	0.76	0.10	5.30	0.85	1.27	0.03	1.10	0.09	0.16	6.1	11	7.5	0.9
Strontium	mg/L	4.30	9.90	7.38	1.28	0.93	11.00	2.64	2.38	0.42	3.00	0.81	0.45	12	18	14.1	1.3
Bromide	mg/L	0	100	65	18	2	85	13	19	0	19	1	3	0.27	270	113.3	30.2
Chloride	mg/L	11000	28000	18889	3797	110	27000	4040	6301	39	5300	348	814	26000	46000	33922	3837
Fluoride	mg/L	0.10	1.20	0.65	0.29	0.03	3.20	0.30	0.43	0.04	1.20	0.19	0.26	0.02	94	2.4	9.9
Sulfate	mg/L	1200	3700	2562	477	30	2900	441	646	2	640	40	96	1300	7000	4360	790
Alkalinity	mg/L ($CaCO_3$)	58.00	180	126	25	120	400	233	57	82	200	141	31	73	190	142.3	25.1
Bicarbonate Alkalinity as $CaCO_3$	mg/L	57	180	123	28	120	400	233	57	82	200	140	31	15	190	125.5	40.6
Sulfides	mg/L	1	1	1	0	0	13	2	2	1	1	1	0	1	2.4	1.0	0.1
Total Dissolved Solids	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	80000	8567	24380
Dissolved Inorganic Carbon	mg/L	20	47	33	7	0	100	63	17	10	64	40	10	2.9	78	35.5	14.1

Key:

°C = Degrees Celsius.
$CaCO_3$ = Calcium carbonate.
Max = Maximum.
mg/L = Milligram(s) per liter.
Min = Minimum.
µS/cm = MilliSiemens per centimeter.
NTU = Nephelometric turbidity unit(s).
SU = Salinity units.

Table 3.2-11. Range of Isotope Ratios in Surface Water

Parameter	Units	Biscayne Bay				Interceptor Ditch				L-31E				Cooling Canals			
		Min	Max	Average	Standard Deviation	Min	Max	Average	Standard Deviation	Min	Max	Average	Standard Deviation	Min	Max	Average	Standard Deviation
$\delta^{18}O$	‰	0.40	2.80	1.70	0.59	-0.70	4.20	0.85	1.05	-1.40	2.70	0.39	0.82	-1.40	6.40	4.70	1.69
$\delta^{2}H$	‰	3.00	23.00	13.74	4.85	-4.00	27.00	7.92	6.16	-7.80	17.00	4.39	4.80	14.00	42.00	28.25	6.06
$\delta^{13}C$	‰	-5.60	-0.15	-2.43	1.48	-9.82	-6.03	-8.04	0.95	-10.17	-0.32	-6.68	1.94	-8.40	2.99	-2.76	2.53
Gross Alpha	pCi/L	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	15.80	57.00	35.41	13.13
$^{87}Sr/^{86}Sr$	µg/L	0.70913	0.70918	0.70915	0.00001	0.70909	0.70920	0.70914	0.00002	0.70911	0.70921	0.70916	0.00003	0.70907	0.70917	0.70911	0.00002
Tritium	pCi/L	-1.5	34.5	17.2	9.0	52.6	5677.0	688.2	1184.9	8.4	125.0	50.3	31.5	358.0	14280.0	5336.2	3774.9

Key:

‰ = Parts per mille.
Min = Minimum.
C = Carbon.
NA= Not Available, data not collected
H = Hydrogen.
O = Oxygen.
Max = Maximum.
pCi/L = PicoCuries per liter.

Table 3.4-1. Rainfall Collector Sampling Events and Sample Receipt Status

Date	TPRC-2	TPRC-3	TPRC-4	TPRC-5	TPRC-7	TPRC-8	TPRC-12
Jul-11	✓	✓	✓	NA	✓	✓	✓
Sep-11	✓	✓	✓	✓	✓	✓	✓
Dec-11	✓	✓	✓	✓	✓	✓	✓
Mar-12	P	P	P	P	NA	P	P
Jun-12	P	P	P	P	NA	P	P

Notes:
Data collected on 8/18/2011.
Pending - Samples collected but results not available.
TPRC-5 and TPRC-7 were stolen so no samples were collected in July 2011 March 2012 and June 2012.

Key:
✓ = Data available.
NA = Not available.
P = Pending.
TPRC = Turkey Point Rainfall Collector.

Table 3.4-2. Rainfall Tritium Results

Rainfall Station	Sample Date	Concentration (pCi/L)		
		Value	1-Sigma	MDL
RF-2	7/29/2011	34.1	5.4	4.6
RF-3	7/29/2011	23.5	5.5	5.0
RF-4	7/29/2011	11.3	5.2	5.0
RF-8	7/29/2011	4.4	4.8	4.8
RF-12	7/29/2011	29.2	5.8	5.1
RF-BLANK	7/29/2011	6.3	5.0	4.9
RF-7	8/18/2011	24.7	5.6	5.1
RF-2	9/29/2011	7.3	7.8	7.6
RF-3	9/29/2011	25.3	8.2	7.4
RF-4	9/29/2011	6.5	7.6	7.5
RF-5	9/29/2011	17.3	7.9	7.4
RF-7	9/29/2011	12.6	7.8	7.5
RF-8	9/29/2011	19.0	8.0	7.6
RF-12	9/29/2011	24.2	8.2	7.4
RF-BLANK	9/29/2011	3.0	7.5	7.4
RF-2	12/21/2011	42.2	8.6	7.2
RF-3	12/21/2011	9.8	7.7	7.4
RF-4	12/21/2011	8.1	7.5	7.3
RF-5	12/21/2011	37.3	8.6	7.4
RF-7	12/21/2011	11.5	7.6	7.3
RF-8	12/21/2011	10.9	7.7	7.4
RF-12	12/21/2011	18.1	7.6	7.0
RF-BLANK	12/21/2011	8.0	7.0	6.8

Key:
pCi/L = Picocuries per liter.
MDL = Minimum detection limit.
RF = Rainfall.

Table 3.5-1. Evaporation Pan Sampling Events and Sample Receipt Status

Date	TPEVP-2	TPEVP-3	TPEVP-5	TPEVP-12	TPEVP-13A[1]	TPEVP-Source	TPEVP-Pumped Source[2]
Mar-11	✓	✓	✓	✓	NA	✓	NA
Apr-11	✓	✓	✓	✓	NA	✓	✓
May-11	✓	✓	✓	✓	✓	✓	✓
Jun-11	✓	✓	✓	✓	✓	✓	✓
Aug-113	✓	✓	✓*	✓	✓	NA	NA
Sep-11	✓	✓	✓	✓	✓	✓	NA
Oct-11	✓	✓	✓	✓	✓	✓	NA
Nov-114	✓	✓	✓	✓	✓	NA	NA
Dec-11	✓	✓	✓	✓	✓	✓	✓
Jan-12	P	P	P	P	P	P	P
Feb-12	P	P	P	P	P	P	P
Mar-12	P	P	P	P	P	P	P
Apr-12	P	P	P	P	P	P	P
May-12	P	P	P	P	P	P	P
Jun-12	P	P	P	P	P	P	P

Notes:
[1] TPEVP-13A was not set up until April 2011; the first samples were collected in May 2011.
[2] TPEVP-Pumped-Source is only collected when water transported in the water bladders is used to fill pans at TPEVP-5.
[3] Pans were full in August and not refilled; therefore, there was no Source Water. TPEVP-5 was visited 7/29/11 instead of 8/2/11 (for all other sites).
[4] Pans were full in November and not refilled; therefore, there was no Source Water for that month.

Key:
✓ = Data available.
NA = Not available.
P = Pending.

Table 3.5-2. Evaporation Pan Results

Evaporation Pan Station	Sample Date	Concentration (pCi/L)		
		Value	1-Sigma	MDL
April 2011				
TPEVP-2	4/19/2011	249.0	19.0	5.1
TPEVP-3	4/19/2011	45.1	6.5	5.1
TPEVP-5	4/20/2011	49.6	7.0	5.4
TPEVP-12	4/19/2011	55.0	6.9	5.0
TPEVP-Source	4/19/2011	13.4	5.3	5.1
TPEVP-Source5[1]	4/20/2011	23.5	5.5	4.9
May 2011				
TPEVP-2	5/24/2011	283.4	19.6	6.2
TPEVP-3	5/24/2011	36.0	7.2	6.3
TPEVP-5	5/24/2011	39.2	7.2	6.1
TPEVP-12	5/24/2011	30.0	6.9	6.1
TPEVP-13A[2]	5/24/2011	490.3	31.5	6.4
TPEVP-Source	5/24/2011	15.3	8.3	7.9
TPEVP-Source5	5/24/2011	20.8	6.7	6.2
June 2011				
TPEVP-2	6/24/2011	26.3	6.8	6.1
TPEVP-3	6/24/2011	17.9	6.7	6.2
TPEVP-5	6/27/2011	39.0	7.2	6.1
TPEVP-12	6/27/2011	22.6	6.6	6.1
TPEVP-13	6/24/2011	274.7	19.0	6.1
TPEVP-Source	6/24/2011	21.4	6.7	6.2
TPEVP-Source5	6/27/2011	20.9	6.6	6.0
August 2011[3]				
TPEVP-2	8/2/2011	75.3	7.0	4.3
TPEVP-3	8/2/2011	57.2	6.3	4.4
TPEVP-5	7/29/2011	19.6	4.8	4.3
TPEVP-12	8/2/2011	10.9	4.5	4.2
TPEVP-13	8/2/2011	181.0	13.0	4.3
September 2011				
TPEVP-2	9/28/2011	38.3	8.3	7.0
TPEVP-3	9/28/2011	12.8	6.6	6.3
TPEVP-5	9/28/2011	18.9	7.6	7.0
TPEVP-12	9/28/2011	14.4	6.8	6.4

Table 3.5-2. Evaporation Pan Results

Evaporation Pan Station	Sample Date	Concentration (pCi/L)		
		Value	1-Sigma	MDL
TPEVP-GC	9/28/2011	114.4	11.3	6.4
TPEVP-Source	9/28/2011	7.3	7.2	7.0
October 2011				
TPEVP-2	10/27/2011	63.4	9.4	7.0
TPEVP-3	10/27/2011	43.0	8.3	6.8
TPEVP-5	10/27/2011	11.3	7.3	6.9
TPEVP-12	10/27/2011	18.5	7.6	7.0
TPEVP-13A	10/27/2011	115.4	11.7	6.9
TPEVP-Source	10/27/2011	18.5	7.6	7.0
TPEVP-Source Pumped	10/27/2011	7.5	7.3	7.1
November 2011[4]				
TPEVP-2	11/30/2011	180.5	13.3	4.1
TPEVP-3	11/30/2011	47.9	6.5	4.5
TPEVP-5	11/30/2011	11.3	5.0	4.6
TPEVP-12	11/30/2011	10.1	4.3	4.0
TPEVP-13	11/30/2011	374.1	24.3	4.0
December 2011				
TPEVP-12	12/20/2011	0.0	7.0	7.0
TPEVP-13	12/20/2011	647.0	42.0	6.8
TPEVP-2	12/20/2011	361.0	24.0	7.0
TPEVP-3	12/20/2011	83.9	8.5	6.0
TPEVP-Pumped Source	12/20/2011	2.8	6.9	6.8
TPEVP-Source	12/20/2011	6.1	6.9	6.8
TPEVP-5	12/21/2011	28.6	7.5	7.0
TPEVP-Source5	12/21/2011	0.3	6.8	6.8

Notes:
[1] TPEVP-Pumped Source, also labeled TPEVP-Source5, is only collected when water transported in the water bladders is used to fill pans at TPEVP-5.
[2] TPEVP-13A was not set up until April 2011; the first samples were collected in May 2011.
[3] Pans were full in August and not refilled; therefore, there was no Source Water. TPEVP-5 was visited 7/29/11 instead of 8/2/11 (for all other sites).
[4] Pans were full in November and not refilled; therefore, there was no Source Water for that month.
TPEVP-13 is also referred to as TPEVP-GC.

Key:
EVP = Evaporation pan.
GC = Grand Canal
MDL = Minimum detection level.
pCi/L = PicoCuries per liter.
TP = Turkey Point.

FIGURES

Figure 3.1-1. Typical Groundwater Field Sampling Setup.

Note: 1) J-10: Jun-2010; S-10: Sep-2010; D-10: Dec-2010; M-11: Mar-2011; J-11: Jun-2011; S-11: Sep-2011; D-11: Dec-2011; M-12: Mar 2012; J-12: Jun-2012.
2) Samples for wells L-5, L-31, G-21, G-28, and G-35 were taken at depths of 18 ft and 58 ft.
3) NA: Not Available.

Chloride Samples Taken at 3 Depths (S: shallow; M: intermediate; D: deep)

Figure 3.1-2. Chloride Concentrations (mg/L) in Groundwater June 2010 through June 2012.

