



March 29, 2013

Mr. Scott Miller
Remedial Project Manager
Superfund Remedial and Technical Services Branch
U.S. Environmental Protection Agency, Region 4
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-8960

**Subject: 2012 Annual Report
OU-1 and OU-2 Agrico Site
Pensacola, Florida
EPA ID: FLD 98022 1857**

Dear Mr. Miller:

URS Corporation (URS) on behalf of Phillips, Inc. (Phillips), successor to ConocoPhillips, Inc. and Williams representing Agrico Chemical Company is submitting this 2012 Annual Report for the Agrico site in Pensacola, Florida. This report presents the results of O&M activities conducted during 2012 for the site. The sampling event and reporting as well as other activities are conducted in accordance with the U.S. Environmental Protection Agency (EPA) approved OU-1 and OU-2 Operation and Maintenance Plans (September 1996, November 1998, respectively). These plans have been modified and approved by EPA based on report recommendations or other correspondences as follows. Recommendations presented in the November 30, 2006 Evaluation of Long-Term Groundwater Monitoring Network Technical Memorandum Report and the subsequent January 22, 2007 EPA comment letter concurring with the listed recommendation. Additionally, as per your letter dated September 2, 2008, the semi-annual groundwater sampling was discontinued as of the May 2008 event. All OU-1 wells are now a part of the site-wide groundwater monitoring program. Also, EPA approved O&M recommendations (January 25, 2010) were implemented in 2010. URS also implemented in 2010 approved recommendations (February 2, 2010) related to Monitored Natural Attenuation and approved recommendations (September 20, 2010) as stated in the June 2010 Five-Year Review Report (2005-2010) Third Five-Year Review Report for Agrico Chemical Company site, regarding the Bayou Texar surface water sampling.

As requested, a copy of the report has been sent directly to the site document repository, the West Florida Regional Library, Genealogy Branch in Pensacola.



Mr. Scott Miller
Remedial Project Manager
USEPA, Region IV
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URS will be uploading the electronic data for 2012 to the EPA DART system as per the guidance memorandum from EPA Region 4's Superfund Division Director requiring that environmental sampling data be submitted to EPA in a Region 4 electronic format.

Should you have any questions or require additional information regarding this report, please contact Ms. Terry D. Vandell (Phillips) at (580) 767-6561 or Mr. Mark Gebbia (Agrico Chemical Company Representative) at (918) 573-6319.

Sincerely,

A handwritten signature in blue ink, reading "Jeffrey R. Wagner". The signature is fluid and cursive, with a large loop at the beginning and a long, sweeping tail.

Jeffrey R. Wagner, P.G., V.P.
Principal Hydrogeologist

JRW:lc

Enclosure: 1 CD

cc: Walsta Jean-Baptiste – FDEP, Hazardous Waste Cleanup Section, Tallahassee
Karen Shea – FDEP, Northwest District, Pensacola
Phil Roberts– Agrico Chemical Company Representative
Terry Vandell-Bell – Phillips
Bill Nelson – West Florida Public Library, Genealogy Branch, Pensacola

R E P O R T

2012 ANNUAL REPORT

AGRICO SITE PENSACOLA, FLORIDA OPERABLE UNITS ONE (OU-1) AND TWO (OU-2)

EPA ID: FLD 980221857

Submitted to

US Environmental Protection Agency, Region 4
Atlanta, Georgia

Prepared for

Phillips 66 Company
Ponca City, Oklahoma
and
Williams, Inc. on behalf of
Agrico Chemical Company
Tulsa, Oklahoma

March 29, 2013



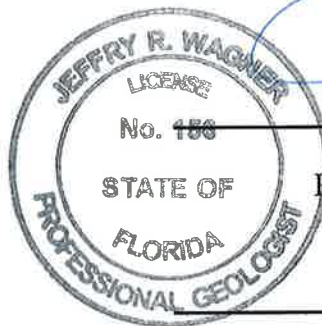
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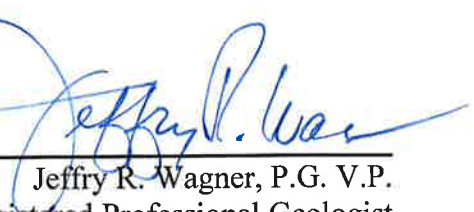


Certification By Florida Registered Professional Geologist

In accordance with Chapter 492, Florida Statutes, the geologic aspects of this *2012 Annual Report for the Agrico Chemical Site, Operable Unit One (OU-1) and Operable Unit Two (OU-2)* located in Pensacola, Florida has been prepared by or supervised by the undersigned registered Florida Professional Geologist. URS Corporation (URS) has prepared the geologic information presented in this Annual Report in a manner consistent with sound geologic practices and the customary level of care and skill exercised by members of the profession currently practicing in the same locality under similar circumstances.