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	100	110	100	90	87	100	88	88	80
M	4000	4100	4200	3800	3800	4100	3900	4200	4100
D	3800	4300	4300	4000	4000	4300	4200	4500	4300

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	7700	7400	8500	7600	7700	8100	8100	8200	9000
M	13000	13000	15000	13000	11000	13000	13000	13000	14000
D	15000	13000	15000	12000	13000	13000	13000	13000	13000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	20	19	20	21	20	20	21	21	20
M	21	20	20	21	20	21	21	22	21
D	26	26	27	27	26	25	27	28	26

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	13000	5700	9800	8500	12000	8100	9300	12000	11000
M	15000	15000	16000	15000	14000	14000	16000	16000	15000
D	16000	15000	15000	14000	14000	15000	15000	15000	15000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	NA	11000	11000	9900	10000	11000	11000	10000	11000
M	NA	11000	11000	11000	11000	11000	11000	11000	12000
D	NA	11000	12000	11000	11000	11000	11000	11000	12000

Dep	O-10	J-11	M-11	J-11	S-11	D-11	M-12	J-12
S	15	20	26	26	30	22	21	21
D	2000	2700	2100	2200	2200	2200	2500	2800

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	110	100	110	NA	100	110	87	140	120
M	4900	5200	5600	NA	5500	5400	5700	5900	6000
D	6500	5800	6400	NA	6100	5700	6000	6100	6500

Dep	O-10	J-10	J-11	M-11	J-11	S-11	D-11	M-12	J-12
S	140	89	76	140	480	54	82	77	
D	17000	21000	16000	17000	17000	17000	16000	19000	

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	NA	11000	12000	11000	12000	11000	12000	11000	12000
M	NA	13000	12000	11000	12000	11000	12000	11000	12000
D	NA	11000	12000	11000	12000	12000	12000	12000	11000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	21	21	21	22	20	21	20	21	20
M	20	20	20	20	19	21	20	19	19
D	31	30	31	31	28	31	29	30	27

Dep	O-10	J-11	M-11	J-11	S-11	D-11	M-12	J-12
S	38	54	82	820	79	50	75	55
D	16000	20000	15000	16000	16000	15000	15000	17000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	19000	19000	20000	18000	17000	18000	17000	18000	18000
M	19000	18000	19000	17000	16000	17000	17000	17000	17000
D	19000	18000	20000	17000	16000	17000	17000	17000	17000

Dep	O-10	J-11	M-11	J-11	S-11	D-11	M-12	J-12
S	26	30	44	41	28	29	45	26
D	3300	3500	3200	3200	2800	3000	3300	3300

Dep	O-10	J-11	M-11	J-11	S-11	D-11	M-12	J-12
S	970	1800	1200	1000	1200	0	1400	1600
D	7700	8300	7300	6900	7300	1100	7300	7800

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	17000	14000	15000	15000	16000	15000	15000	15000	15000
M	18000	15000	16000	16000	17000	16000	16000	16000	16000
D	16000	17000	16000	16000	16000	16000	16000	16000	16000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	14	10	8.9	12	13	8	6	8	9
M	15	13	14	15	13	14	13	14	12
D	22	20	20	18	16	17	17	16	15

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	250	210	240	360	310	240	220	260	140
M	7200	7000	7200	6900	6800	8400	6900	7300	7400
D	8600	8200	9000	8400	8000	7400	6600	8400	8500

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	NA	12000	13000	12000	12000	12000	12000	11000	12000
M	NA	13000	14000	13000	13000	13000	11000	13000	13000
D	NA	16000	16000	15000	17000	15000	15000	15000	16000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	13000	13000	13000	13000	13000	14000	14000	13000	13000
M	15000	14000	14000	14000	15000	15000	13000	15000	14000
D	14000	14000	14000	15000	15000	14000	13000	14000	14000

Note: 1) J-10: Jun-2010; S-10: Sep-2010; D-10: Dec-2010; M-11: Mar-2011; J-11: Jun-2011; S-11: Sep-2011; D-11: Dec-2011; M-12: Mar 2012; J-12: Jun-2012.
2) Samples for wells L-5, L-31, G-21, G-28, and G-35 were taken at depths of 18 ft and 58 ft.
3) NA: Not Available.

Sodium Samples Taken at 3 Depths (S: shallow; M: intermediate; D: deep)

Figure 3.1-3. Sodium Concentrations (mg/L) in Groundwater June 2010 through June 2012.

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	1230	1207	1148	1120	1163	1088	1105	1067
M	23667	21802	21758	22835	23018	22283	23477	22517
D	24355	23808	24028	24011	24033	23397	24213	23704

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	41222	40997	40650	41853	40848	41350	42960	43247
M	66088	66765	64647	60849	63017	63876	64570	65003
D	65920	64747	64472	63264	64298	64538	64988	65013

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	554	516	561	572	NA	568	581	580
M	588	632	557	579	NA	566	575	580
D	608	585	600	586	NA	594	597	601

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	33001	48738	43289	59744	44022	45929	59838	54680
M	72898	70180	70962	70948	70784	71993	72597	72817
D	71763	71044	70257	70747	70471	70715	71660	71401

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	52243	50505	51502	51442	52279	53203	52831	52885
M	56762	55131	55706	55203	54719	55143	54072	55240
D	56950	55483	56275	55931	54911	56200	55544	58923

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	736	775	592	629	588	538	536	543
D	18117	18039	13392	14355	14409	15127	15767	16058

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	1239	1224	1387	1189	NA	1100	1390	1331
M	30936	30840	30324	31007	NA	31941	31913	32196
D	34157	32674	32768	32996	NA	33540	33043	34183

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	1340	699	930	1432	3742	657	976	838
D	80211	84800	79735	81271	79557	79760	80857	79755

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	2648	3014	2663	2570	2051	2496	2604	2181
M	654	646	647	645	651	635	653	645
D	699	723	669	694	702	698	714	686

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	56504	54920	55562	55906	54734	55764	55004	55079
M	58174	56022	56776	56720	56277	56330	55511	56569
D	59347	58983	58825	59546	58768	60116	59510	59865

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	494	908	963	5724	797	665	971	739
D	75992	80124	74971	76804	75568	76281	76503	75732

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	87606	90261	87096	82111	82473	83469	83997	84225
M	83961	83608	83337	82262	80616	81654	81243	80280
D	86058	86786	84277	82779	82287	82425	81700	81844

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	8264	9991	738	710	697	709	18874	669
D	39797	41949	17867	18915	16117	18279	737	18498

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	429	548	9378	7130	7824	8304	6087	9012
D	13419	14319	38230	38862	38933	39168	39655	39290

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	73570	71102	75624	77917	74150	74782	74636	72823
M	77199	76025	73519	78540	75599	76658	76409	75927
D	78349	74449	77912	76277	76249	77583	77119	77125

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	609	611	621	643	582	547	590	593
M	679	668	662	651	657	653	662	649
D	654	671	638	646	651	640	660	640

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	2026	2136	2790	2632	NA	2044	2281	1438
M	38628	37881	37791	37818	NA	37832	38574	38757
D	44990	43547	43423	43139	NA	43264	43554	43277

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	60063	58631	59713	58014	57317	58055	57415	57931
M	63756	64180	64501	62228	62560	63012	61619	63535
D	75330	73000	74875	74774	72650	74202	73593	74001

Dep	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
S	65826	64606	65810	64589	63997	65411	64474	64651
M	71328	68445	68320	69075	67273	70052	67848	69150
D	70500	69476	71205	70195	69305	69551	69560	69944

Note: 1) J-10: Jun-2010; S-10: Sep-2010; D-10: Dec-2010; M-11: Mar-2011; J-11: Jun-2011; S-11: Sep-2011; D-11: Dec-2011; M-12: Mar 2012; J-12: Jun-2012.
2) Samples for wells L-5, L-31, G-21, G-28, and G-35 were taken at depths of 18 ft and 58 ft.
3) NA: Not Available.

9-2012

Specific Conductance Samples Taken at 3 Depths (S: shallow; M: intermediate; D: deep)

Figure 3.1-4. Specific Conductance (µS/cm) in Groundwater June 2010 through June 2012.

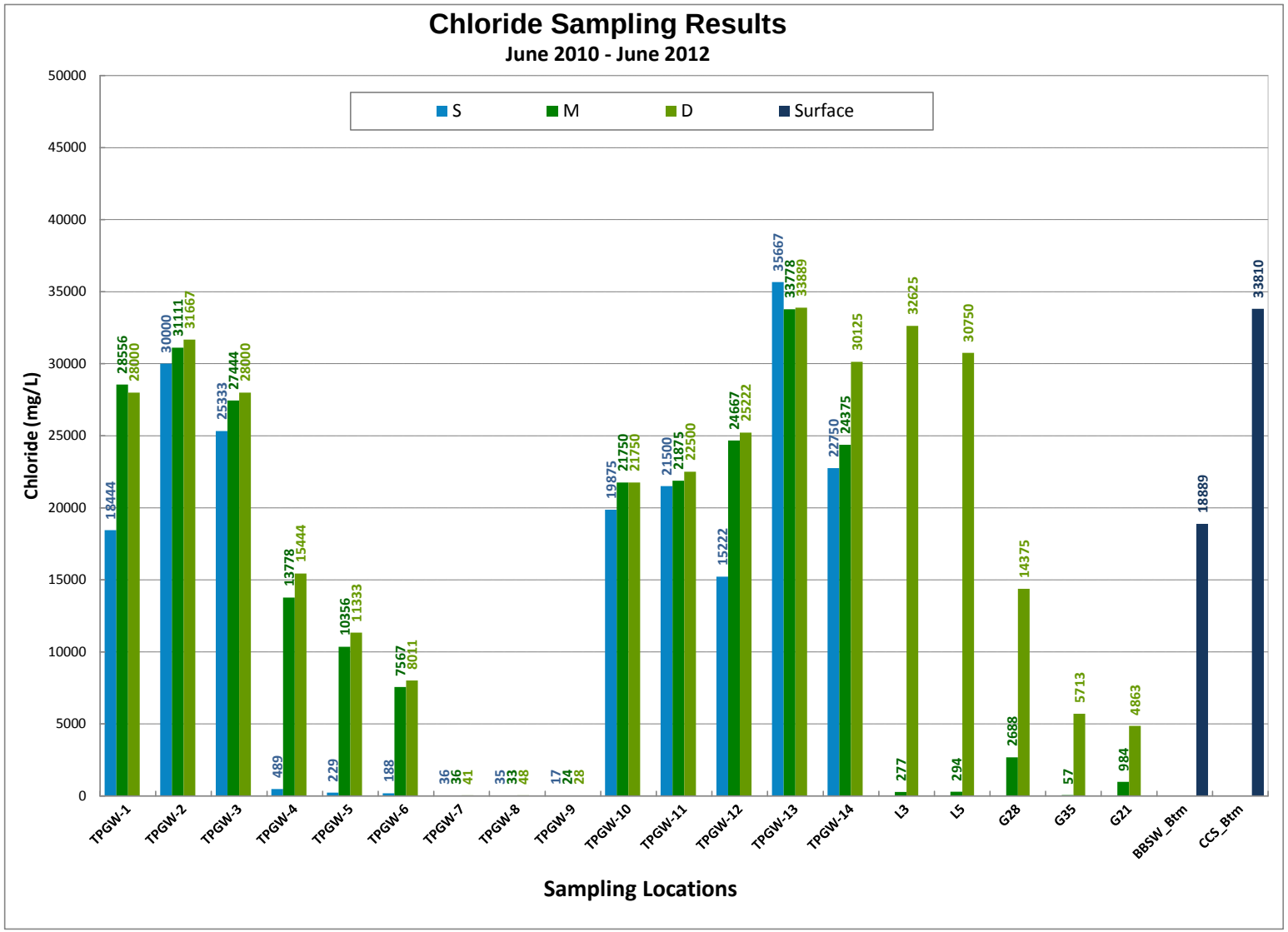


Figure 3.1-5. Average Quarterly Chloride Concentrations at Each Well Compared to Biscayne Bay and CCS Surface Water Chloride Concentrations.

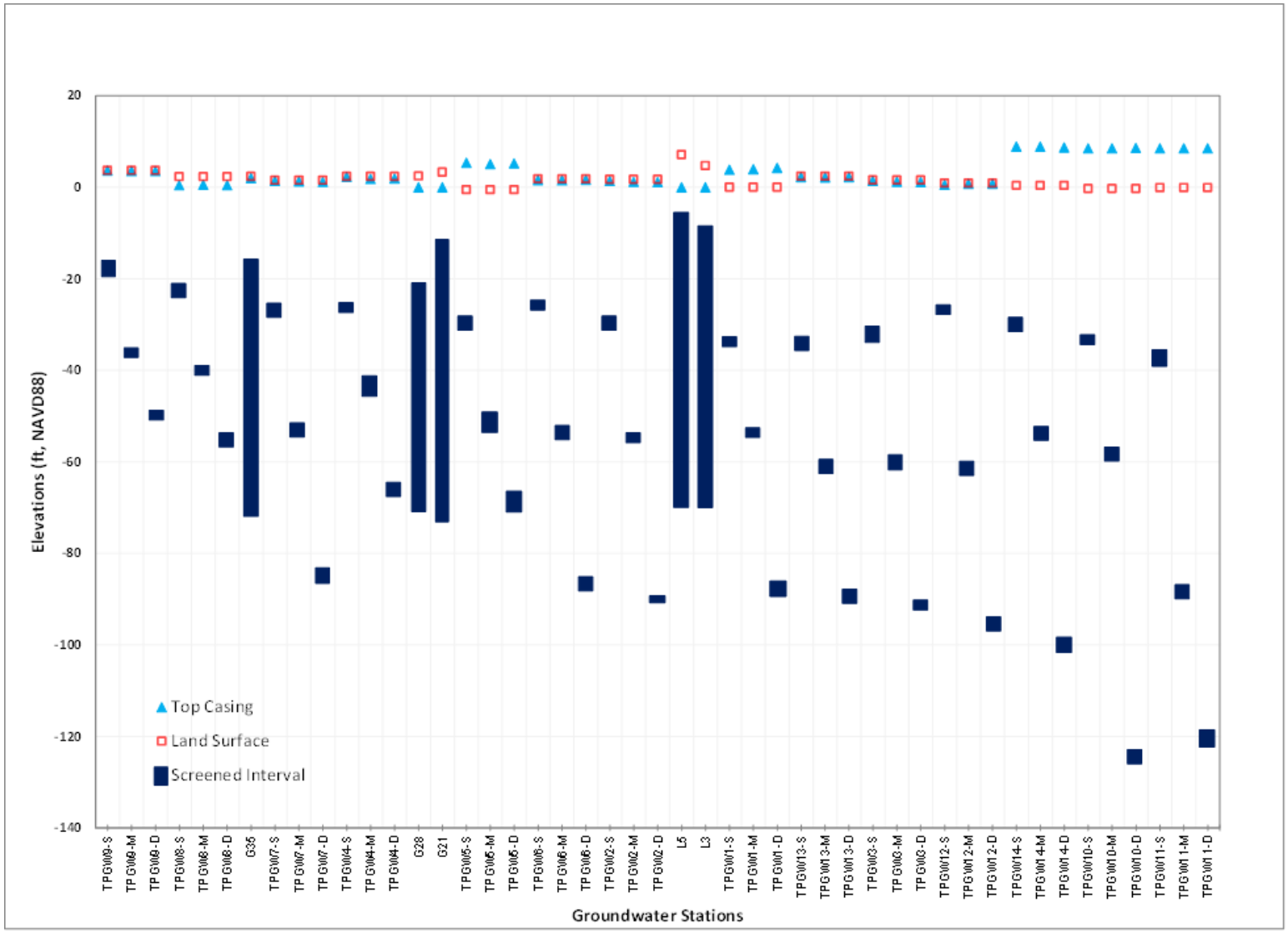


Figure 3.1-6. Monitoring Well Elevations.

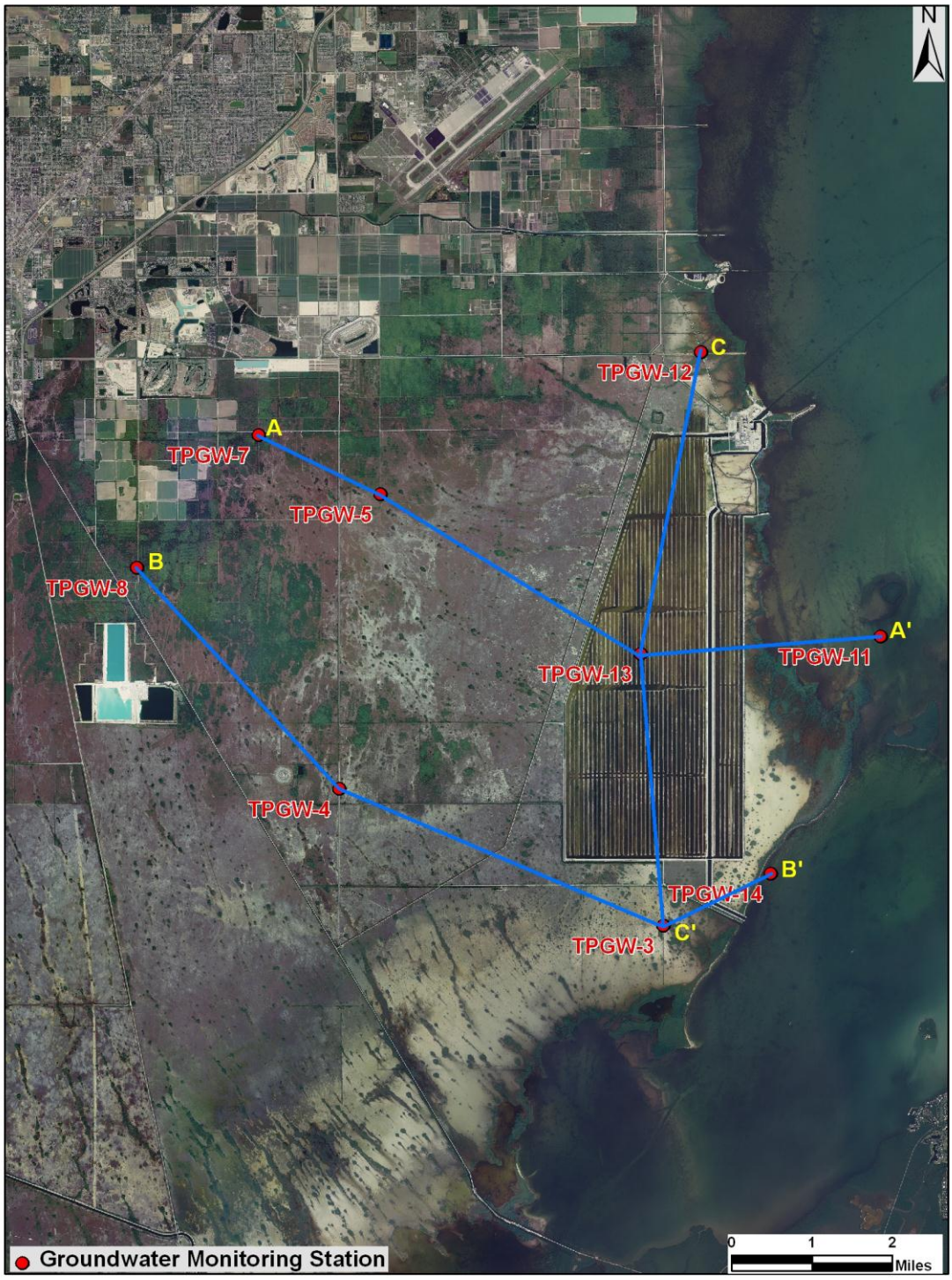


Figure 3.1-7. Locations of Aquifer Cross Sections for Groundwater Chloride Concentrations.

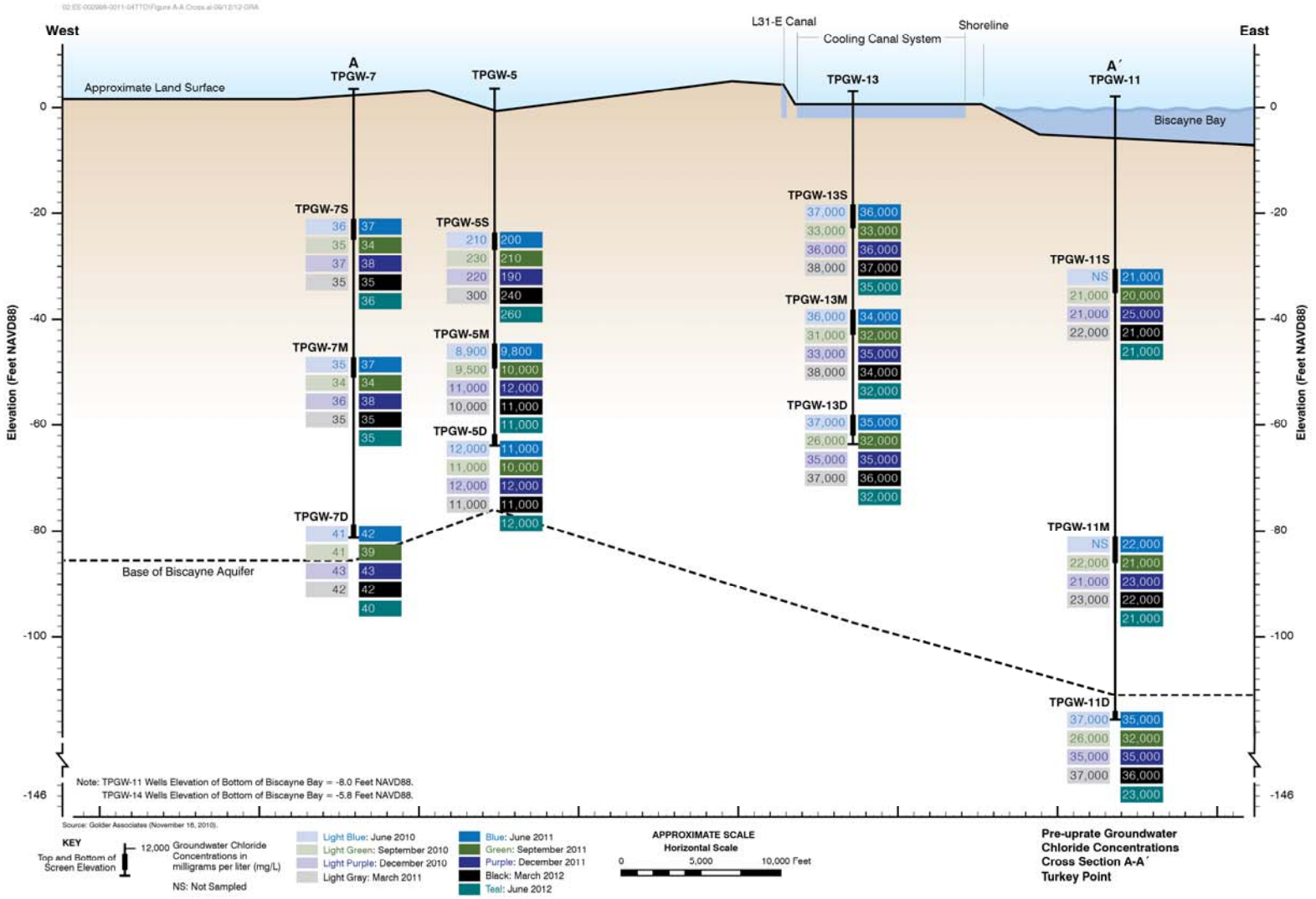


Figure 3.1-8. Cross Section A-A' Showing Groundwater Chloride Concentrations from June/July 2010 through June 2012.

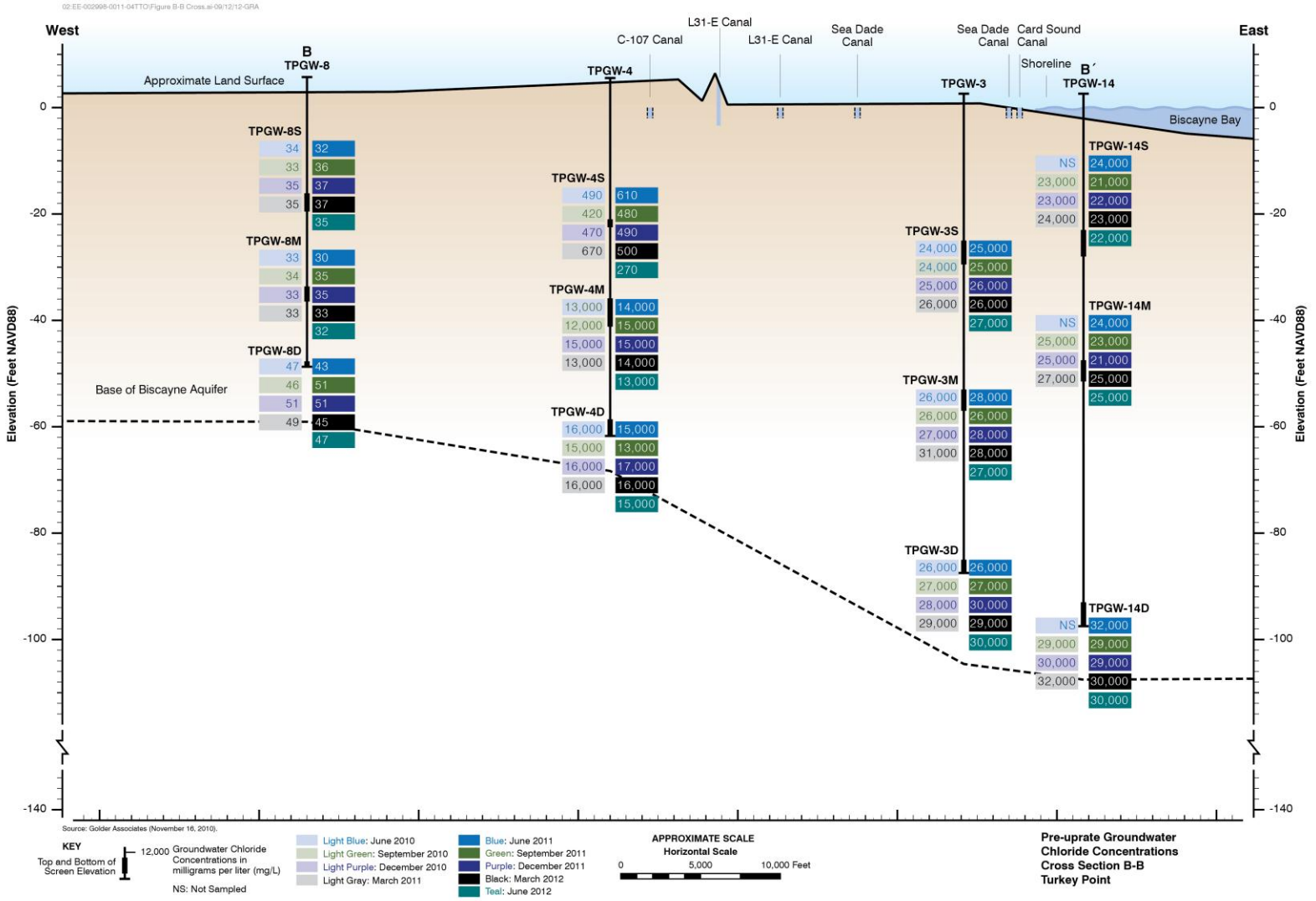


Figure 3.1-9. Cross Section B-B' Showing Groundwater Chloride Concentrations from June/July 2010 through June 2012.