Information developed and presented by others was used by URS in good faith as representative of the site conditions. The work performed by URS is in conformance with the current standards of practice.




Jeffrey R. Wagner, P.G. V.P.
Registered Professional Geologist
Florida License No. 156

3/27/13

(Date)

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The activities being conducted for the Agrico Site in Pensacola, Florida are under the oversight of the U.S. Environmental Protection Agency (EPA), as outlined by the Consent Decrees (1994 and 1997) and the EPA Records of Decision (ROD) (1992 and 1994). The Site has been divided into two operable units (OU). The first operable unit (OU-1) addressed the cleanup of on-site source material. The second operable unit (OU-2) addresses groundwater under the Site and downgradient of the Site. In 1995, remedial actions began for OU-1. Impacted soils and all sludge materials were collected and treated by solidification/stabilization. Additional fluoride-impacted soils were excavated. These soils, as well as the treated soils and sludges, were stabilized by placing them into an engineered excavated unlined area above the water-table and covering them with a multi-layered cap designed to prevent rainfall infiltration from contacting the materials. By keeping the underlying soil dry, the soils remain stabilized. The OU-1 remedial actions were certified complete by EPA in April 1997. With the source area controlled, EPA addressed OU-2, the groundwater, by selecting a monitored natural attenuation (MNA) remedy. The selected remedy involves actions aimed at limiting exposure while natural attenuation processes remediate the groundwater. The remedy includes groundwater sampling, surface water sampling in Bayou Texar, an irrigation well survey, institutional controls, and an advisory program.

After extensive sampling of many constituents during the assessment phase (1990-1993), a risk evaluation was performed. The EPA selected seven constituents of concern (COC) for initial long-term groundwater and surface water monitoring. For OU-1, these COCs included lead, arsenic, and fluoride. These were soil COCs and since the soils were stabilized on-site, monitoring of these constituents in the groundwater provided for assessing the integrity of the OU-1 remedy over time. For OU-2, these constituents include arsenic, fluoride, combined radium 226 plus radium 228, chloride, sulfate, and nitrate plus nitrite. The groundwater performance standards established by each of the RODs for OU-1 and OU-2 are as follows:

- Total Lead 0.015 milligrams per liter (mg/L)
- Total Arsenic 0.050 mg/L
- Fluoride 4.0 mg/L
- Radium 226 +228 5.0 pico Curies per liter (pCi/L)
- Chloride 250 mg/L
- Sulfate 250 mg/L
- Nitrate + nitrite 10 mg/L (analysis of nitrite indicates results at all groundwater monitoring locations are less than detection limit and a higher performance standard is appropriate; nitrite analysis discontinued as per EPA approval, January 22, 2007)

Beginning in November 2005, changes were approved for the long-term monitoring network. In 2005, an upgradient groundwater monitoring well (PIP-D) was added to the network. In 2007, the OU-1 monitoring well network was merged with the OU-2 monitoring network to form the long-term site-wide network. Initially all constituents were monitored in the OU-1 wells. In 2007, nitrite was eliminated as a constituent since it was determined that the nitrogen detected was only nitrate. Also in 2007, surficial zone monitoring wells AC-5S, AC-24S, AC-26S,

NWD-2S, and NWD-4S were changed from long-term monitoring to periodic monitoring. In 2009, periodic monitoring wells, AD-9D2, AC-24D, and AC-28D were changed to annual sampling locations. In 2010, arsenic and lead were discontinued from the list of analytes for the long-term network including monitoring wells located in OU-1. The exception was for AC-2S and AC-3S where arsenic remains as one of the sampling constituents. In 2010, the surface water long-term monitoring network changes included the deletion of the upstream monitoring of Carpenter's Creek (ACSW-BL). Other changes for 2010 included three additional monitoring stations in Bayou Texar. These stations included near-bottom surface water sampling for fluoride only.