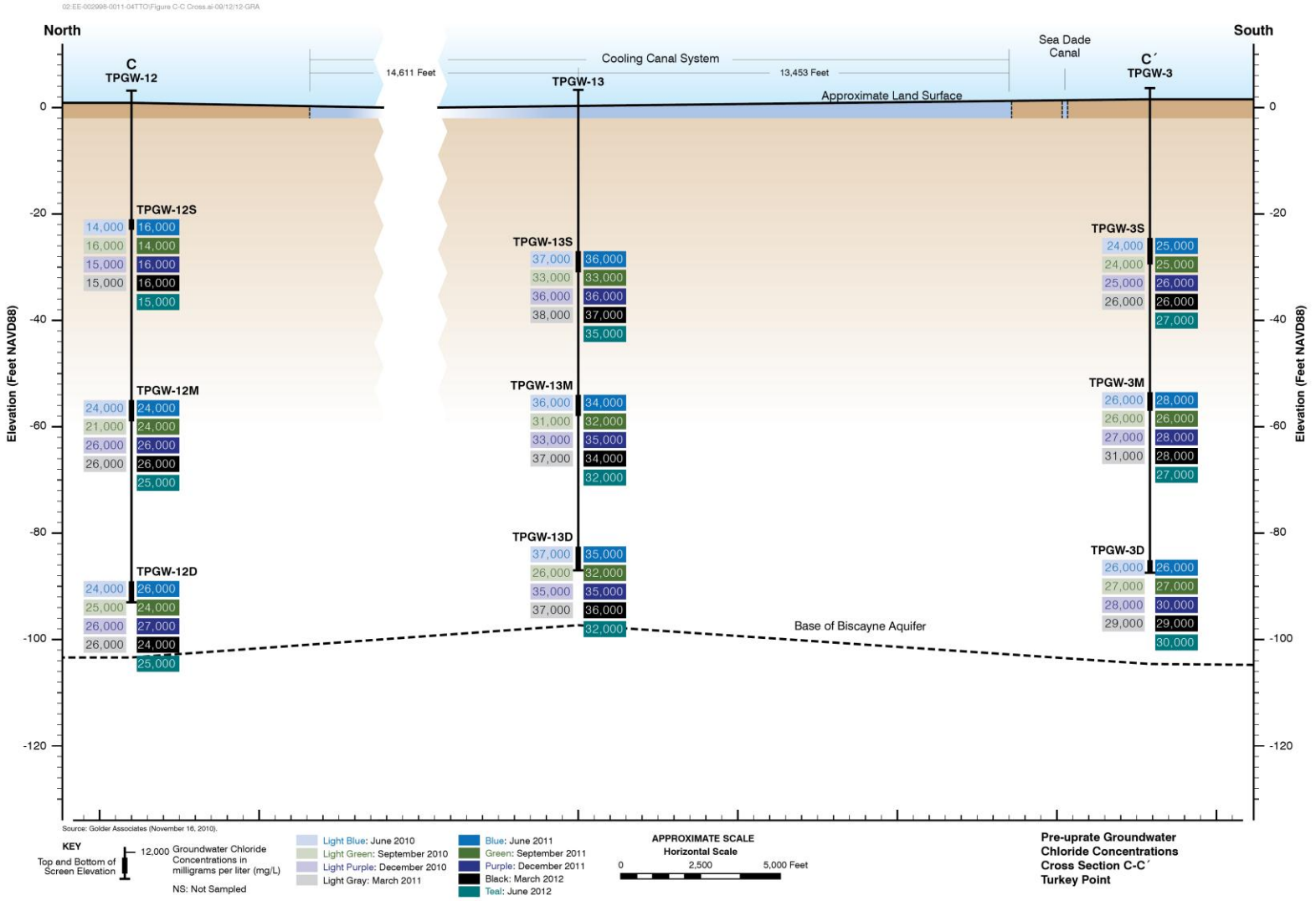
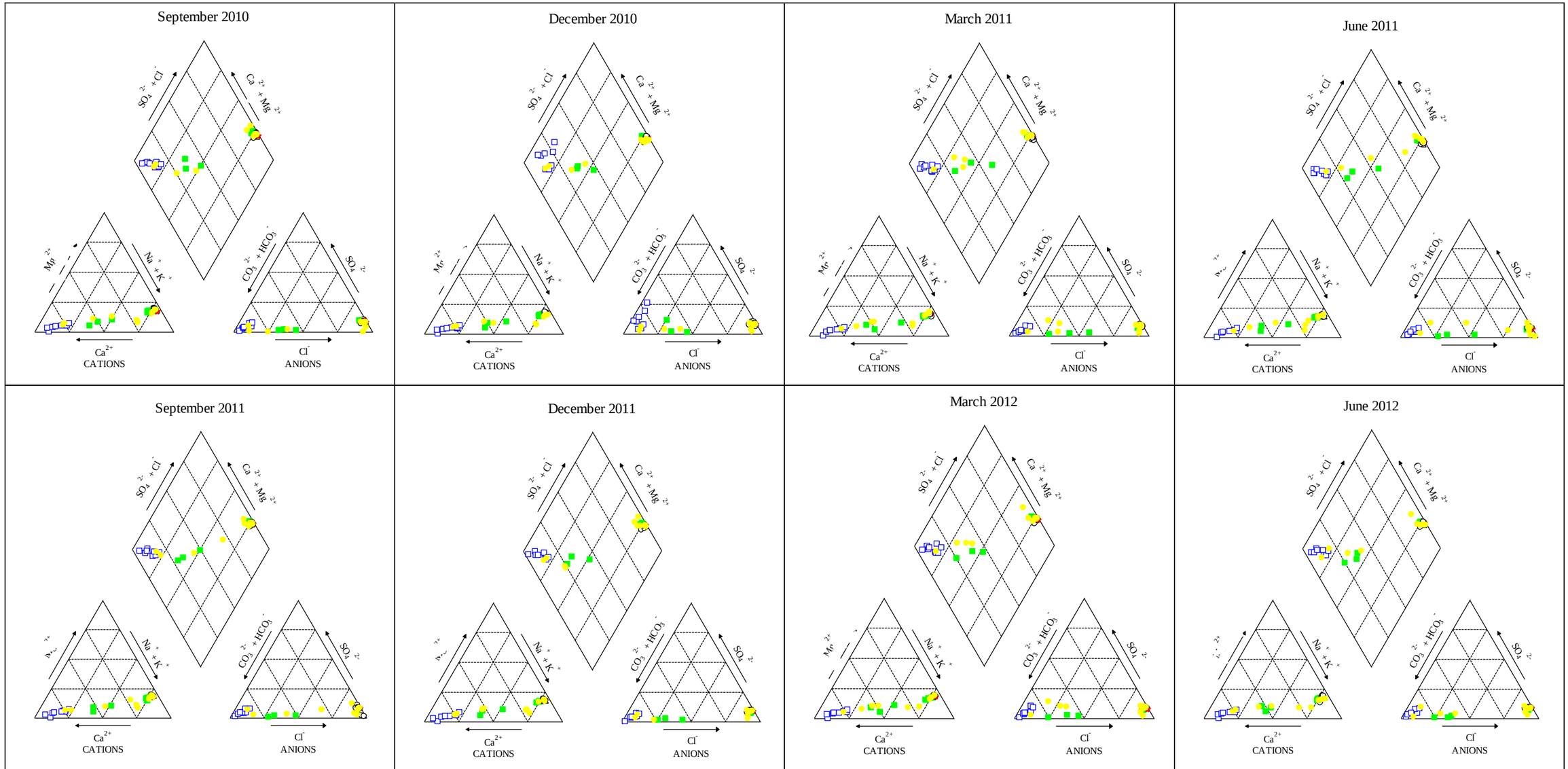


Figure 3.1-10. Cross Section C-C' Showing Groundwater Chloride Concentrations from June/July 2010 through June 2012.



Legend: TPGW-1, -2, -3, -12, -14 = ○; TPGW-4, -5, -6 = ■; TPGW-7, -8, -9 = □; TPGW-10, -11 = Δ; TPGW-13 = ☆; TPGW-L3, -L5, -G21, -G28, -G35 = ●

Figure 3.1-11. Tri-Linear Diagrams of Quarterly Groundwater Data.

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	10	3	4	5	20	22	0
M	1	5	15	14	6	14	5
D	13	18	23	19	33	32	14

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	237	262	275	238	73	208	242
M	1795	1654	1740	1680	1260	1630	1630
D	1562	1830	1570	1640	1490	1706	1520

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	2	3	1	14	18	12	12
M	3	7	14	13	-1	14	12
D	4	4	6	2	5	25	13

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	1581	456	937	810	1320	830	840
M	2816	2653	2535	2440	2510	2740	2350
D	2579	2272	2658	2560	1980	2560	2230

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	NA	22	11	18	24	19	23
M	NA	8	12	3	15	7	3
D	NA	2	8	8	16	3	1

Dep	O-10	J-11	M-11	J-11	S-11	D-11
S	6	4	18	23	15	4
D	14	17	18	24	25	22

Dep	O-10	J-11	M-11	J-11	S-11	D-11
S	59	80	94	95	89	44
D	4070	4040	3960	3730	4010	3440

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	10	20	0	0	16	32	0
M	293	175	218	222	156	224	243
D	188	343	295	283	288	319	315

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	4	13	0	7	17	24	10
M	4	12	3	4	24	16	13
D	7	0	4	13	29	12	-2

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	NA	15	16	2	22	26	10
M	NA	27	28	34	26	43	48
D	NA	347	338	435	429	467	480

Dep	O-10	J-11	M-11	J-11	S-11	D-11
S	89	65	80	113	5	54
D	3380	3320	3270	3438	3350	4040

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	4370	3554	3460	3800	4190	6390	4300
M	4179	3986	3980	4030	3800	3910	3640
D	4785	4390	4180	3830	3650	3850	3850

Dep	O-10	J-11	M-11	J-11	S-11	D-11
S	12	16	12	8	2	19
D	2	0	0	16	-2	12

Dep	O-10	J-11	M-11	J-11	S-11	D-11
S	7	14	31	17	17	8
D	436	440	411	410	430	424

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	3168	3075	2910	3030	3670	3310	3660
M	3328	3460	3250	3520	3690	3720	3770
D	3232	3522	3420	3320	3270	3100	3340

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	4	7	10	11	10	24	11
M	16	0	8	8	16	19	7
D	8	0	5	2	13	17	14

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	9	19	15	19	10	24	15
M	325	321	277	246	281	340	297
D	506	611	581	519	433	520	510

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	NA	228	230	247	186	175	159
M	NA	688	851	772	600	790	650
D	NA	2580	2640	2660	2490	2620	2540

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
S	854	852	823	236	620	770	620
M	1990	2178	2110	1940	1960	2130	1790
D	1990	1041	2053	1980	2070	2270	2020

Note: 1) J-10: Jun-2010; S-10: Sep-2010; D-10: Dec-2010; M-11: Mar-2011; J-11: Jun-2011; S-11: Sep-2011; D-11: Dec-2011.
2) Samples for wells L-5, L-31, G-21, G-28, and G-35 were taken at depths of 18 ft and 58 ft.
3) NA: Not Available.

7-2012

Tritium Samples Taken at 3 Depths (S: shallow; M: intermediate; D: deep)

Figure 3.1-12. Tritium Concentrations in Groundwater June 2010 through December 2011.

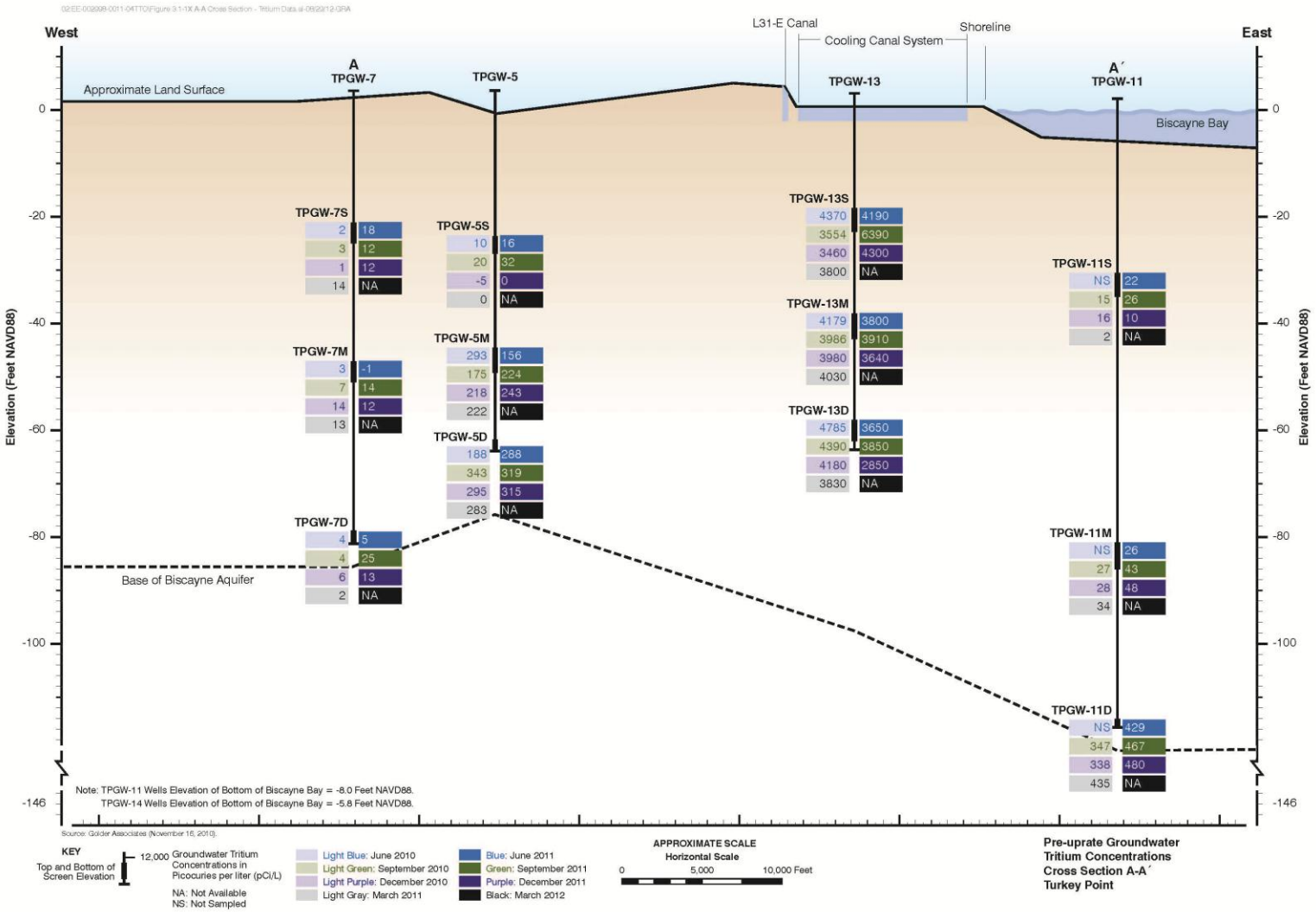


Figure 3.1-13. Cross Section A-A' Showing Quarterly Groundwater Tritium Concentrations from June/July 2010 through December 2011.