The Site is currently in the long-term Operations and Maintenance (O&M) phase, with monitored natural attenuation as the selected groundwater remedy.

This 2012 Annual Report presents the results of groundwater activities conducted for both OU-1 and OU-2. The annual O&M tasks are as follows:

- Annual groundwater sampling for the defined COCs (fluoride, radium 226, radium 228, chloride, sulfate, and nitrate) for all the surficial and main producing zones long-term monitoring wells within OU-1 and OU-2. As per the EPA approved (February 5, 2010) recommendation from the *Evaluation of Monitored Natural Attenuation in Groundwater Report* (August 19, 2009), arsenic has been deleted from the list of analytes for the long-term monitoring well network except at AC-2S and AC-3S. Data collected during the annual sampling events are used to evaluate the effectiveness of the monitored natural attenuation remedy for groundwater.
- Additional groundwater sampling of monitoring wells AC-9D2, AC-24D, and AC-28D. Following EPA's request in a letter dated October 15, 2009, the status of these wells has been changed from periodic (every five years) to annual until sufficient sampling results have been collected.
- Annual surface water sampling in Bayou Texar for the same COCs identified for groundwater. This sampling is to assess the surface water quality for potential effects from the groundwater discharge. Sampling of Carpenter's Creek (ACSW-BL) has been discontinued as per EPA approval (January 25, 2010) of November 18, 2009 recommendations to the O&M Plan. Three additional surface water sampling sites within Bayou Texar were added as per the June 2010 Five-Year Review. These three samples will be analyzed for fluoride.
- Annual advisory notices are distributed to water well contractors, irrigation system installers, and pool contractors to inform these contractors of the area where groundwater impacts related to the Agrico plume are located. The annual advisory also informs them of the well construction moratorium in effect by the Northwest Florida Water Management District (NFWFMD).
- Irrigation well identification and voluntary sampling and abandonment by irrigation well owners (voluntary program). Includes reviewing the Northwest Florida Water Management District well construction permit records to confirm that no wells have been inadvertently installed within the OU-2 area. Because of the existing well construction moratorium, the expectation is that no new wells will be permitted in this area.

- Activities related to coordination and dissemination of site information to local, regional, and state agencies.
- Site inspection reporting and site maintenance activity.

OPERABLE UNIT ONE REMEDY

The source area remedy was certified complete by EPA in April 1997. The 2012 sampling results compare favorably to past sampling results, which indicate that the source area is and remains controlled. The limited extent of the surficial zone plume is caused by the significant downward vertical component to the contaminant transport. The decreasing trends in the surficial zone are a result of the OU-1 source control measures. The source area remedy remains an effective measure in eliminating migration of COCs from the OU-1 area to the groundwater.

OPERABLE UNIT TWO REMEDY

The remedy chosen by EPA for the impacted groundwater associated with the Agrico Site is monitored natural attenuation. The 2012 results indicate that the Agrico plume continues to be adequately defined. Groundwater monitoring continues to be an effective means of evaluating the natural attenuation remedy. The EPA approved August 19, 2009 report, *"Evaluation of Monitored Natural Attenuation in Groundwater, Agrico Site, Pensacola, Florida"*, indicates natural attenuation is working at the Site. The data show that mechanisms for attenuation are in place throughout the area and the positive effects of the source remedy (i.e. on-site remediation) are becoming effective downgradient, as projected and expected.

Groundwater Sampling Results

Groundwater results for November 2012 continue to compare favorably to past results. The selected long-term network has proven to provide an accurate representation of the groundwater conditions within OU-1 and OU-2. Overall decreases in concentrations have been observed in most upgradient groundwater closer to the Site. It is expected that decreases will continue to be observed in upgradient monitoring wells. The plume discharge area remains well defined and limited in areal extent. Although an increase in concentrations is occurring in some downgradient monitoring locations (more than 1,800 feet east from the former Site), the increases are within the range of expected concentrations for a natural attenuation remedy where source control has been implemented. Within the main producing zone plume, historical concentrations show that the Agrico plume has detached from the former Agrico source area. For most monitoring well locations, peak concentrations have been attained in the past and all new results are less than the peak concentration. The 2012 results continue to indicate that concentrations within this zone are lower immediately downgradient of the Site and higher farther downgradient within the axis of the plume and near the discharge boundary.