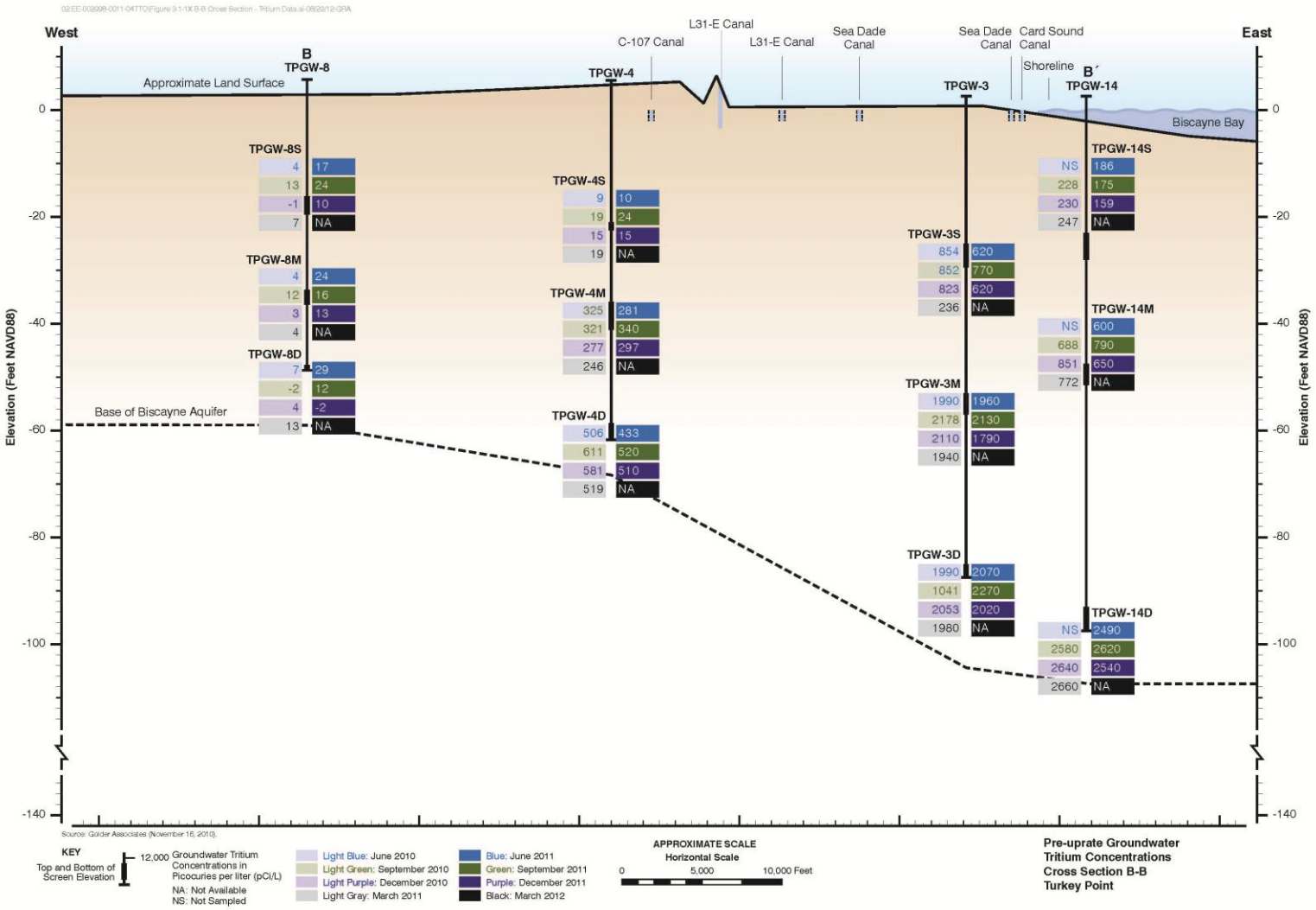


Figure 3.1-14. Cross Section B-B' Showing Quarterly Groundwater Tritium Concentrations from June/July 2010 through December 2011.

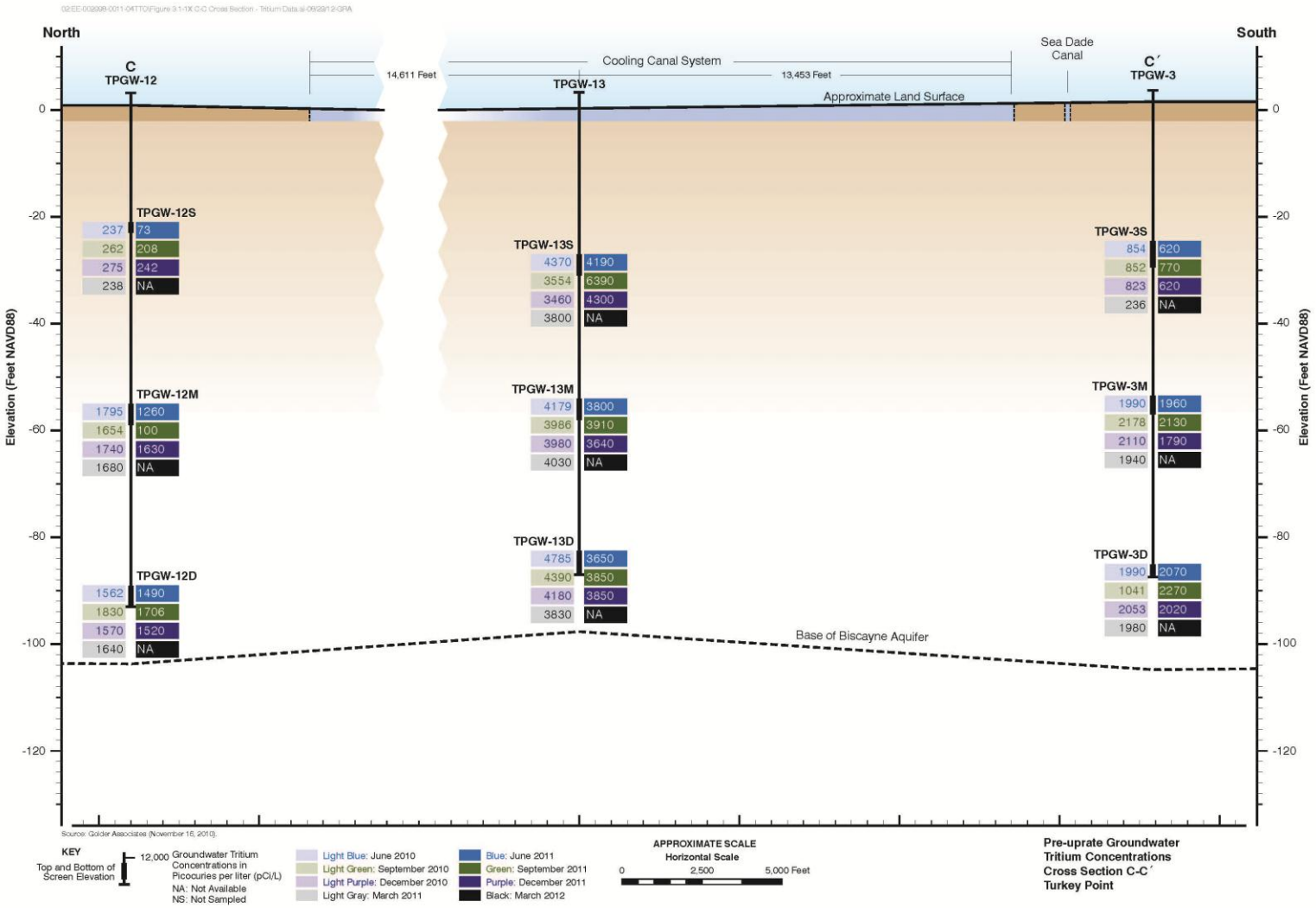
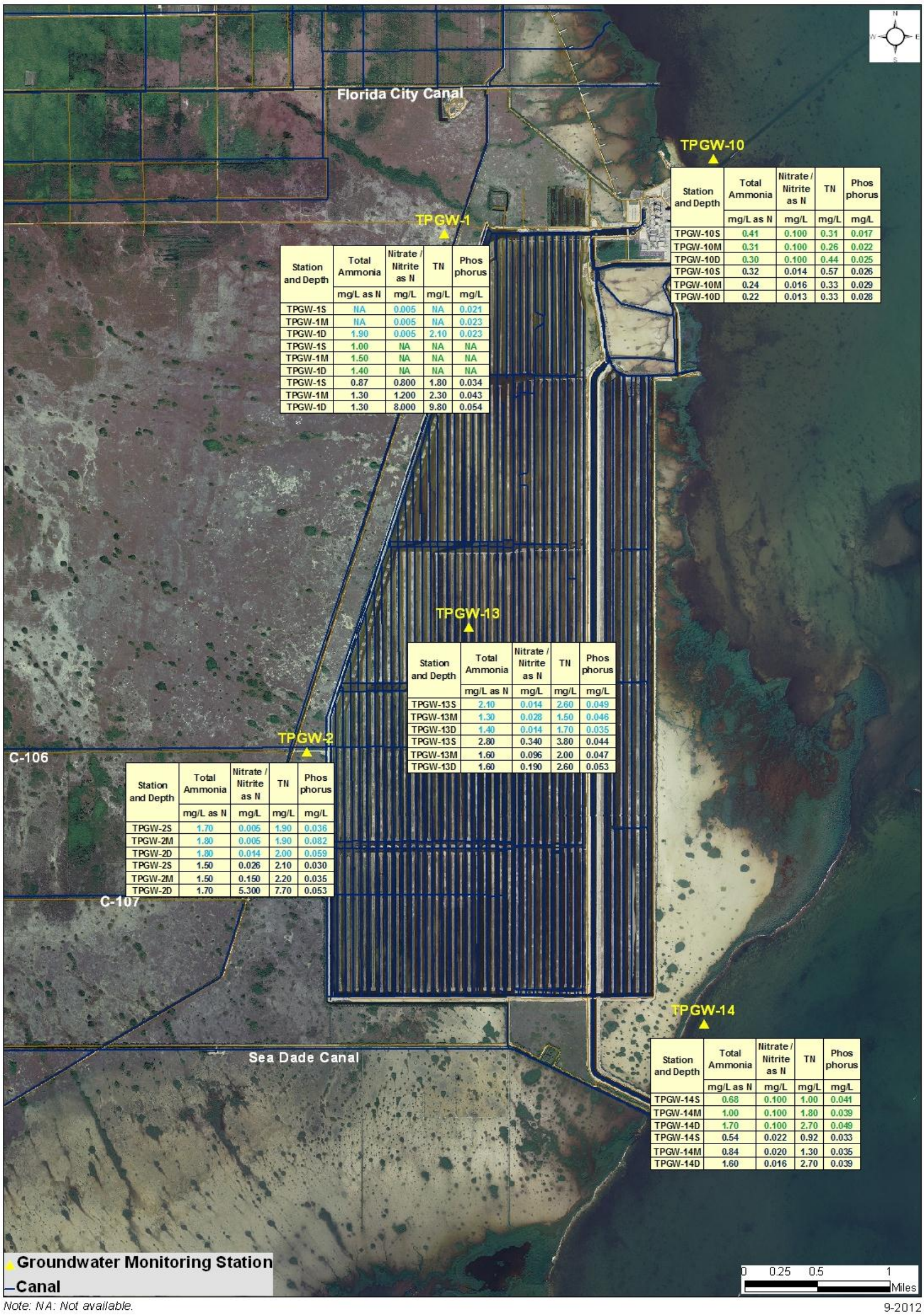


Figure 3.1-15. Cross Section C-C' Showing Quarterly Groundwater Tritium Concentrations from June/July 2010 through December 2011.



Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-1S	NA	0.005	NA	0.021
TPGW-1M	NA	0.005	NA	0.023
TPGW-1D	1.90	0.005	2.10	0.023
TPGW-1S	1.00	NA	NA	NA
TPGW-1M	1.50	NA	NA	NA
TPGW-1D	1.40	NA	NA	NA
TPGW-1S	0.87	0.800	1.80	0.034
TPGW-1M	1.30	1.200	2.30	0.043
TPGW-1D	1.30	8.000	9.80	0.054

Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-10S	0.41	0.100	0.31	0.017
TPGW-10M	0.31	0.100	0.26	0.022
TPGW-10D	0.30	0.100	0.44	0.025
TPGW-10S	0.32	0.014	0.57	0.026
TPGW-10M	0.24	0.016	0.33	0.029
TPGW-10D	0.22	0.013	0.33	0.028

Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-13S	2.10	0.014	2.60	0.049
TPGW-13M	1.30	0.028	1.50	0.046
TPGW-13D	1.40	0.014	1.70	0.035
TPGW-13S	2.80	0.340	3.80	0.044
TPGW-13M	1.60	0.096	2.00	0.047
TPGW-13D	1.60	0.190	2.60	0.053

Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-2S	1.70	0.005	1.90	0.036
TPGW-2M	1.80	0.005	1.90	0.082
TPGW-2D	1.80	0.014	2.00	0.059
TPGW-2S	1.50	0.026	2.10	0.030
TPGW-2M	1.50	0.150	2.20	0.035
TPGW-2D	1.70	5.300	7.70	0.053