Overall concentration trends within the surficial zone are downward and the impact extent is shrinking. Impacts are limited for this zone. This is a direct result of effective source control and the local hydrogeologic conditions.

For the main producing zone, the overall flattening of trends is what has been predicted. This flattening should be expected to continue for some time and eventually evolve into a slowly decreasing trend, accelerating with time.

Slight upward or downward ticks in the trends for the COCs are to be expected over time. It is the long-term trend for each of the COC that is important.

As with previous results, the 2012 results confirm that the groundwater surrounding the Agrico plume is defined by groundwater with concentrations less than the established Agrico COC's maximum contaminant level. Non-Agrico impacts to the groundwater remain in the vicinity of the Site 348 (Kaiser Site) and downgradient of the Escambia Treating Company (ETC) Site.

Groundwater Levels

Results of water level measurements collected in November 2012 indicate that groundwater flow remains toward Bayou Texar for both the surficial zone and main producing zone. In 2012, groundwater flow patterns closely followed historical patterns.

Bayou Texar Sampling Results

The long-term surface water results indicate that Bayou Texar is not adversely affected by impacted groundwater from the Agrico Site discharge to the bayou. All near-bottom surface water samples collected during the sampling event of November 2012 indicated that fluoride concentrations were less than 1.3 milligrams per Liter (mg/L) which is below the surface water standard of 5 mg/L.

A recent evaluation (URS, September 4, 2009) of the primary discharge area for the Agrico plume in Bayou Texar indicates there is no significant risk to populations of demersal fish or to benthic macroinvertebrate communities that inhabit the reach due to fluoride concentrations. This study showed that fluoride in the near-bottom surface water (the primary exposure regime for demersal fish) was consistently less than the Florida Water Quality Criterion for Class III Marine waters for fluoride (5 milligrams per liter). In fact, the concentration of fluoride in a majority of surface water samples was less than 1mg/L. Fluoride in the top 10 centimeters of sediment (the bioactive zone) ranged from 32 to 339 micrograms per gram. Fluoride in the sediment pore water in the bioactive zone (the primary exposure regime for benthic macroinvertebrates) was less than 3 milligrams per liter in 30 of the 40 stations sampled. Fluoride in pore water exceeded the 5 milligrams per liter standard at only 3 of 40 stations. Spatial analysis for the area of the 40 stations indicated that the surface area weighted average concentration of fluoride in the bioactive zone was less than the 5 milligram per liter standard. The three stations where pore water exceeded the 5 mg/L for fluoride were added to the long-term surface water network beginning in November 2010. Furthermore, results indicate the fluoride solubility in the majority of surface sediments and in all pore waters within the primary discharge area for the Agrico plume is controlled by mineral precipitation reactions. This reaction causes dissolved fluoride concentrations to be buffered in near surface sediment pore water and in surface water in this primary discharge reach of Bayou Texar. The report *Conceptual Site Model Ecological Impact Evaluation of Bayou Texar Downgradient of Agrico's Groundwater Fluoride Plume* (URS, September 4, 2009) was approved by EPA on September 20, 2010.

Voluntary Program

During 2012, no additional irrigation wells were identified from the Northwest Florida Water Management District (NFWFMD) well construction permit records. The well construction moratorium initiated in February 2001 is still in effect and has no termination date. Well prohibition for the defined area which includes the Agrico area is part of NFWFMD's Rule 40A-3.

To date, 59 irrigation wells have been identified within the OU-2 area. These wells were identified from NFWFMD construction permit records, an irrigation well survey distributed to homeowners within the OU-2 area, field observation, and information supplied by residents in the area.

To date, 21 of the 59 irrigation wells identified have been sampled. The analyses consisted of volatile organic compounds, semi-volatile organic compounds, eight RCRA metals, and the Agrico site-related constituents. All results were reported to the well owners and to the Escambia County Health Department.

To date, two well owners have granted permission to plug and abandon their irrigation wells under the voluntary program.

Advisory Notice

The annual advisory notice was distributed by URS to water well contractors, irrigation system installers, and pool contractors to inform them of the groundwater conditions and the existence of a well construction moratorium within the OU-2 area.

Institutional Controls Coordination

A memorandum was distributed to the local, regional, and state agencies listed below, soliciting information for any changes or proposed new regulatory rules or policies that may affect the institutional controls currently in place for the area. The agencies include:

- Florida Department of Environmental Protection (FDEP), Tallahassee and Pensacola
- Emerald Coast Utilities Authority (ECUA) (formerly Escambia County Utilities Authority)
- Northwest Florida Water Management District (NFWFMD)
- City of Pensacola
- Escambia County Health Department (ECHD)
- Escambia County Neighborhood and Environmental Services Department
- Florida Department of Transportation (FDOT), District Three (Chipley)

Other Contamination Sources

Pumping from public supply wells located either upgradient or sidegradient and outside of the OU-2 area is not significantly affecting the plume flow direction, and no impacts to any public supply wells can be attributed to the Agrico plume. Discontinued pumping at the East Plant Well, Well No. 8, and Well No. 9 further reduces any potential for the Agrico plume to be pulled farther south by pumping activities. Other sites identified by the Florida Department of

Environmental Protection (FDEP) are currently being assessed under FDEP's direction for each site's contribution in the closing of the above Emerald Coast Utilities Authority (ECUA) supply wells. Investigations by FDEP have identified other non-Agrico sources impacting groundwater south of the Agrico Site. Assessment results in this area indicate impacts with constituents similar to those associated with the Agrico Site, including combined radium 226 + 228, nitrate, chloride, and sulfate. The general area of the source area is identified by FDEP as Site 348. Site 348 consists of historical fertilizer manufacturing or storage operations from possibly as early as 1926 to the mid-1980s.

FIVE-YEAR REVIEWS

Three Five-Year Reviews have been conducted by EPA for the Agrico Site. The First Five-Year Review occurred in 2000, the Second Five-Year Review occurred in 2004-2005, and the Third Five-Year Review occurred in 2010. Each review concluded that the remedy at the Site is functioning as intended by the RODs for OU-1 and OU-2, and remains protective of human health and the environment. The O&M activities were to be continued and conducted as approved. The next Five-Year Review, which will be the fourth for the site, is scheduled for 2015.

SCHEDULE

The next scheduled sampling activities for the Agrico Site will be performed in November 2013, with a report to follow in March 2014. All groundwater and surface water results, as well as results of other required tasks, for both OU-1 and OU-2, will be reported in the annual report for the Site.

RECOMMENDATIONS

The former Agrico source area remains controlled. Groundwater monitoring continues to be an effective means of evaluating and demonstrating the effectiveness of the Agrico natural attenuation remedy. Groundwater data collected for 2012 supports a continuation of the existing O&M/Monitoring Program for the Agrico Site. Should future MNA evaluations indicate modifications to the monitoring program, such recommendations will be submitted for review.

Accordingly, no changes to the O&M Plan or the Monitoring Plan are proposed.

URS Corporation (URS) has prepared this 2012 Annual Report on behalf of Phillips 66 Company and Agrico Chemical Company represented by Williams Companies, Inc. (Williams). Note that in mid-2012 ConocoPhillips separated into two standalone companies. The environmental remediation activities conducted at the Agrico Site in the past by ConocoPhillips is now managed by Phillips 66. This annual report was prepared in accordance with the following:

- United States Environmental Protection Agency (EPA) Consent Decree (CD) dated May 4, 1994 and the March 10, 1997 amended Consent Decree for the Agrico Site (Agrico);
- The Record of Decision (ROD) for Operable Unit One (OU-1) issued on September 29, 1992;
- The Operation and Maintenance (O&M) Plan for OU-1 dated September 1996 including Appendix I – Groundwater Monitoring Plan by Woodward-Clyde Consultants (currently URS Corporation [URS]);
- The ROD for Operable Unit Two (OU-2) issued August 25, 1994;
- The SOW which outlines the work to be performed as the remedy for OU-2;
- The EPA-approved (April 26, 1999) Remedial Action Work Plan and related plans;
- The O&M Plan dated November 1998.
- The Evaluation of Long-Term Groundwater Monitoring Network – Section 12 - Recommendations, Technical Memorandum Report dated November 30, 2006 and subsequent EPA approval of recommendations in EPA comment letter dated January 22, 2007 (**Appendix D**).
- The EPA approval dated September 2, 2008 to discontinue OU-1 semi-annual sampling and to perform annual sampling (**Appendix D**). The last OU-1 semi-annual sampling event was conducted in May 2008.
- Minor O&M recommendations dated November 18, 2009 were approved by EPA on January 25, 2010 (**Appendix D**)
- Recommendations in the report, *Evaluation of Monitored Natural Attenuation in Groundwater (August 19, 2009)* and approved by EPA on February 5, 2010 (**Appendix D**).
- EPA's Third Five-Year Review (June 2010) recommendations related to surface water sampling locations for Bayou Texar.