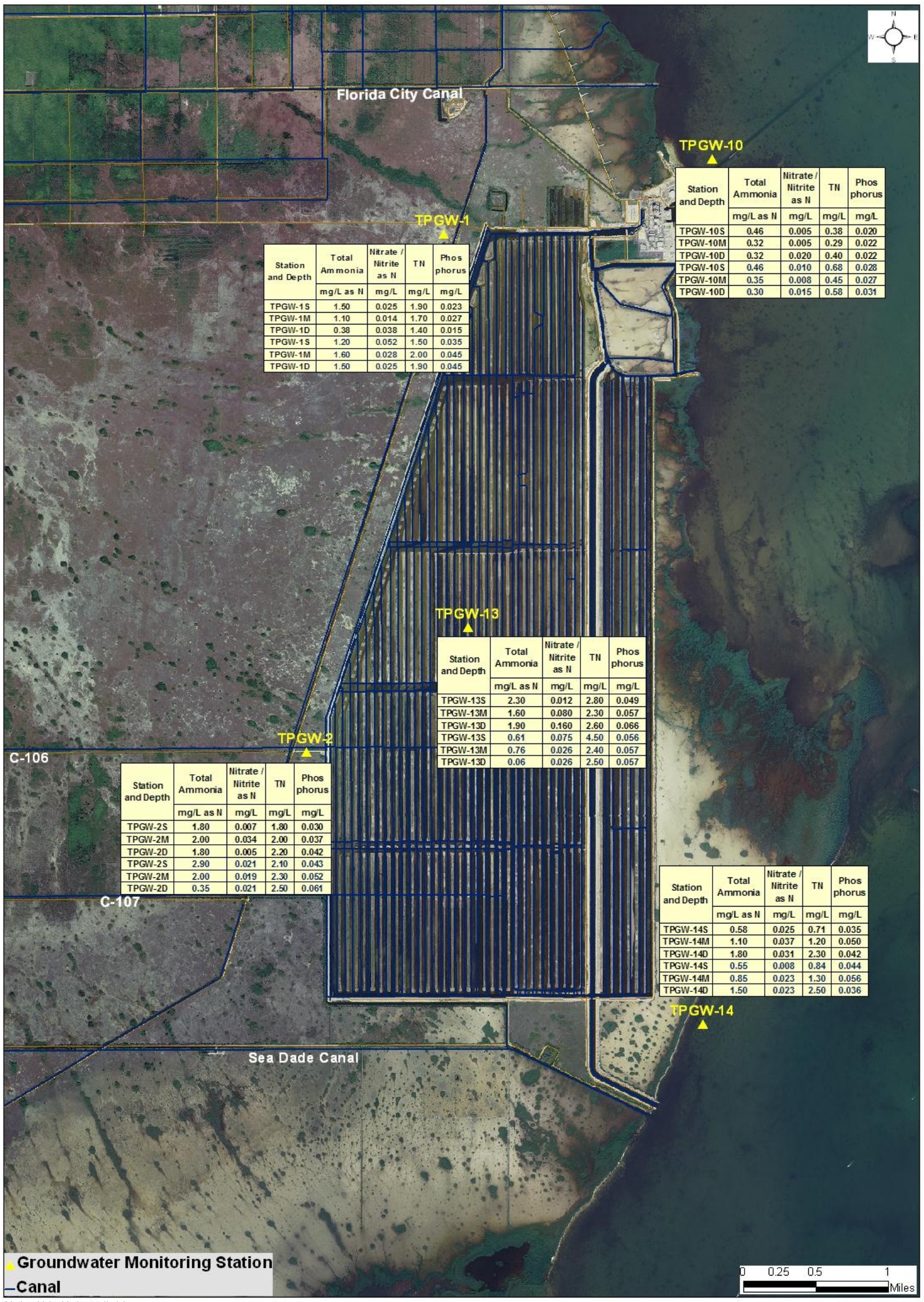
Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-14S	0.68	0.100	1.00	0.041
TPGW-14M	1.00	0.100	1.80	0.039
TPGW-14D	1.70	0.100	2.70	0.049
TPGW-14S	0.54	0.022	0.92	0.033
TPGW-14M	0.84	0.020	1.30	0.035
TPGW-14D	1.60	0.016	2.70	0.039

Note: NA: Not available.

9-2012

Nutrient Values for Groundwater Samples Taken at 3 Depths (S: shallow; M: intermediate; D: deep) in June and July 2010 (light blue), December 2010 (green), and March 2011 (dark blue).

Figure 3.1-16. Nutrient Concentrations in Groundwater June/July 2010, December 2010, and March 2011.



Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-1S	1.50	0.025	1.90	0.023
TPGW-1M	1.10	0.014	1.70	0.027
TPGW-1D	0.38	0.038	1.40	0.015
TPGW-1S	1.20	0.052	1.50	0.035
TPGW-1M	1.60	0.028	2.00	0.045
TPGW-1D	1.50	0.025	1.90	0.045

Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-10S	0.46	0.005	0.38	0.020
TPGW-10M	0.32	0.005	0.29	0.022
TPGW-10D	0.32	0.020	0.40	0.022
TPGW-10S	0.46	0.010	0.68	0.028
TPGW-10M	0.35	0.008	0.45	0.027
TPGW-10D	0.30	0.015	0.58	0.031

Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-13S	2.30	0.012	2.80	0.049
TPGW-13M	1.60	0.080	2.30	0.057
TPGW-13D	1.90	0.160	2.60	0.066
TPGW-13S	0.61	0.075	4.50	0.056
TPGW-13M	0.76	0.026	2.40	0.057
TPGW-13D	0.06	0.026	2.50	0.057

Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-2S	1.80	0.007	1.80	0.030
TPGW-2M	2.00	0.034	2.00	0.037
TPGW-2D	1.80	0.005	2.20	0.042
TPGW-2S	2.90	0.021	2.10	0.043
TPGW-2M	2.00	0.019	2.30	0.052
TPGW-2D	0.35	0.021	2.50	0.061

Station and Depth	Total Ammonia	Nitrate / Nitrite as N	TN	Phos phorus
	mg/L as N	mg/L	mg/L	mg/L
TPGW-14S	0.58	0.025	0.71	0.035
TPGW-14M	1.10	0.037	1.20	0.050
TPGW-14D	1.80	0.031	2.30	0.042
TPGW-14S	0.55	0.008	0.84	0.044
TPGW-14M	0.85	0.023	1.30	0.056
TPGW-14D	1.50	0.023	2.50	0.036

Note: NA: Not available.

9-2012

Nutrient Values for Groundwater Samples Taken at 3 Depths (S: shallow; M: intermediate; D: deep) in September 2011 (black) and March 2012 (dark blue).

Figure 3.1-17. Nutrient Concentrations in Groundwater September 2011 and March 2012.

Note: 1) J-10: Jun-2010; S-10: Sep-2010; D-10: Dec-2010; M-11: Mar-2011; J-11: Jun-2011; S-11: Sep-2011; D-11: Dec-2011; M-12: Mar 2012; J-12: Jun-2012.
2) NA: Not Available.

Chloride Samples Taken at T (top) and/or B (bottom)

Figure 3.2-1. Chloride Concentrations (mg/L) in Surface Water June 2010 through June 2012.

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	10000	NA	NA	NA	NA	NA	NA	NA	NA
B	10000	9500	11000	10000	14000	11000	6600	9700	9300

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	49	28	41	62	140	100	38	83	61
B	47	27	39	77	140	99	38	81	68

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	20000	17000	15000	17000	18000	17000	17000	18000	15000
B	21000	17000	15000	17000	19000	17000	18000	18000	15000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	980	550	370	3200	6700	1100	1300	1200	400
B	920	540	370	3300	6900	4100	2000	1300	450

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	NA	NA	NA	NA	NA	NA	NA	NA	NA
B	20000	18000	15000	17000	18000	17000	18000	18000	15000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	NA	NA	NA	NA	NA	NA	NA	NA	NA
B	21000	NA	NA	NA	NA	NA	NA	NA	NA

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	68	43	61	150	920	74	45	76	62
B	67	42	59	160	1300	76	45	76	61

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	11000	NA	NA	NA	NA	NA	NA	NA	NA
B	NA	5400	9100	11000	14000	11000	6500	11000	9100

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	490	330	430	2000	8400	1000	450	960	340
B	1300	670	420	4900	14000	10000	1800	970	800

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	NA	NA	NA	NA	NA	NA	NA	NA	NA
B	22000	18000	15000	17000	19000	16000	16000	19000	16000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	NA	M-12	J-12
T	NA	NA	NA	NA	NA	NA	NA	NA	NA
B	12000	9800	9600	11000	14000	11000	7200	10000	9100

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	NA	NA	NA	NA	NA	NA	NA	NA	NA
B	21000	17000	17000	17000	18000	18000	17000	19000	15000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	20000	16000	16000	17000	18000	19000	18000	18000	16000
B	19000	18000	15000	18000	19000	18000	17000	18000	15000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	100	47	82	230	780	60	51	87	52
B	120	47	98	380	2600	58	53	84	53

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	82	49	73	54	7700	76	67	72	59
B	90	50	74	54	12000	74	75	78	61

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	NA	NA	NA	NA	NA	NA	NA	NA	NA
B	21000	18000	15000	17000	19000	17000	17000	18000	15000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	390	290	300	590	8800	500	410	710	310
B	390	340	300	1200	14000	1800	420	820	330

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	21000	17000	15000	18000	19000	18000	17000	18000	15000
B	21000	17000	15000	17000	19000	19000	18000	19000	16000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	5000	290	5700	5300	13000	1600	5800	7800	760
B	7100	400	8400	8600	13000	8500	7700	8000	1400

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	NA	8700	10000	11000	12000	11000	7900	10000	7900
B	NA	12000	11000	11000	12000	13000	11000	11000	13000

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	12000	NA	NA	NA	NA	NA	NA	NA	NA
B	12000	9200	10000	11000	13000	12000	8800	11000	8600

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11	M-12	J-12
T	11000	NA	NA	NA	NA	NA	NA	NA	NA
B	11000	8000	9500	10000	13000	11000	9000	10000	7500

Note: 1) J-10: Jun-2010; S-10: Sep-2010; D-10: Dec-2010; M-11: Mar-2011; J-11: Jun-2011; S-11: Sep-2011; D-11: Dec-2011; M-12: Mar 2012; J-12: Jun-2012.
2) NA: Not Available.

Sodium Samples Taken at T (top) and/or B (bottom)

Figure 3.2-2. Sodium Concentrations (mg/L) in Surface Water June 2010 through June 2012.

Note: 1) J-10: Jun-2010; S-10: Sep-2010; D-10: Dec-2010; M-11: Mar-2011; J-11: Jun-2011; S-11: Sep-2011; D-11: Dec-2011; M-12: Mar 2012; J-12: Jun-2012.
2) NA: Not Available.

Specific Conductance Samples Taken at T (top) and/or B (bottom)

Figure 3.2-3. Specific Conductance (µS/cm) of Surface Water June 2010 through June 2012.

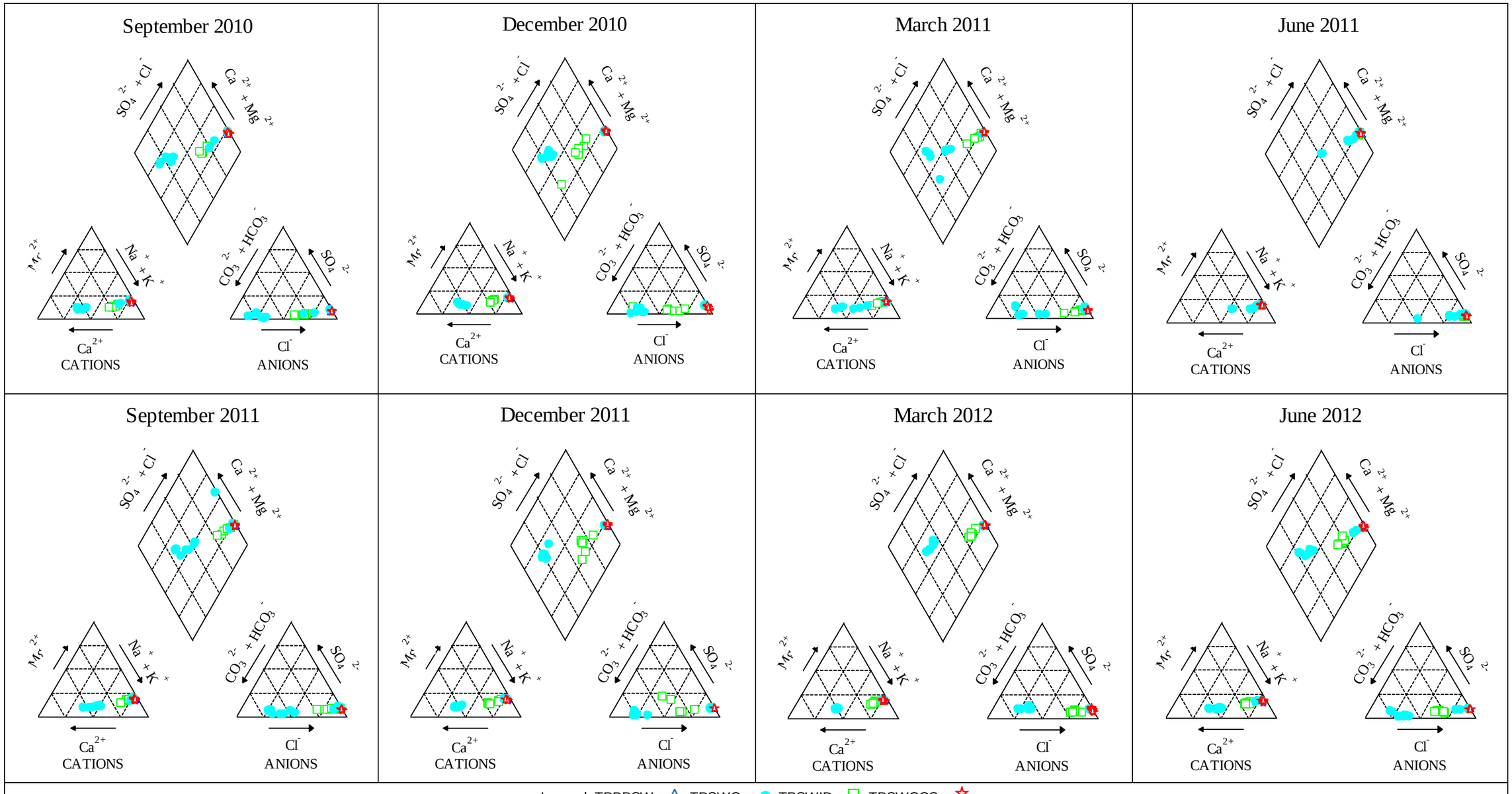
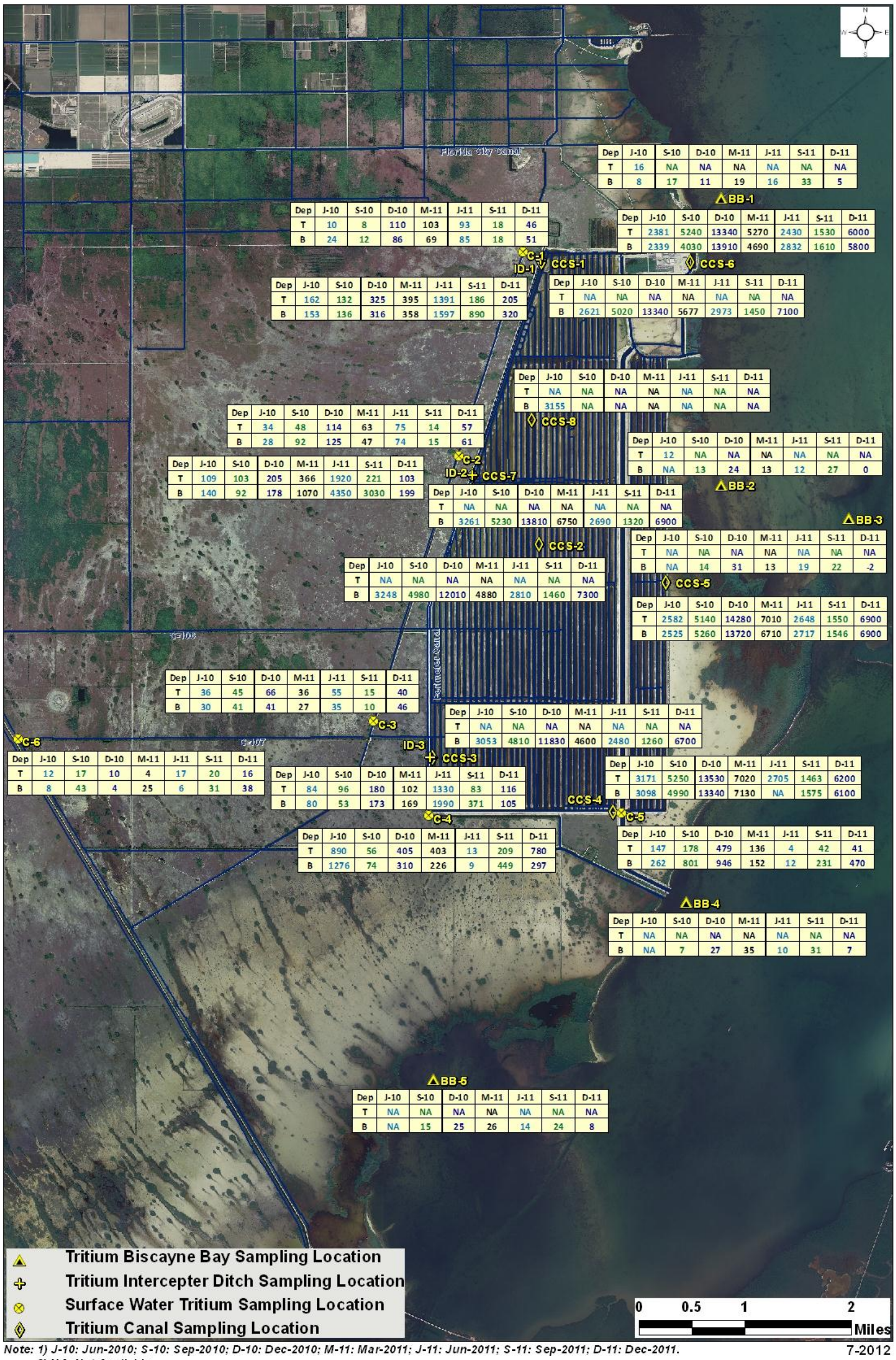