This is the fourteenth comprehensive annual report since the initial one in 1999. The report documents both OU-1 and OU-2 activities performed at the site for 2010. The annual report was preceded by OU-1 semi-annual sampling results reported annually from 1997-1999. These OU-1 annual reports continued through 2005. The annual report for OU-2 was submitted separately from the OU-1 report from 1999 through 2005. One of the recommendations of the evaluation of the long-term monitoring network (URS, November 30, 2006) was to combine these networks. Beginning with the 2007 Annual Report, the groundwater requirements were integrated so that OU-1 (on-site) and OU-2 (off-site) groundwater impacts could be readily evaluated. Since November 2007, groundwater from the OU-1 monitoring wells has been

analyzed for the same constituents of concern as the OU-2 monitoring wells, as per EPA's request.

EPA approved (September 2, 2008) (**Appendix D**) the integration of the groundwater monitoring requirements for OU-1 and OU-2 so that the monitoring satisfies the original OU-2 monitoring objective - monitoring of the surficial zone and main producing zone, on-site and off-site - downgradient of the Site for the purpose of evaluating the monitored natural attenuation remedy. The original monitoring objective for OU-1 was to only evaluate the effectiveness of the RCRA cap remedy. The effectiveness was demonstrated by a statistical evaluation that confirmed the integrity of the containment system with data collected from 1997 to 2001. Additionally, it has been further confirmed by data collected since 2001.

The major components of the OU-1 and OU-2 activities performed at the Site for 2012 included:

- Maintenance of a long-term groundwater monitoring program within the OU-1 and OU-2 areas. This includes annual sampling and analysis of groundwater from 23 monitoring wells for the Agrico Site (**Table 1**). During November 2012, groundwater from monitoring wells was sampled and analyzed for fluoride, nitrate, sulfate, chloride, and radium 226 + 228.
- Maintenance of a long-term surface water monitoring program for Bayou Texar. This consists of annual sampling and analysis of surface water from two locations within the brackish waters of Bayou Texar, and three additional locations for sampling fluoride only. For 2012, the analyte list for the two long-term surface water monitoring stations was the same as for the groundwater sampling program except arsenic analysis has been discontinued.
- Continuing the effort to identify irrigation wells within the OU-2 area and determine how water from the irrigation wells is being used. This includes continuing the offer to irrigation well owners to participate in the voluntary well abandonment program. When permission is granted by a well owner, groundwater from the irrigation well is sampled and analyzed for Agrico-related constituents. In addition, the well is sampled and analyzed for volatile organics, semi-volatile organics, and eight RCRA metals, so that potential impacts from other nearby sites may be identified.
- Mailing an advisory notice to water well contractors, irrigation system installers, and pool contractors, informing them of groundwater conditions in the OU-2 area and restrictions that are in place for the area.
- Soliciting information on rules and policies to maintain institutional controls within the OU-2 area from regulatory agencies, including the Northwest Florida Water Management District (NFWFMD); Florida Department of Environmental Protection (FDEP) (Northwest District); FDEP (Tallahassee); Emerald Coast Utilities Authority (ECUA); Escambia County Environmental Health Department (ECHD); Escambia County Neighborhood and Environmental Services Department; City of Pensacola; Florida Department of Transportation (FDOT); and the U.S. Environmental Protection Agency (EPA).
- Providing copies of site documents that give the status of groundwater-related conditions to local, regional, and state agencies (including the City of Pensacola, Escambia County, ECHD, ECUA, NFWFMD, and FDOT).

The groundwater remedial action objectives for protection of public health and the environment, as related to the Agrico groundwater plume and the current status of these objectives, are as follows:

- Prevent degradation of groundwater from on-site Agrico sources.