Figure 3.2-4. Tri-Linear Diagrams of Quarterly Surface Water Data.



Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	16	NA	NA	NA	NA	NA	NA
B	8	17	11	19	16	33	5

BB-1

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	10	8	110	103	93	18	46
B	24	12	86	69	85	18	51

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	2381	5240	13340	5270	2430	1530	6000
B	2339	4030	13910	4690	2832	1610	5800

CCS-6

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	162	132	325	395	1391	186	205
B	153	136	316	358	1597	890	320

CCS-1

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	NA	NA	NA	NA	NA	NA	NA
B	2621	5020	13340	5677	2973	1450	7100

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	NA	NA	NA	NA	NA	NA	NA
B	3155	NA	NA	NA	NA	NA	NA

CCS-8

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	34	48	114	63	75	14	57
B	28	92	125	47	74	15	61

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	12	NA	NA	NA	NA	NA	NA
B	NA	13	24	13	12	27	0

BB-2

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	109	103	205	366	1920	221	103
B	140	92	178	1070	4350	3030	199

C-2

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	NA	NA	NA	NA	NA	NA	NA
B	3261	5230	13810	6750	2690	1320	6900

BB-3

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	NA	NA	NA	NA	NA	NA	NA
B	NA	14	31	13	19	22	-2

CCS-2

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	NA	NA	NA	NA	NA	NA	NA
B	3248	4980	12010	4880	2810	1460	7300

CCS-5

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	2582	5140	14280	7010	2648	1550	6900
B	2525	5260	13720	6710	2717	1546	6900

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	36	45	66	36	55	15	40
B	30	41	41	27	35	10	46

C-3

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	NA	NA	NA	NA	NA	NA	NA
B	3053	4810	11830	4600	2480	1260	6700

ID-3 CCS-3

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	3171	5250	13530	7020	2705	1463	6200
B	3098	4990	13340	7130	NA	1575	6100

CCS-4 C-5

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	12	17	10	4	17	20	16
B	8	43	4	25	6	31	38

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	84	96	180	102	1330	83	116
B	80	53	173	169	1990	371	105

C-4

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	890	56	405	403	13	209	780
B	1276	74	310	226	9	449	297

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	147	178	479	136	4	42	41
B	262	801	946	152	12	231	470

BB-4

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	NA	NA	NA	NA	NA	NA	NA
B	NA	7	27	35	10	31	7

BB-5

Dep	J-10	S-10	D-10	M-11	J-11	S-11	D-11
T	NA	NA	NA	NA	NA	NA	NA
B	NA	15	25	26	14	24	8

Note: 1) J-10: Jun-2010; S-10: Sep-2010; D-10: Dec-2010; M-11: Mar-2011; J-11: Jun-2011; S-11: Sep-2011; D-11: Dec-2011.
2) NA: Not Available.

7-2012

Tritium Samples Taken at T (top) and/or B (bottom)

Figure 3.2-5. Tritium Concentrations in Surface Water June 2010 through December 2011.

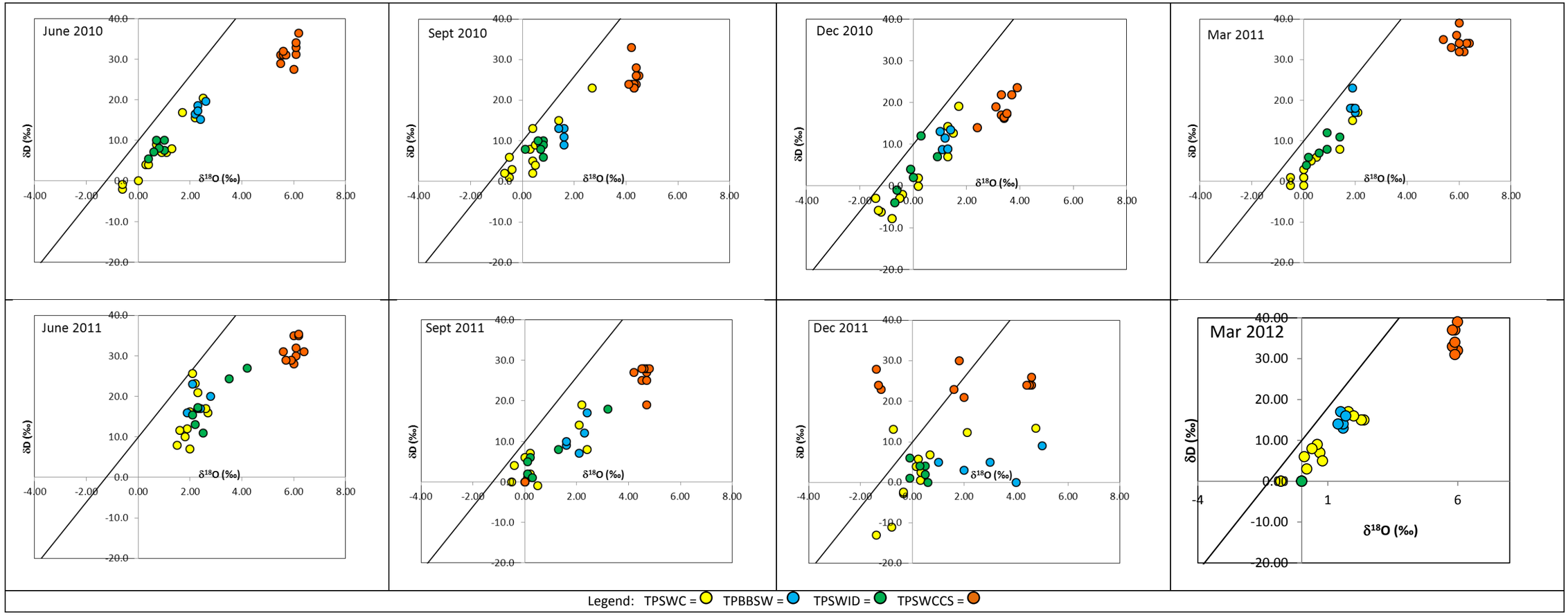
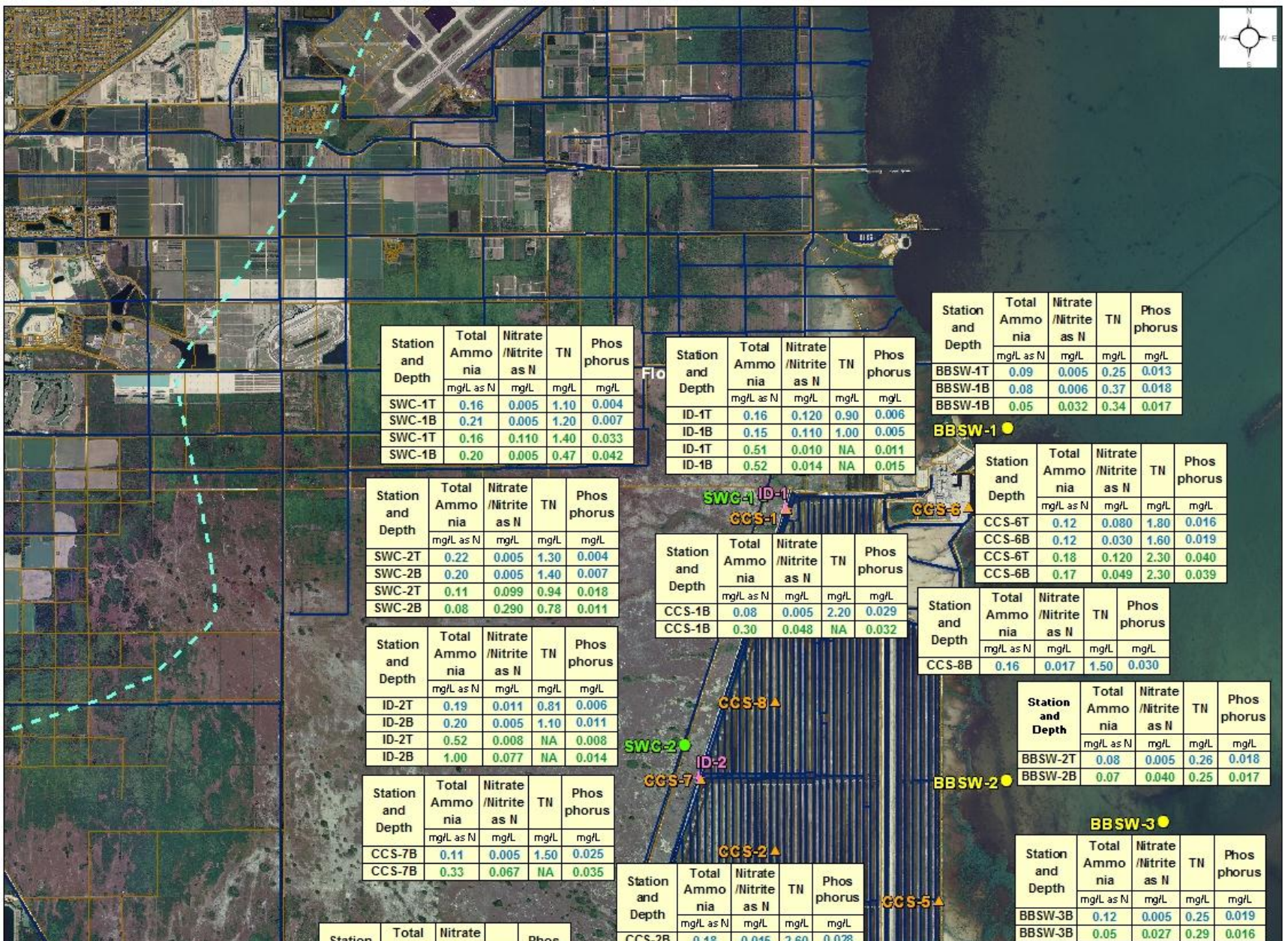


Figure 3.2-6. Surface Water Oxygen ($\delta^{18}O$) and Hydrogen ($\delta^{2}H$) Isotopes.