This objective has been satisfied through source control. OU-1 soils and sludge material were consolidated or treated by solidification in the unsaturated (above the water table) portions of the subsurface and covered with an impervious Resource Conservation and Recovery Act (RCRA) - approved cap. This action was completed in April 1997. Groundwater monitoring over the past ten years has proven that the OU-1 remedy is effective.

- Prevent or minimize degradation of the groundwater resource resulting from the selected remedy, such as the spreading of off-site plumes, including the organics' plume emanating from the Escambia Treating Company Site to the north, the fertilizer constituent plume emanating from Site 348, and saltwater intrusion along Bayou Texar.

This objective was satisfied for the Agrico Site by EPA's selection of monitored natural attenuation as the remedy. The remedy limits the commingling of adjacent plumes into the Agrico plume.

- Prevent or minimize future exposure to contaminated groundwater.

This objective is an ongoing activity and involves the continued well construction permitting moratorium by the NFWMD and implementation of the voluntary program in place for irrigation wells within the OU-2 area.

- Prevent or minimize future impacts to surface water due to discharge of impacted groundwater to Bayou Texar.

This objective is being satisfied by the monitored natural attenuation remedy. Since the on-site area is remediated, no additional concentrations are expected to enter the groundwater at the Agrico Site. Off-site, it is expected that concentrations in the surficial zone groundwater will infiltrate vertically downward into the main producing zone, thereby limiting the lateral extent in the upper zone of the aquifer. Infiltration is accomplished by rainfall percolating through the surface soils and moving vertically to recharge the deeper portions of the aquifer (the main producing zone). The August 19, 2009 evaluation of monitored natural attenuation found that the mechanisms for attenuation in groundwater are in place throughout the area and the effects of the source remedy are being observed downgradient as expected. Decreases in concentrations for the Agrico COCs have now been observed in the most upgradient groundwater and are imminent in the furthest downgradient wells.

Groundwater and surface water samples collected in 2012 indicate that the objective of preventing or minimizing impacts to Bayou Texar is being achieved. Sampling results for nitrate + nitrite in groundwater indicate there is no nitrite component, and the values represent nitrate only. Nitrate is expected to disperse in the groundwater and surface water sampling related to the Agrico network indicates that water quality standards for Bayou Texar are not exceeded. Chloride and sulfate concentrations naturally occur in Bayou Texar waters at concentrations at least an order of magnitude higher than the highest

concentration detected for these constituents in the groundwater within the OU-2 area. It should be noted that although lead and arsenic are Agrico COCs, they are not part of the plume discharging to the bayou. Lead and arsenic are not components in the groundwater adjacent to the bayou. These constituents do occur in the bayou sediments and are believed to be from storm water runoff into the bayou via outfalls. Regarding fluoride, findings of the September 4, 2009 assessment of biotic zone pore water and near bottom surface water indicate that there is no significant risk to populations of demersal fish or to benthic macroinvertebrate communities that inhabit the reach of Bayou Texar where Agrico groundwater discharges to the bayou. It is likely that dissolved concentrations of fluoride in near surface sediment pore water and surface waters in Bayou Texar are controlled by mineral precipitation reactions.

1.1 FIVE-YEAR REVIEWS

The EPA has conducted three Five-Year Reviews for the Agrico Site. The results of these reviews were presented in the February 2000, July 2005, and June 2010 EPA reports. Each of the three reviews concluded that (1) all areas were in compliance and (2) the remedy at the Site is functioning as intended by the RODs for OU-1 and OU-2, and remains protective of human health and the environment. The next five-year review will be issued in 2015.

The first Five-Year Review Report (URS Greiner Woodward-Clyde, 2000b) was prepared by URS Greiner Woodward-Clyde and submitted in February 2000 to EPA. Action items recommended by EPA for the first Five-Year Review were as follows: (1) continue to monitor the groundwater as described in the O&M plans until Remedial Action Objectives are achieved as specified in the ROD; and (2) Once the statistical evaluation of the OU-1 monitoring wells has been completed, those wells should be considered for inclusion in the overall groundwater monitoring system, i.e., OU-2. The latter recommendation was formally concluded with the EPA approval dated September 2, 2008.