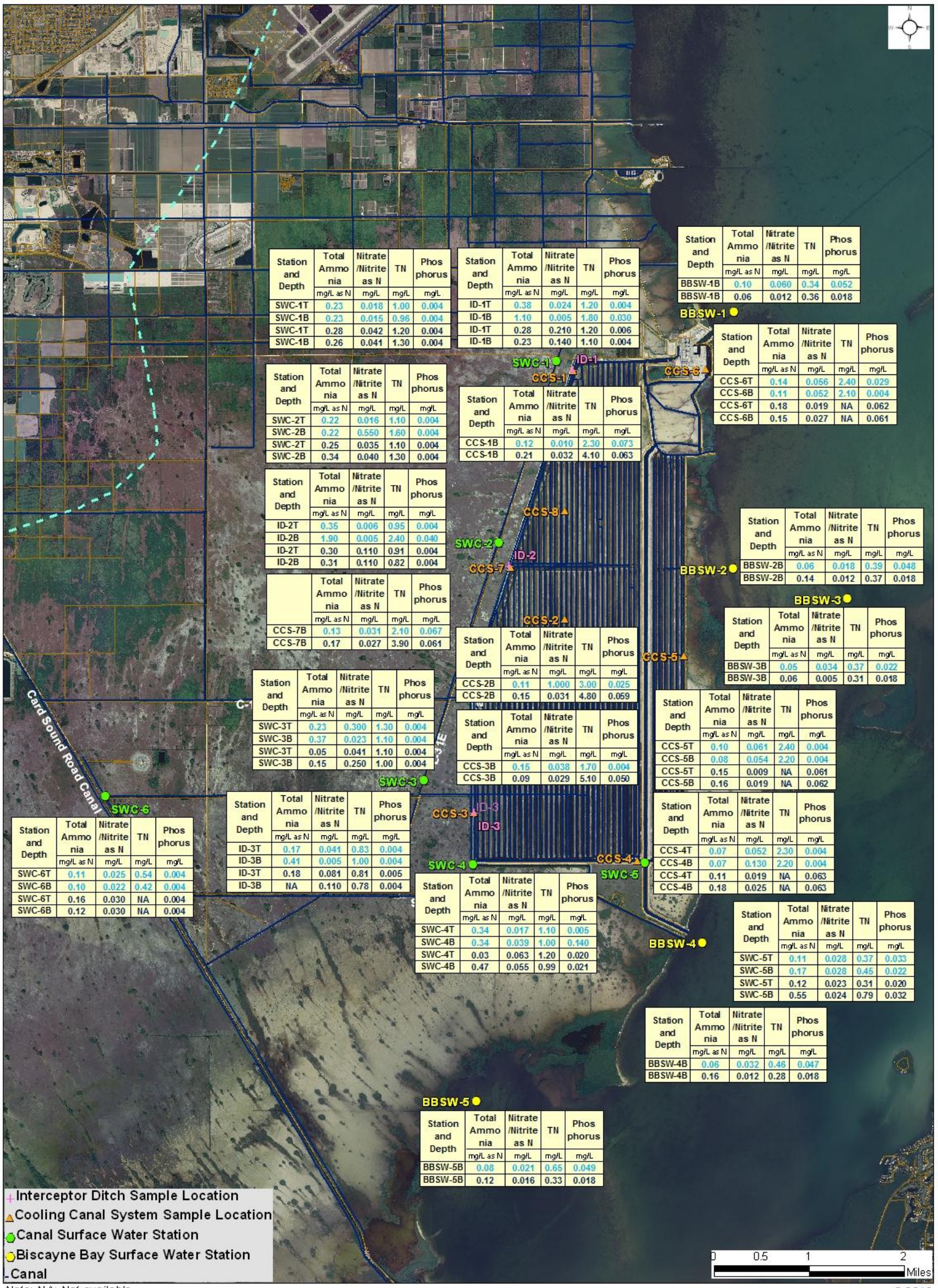


Note: NA: Not available.

9-2012

Nutrient Values for Surface Water Samples Taken
at 2 depths (T: Top; B: Bottom) in June and July 2010 (blue), and March 2011 (green).

Figure 3.2-7. Nutrient Concentrations in Surface Water June/July 2010 and March 2011.



Nutrient Values for Surface Water Samples Taken
at 2 depths (T: Top; B: Bottom) in September 2011 (light blue), and March 2012 (dark blue).

Figure 3.2-8. Nutrient Concentrations in Surface Water September 2011 and March 2012

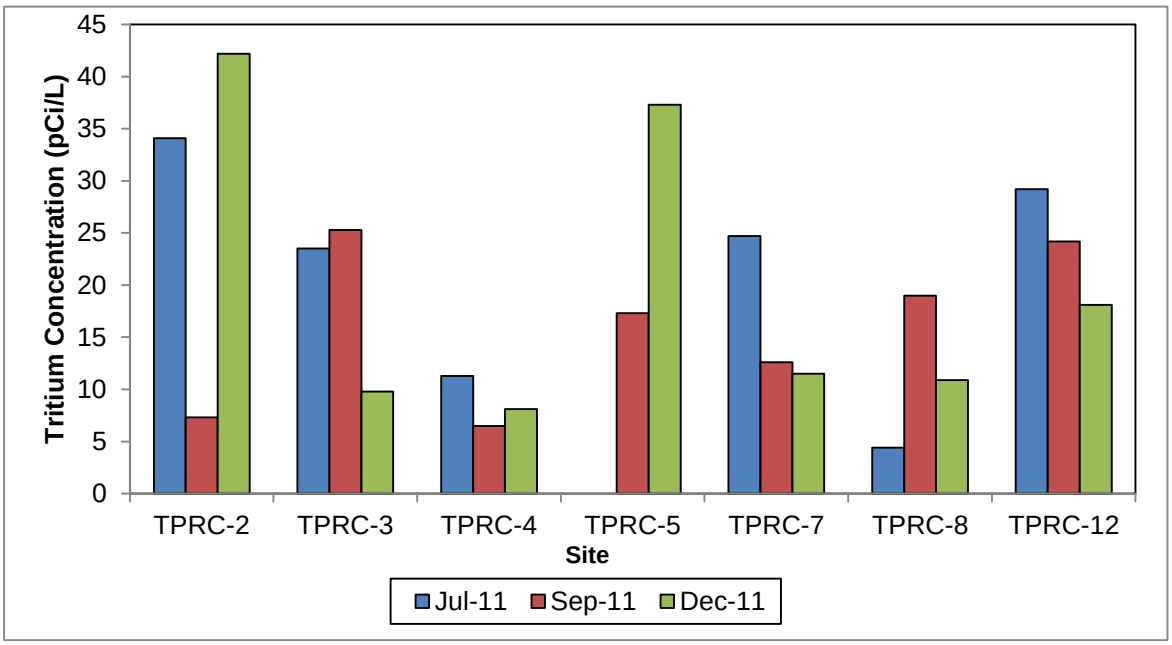


Figure 3.4-1. Tritium Concentrations (pCi/L) in Rainfall Collectors.

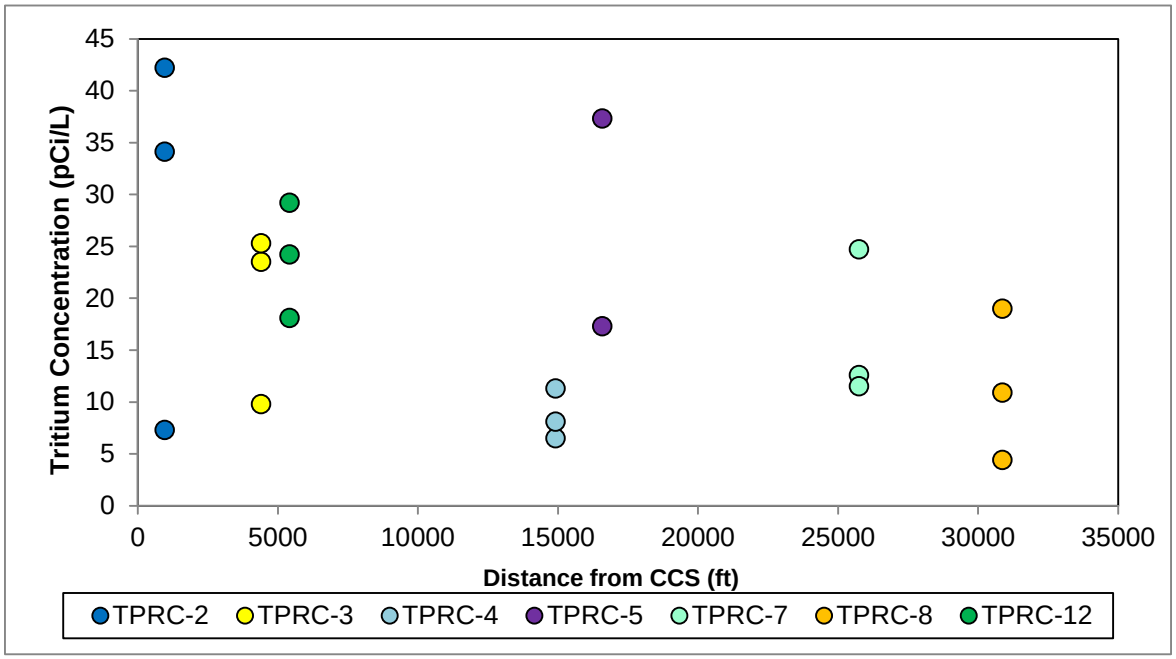


Figure 3.4-2. Tritium Concentrations (pCi/L) in Rainfall Compared to Distance from CCS.

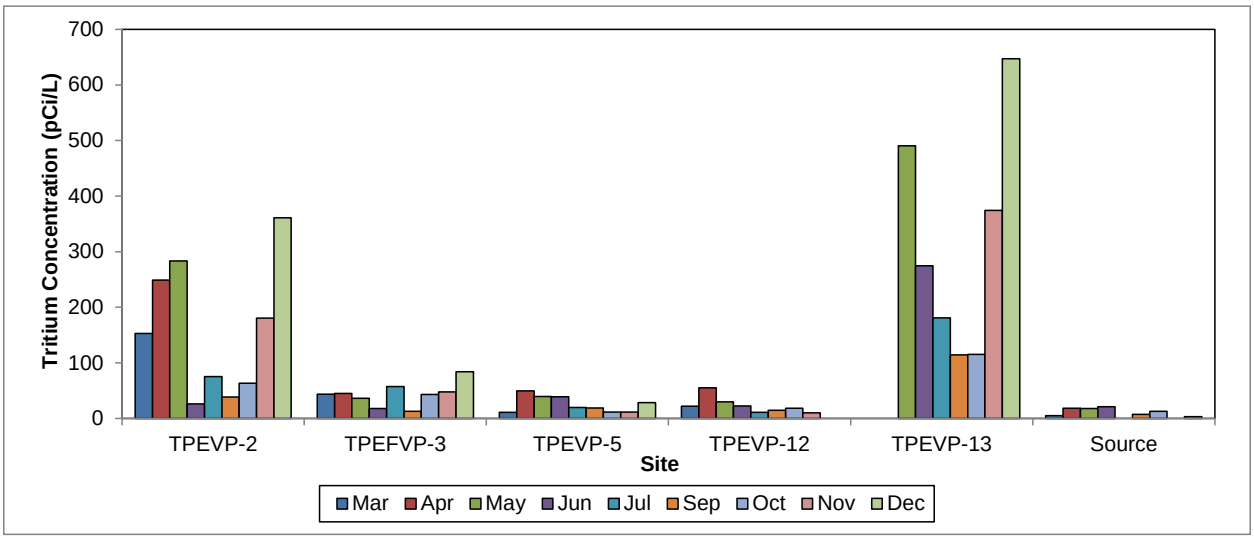


Figure 3.5-1. Tritium Concentrations (pCi/L) in Evaporation Pans in 2011.

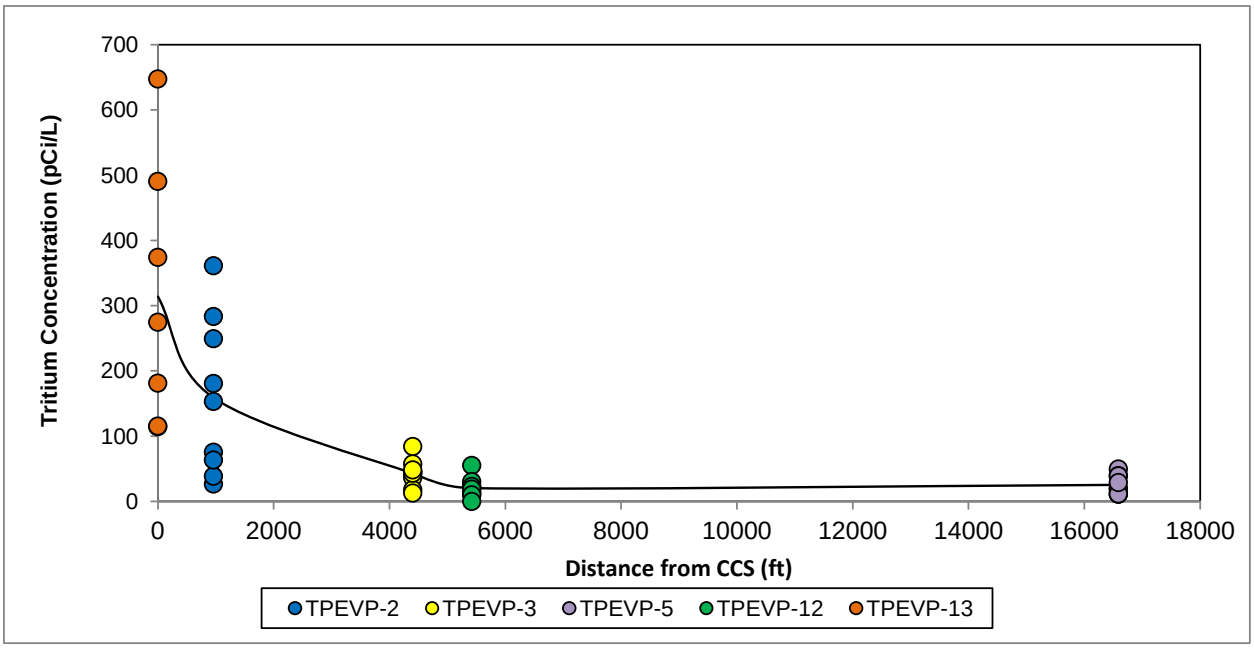


Figure 3.5-2. Tritium Concentrations (pCi/L) in Evaporation Pans Compared to Distance from CCS in 2011.