EPA conducted the second statutory Five-Year Review of the Agrico Site during 2004-2005, and the results were contained in their July 21, 2005 report. The Second Five-Year Review Report (U.S. Army Corps of Engineers, 2005) was prepared by the U.S. Army Corps of Engineers (Mobile District) for EPA.

As part of the second Five-Year Review, in 2005 EPA requested that six action items be conducted. These included (1) identify and select for monitoring an existing groundwater monitoring well that is screened within the main producing zone and that is located upgradient of the Agrico Site; (2) re-sample groundwater monitoring wells AC-27S and AC-27D located on the east side of Bayou Texar to validate combined radium 226+228 results; (3) re-sample upgradient groundwater monitoring well, ETC MW 12DP to validate combined radium 226+228 results; (4) conduct an evaluation of the long-term groundwater monitoring network for the Agrico Site; (5) update contact information for EPA's Community Relations Plan; and (6) conduct an evaluation of previously conducted Studies on Benthic Community Analysis and Sediment Toxicity Testing for Bayou Texar. Completion of these action items was initiated in 2005 and the final action item was completed with the September 20, 2010 EPA approval of the Bayou Texar evaluation report (**Appendix D**).

As part of the Third Five-Year review, EPA included four recommendations in the June 2010 Five-Year Report. These recommendations were as follows:

1. Continue annual groundwater monitoring.
2. Continue annual near-bottom Bayou Texar surface water monitoring at multiple stations including the 3 locations with pore water greater than 5 milligrams per liter as reported in the September 4, 2009 “*Conceptual Site Model Ecological Impact Evaluation of Bayou Texar Downgradient of Agrico’s Groundwater Fluoride Plume*” (Phase II results).
3. If the levels of fluoride in near-bottom surface water or in adjacent Bayou Texar groundwater monitoring well, AC-35D, increase to levels significantly greater than that measured historically, submit a work plan to evaluate the increase.
4. Conduct further risk evaluation studies if the surface area weighted average for pore water is predicted to be greater than 5 milligrams per liter.

These first two recommendations are continuing tasks of the on-going long-term monitoring program for the Site. As of the November 2010 sampling event, the three locations where pore water results were greater than 5 mg/L were added to the long-term monitoring.

The last two recommendations will be acted upon only if significant concentrations of fluoride are detected as part of the near-bottom surface water sampling.

2.1 SITE DESCRIPTION

The Agrico Site is located at 118 East Fairfield Drive, which is at the northwest corner of Fairfield Drive and Interstate I-110 in Pensacola, Escambia County, Florida. The Site consists of 29.84 acres in Township 2 South, Range 30 West of Section 5 and the latitude and longitude at the center of this area is 302709.8914 degrees west and 871318.9648 degrees north, respectively. The Site is bordered by I-110 to the east, Fairfield Drive to the south, CSX railroad to the west, and a construction aggregate business (Vulcan Materials/Conrad Yelvington Distribution) to the north. An approximately 100-foot wide Gulf Power Company easement and overhead electrical lines are near the eastern boundary of the Site. Site access is from the north side of Fairfield Drive, approximately 600 feet (ft) west of the I-110 overpass. Uncle Bob's Self Storage operates storage warehouses on an Agrico Site out-parcel in the south-central area. The Site location is illustrated on **Figure 1**.

For the purposes of administering the environmental remedies, the Agrico Site encompasses two areas, referred to as operable units. Operable Unit One (OU-1) covers the impacted area within the boundaries of the former Agrico Chemical Company property. **Figure 2** shows the on-site area of OU-1 and associated features. Operable Unit Two (OU-2) coincides with the area downgradient of the Site where the groundwater is impacted or potentially impacted by EPA-specified site-related constituents of concern (COCs).

The boundaries defined for OU-2 on many figures in past annual reports are in reference to the irrigation well survey limits and are not intended to represent the extent of the Agrico plume either currently or in the future. Therefore, the OU-2 area represented on figures within this report is much larger than the actual area impacted by the Agrico groundwater plume. **Figure 3** shows the boundaries used for the irrigation well survey.

The EPA approved remedy for OU-1 (on-site impacted soils and sludges) consisted of excavation, consolidation, and stabilization of impacted material under a 12 acre RCRA cap constructed on-site. The source control was certified by EPA to be complete in April 1997.

The EPA approved remedy for OU-2 (impacted groundwater) is monitored natural attenuation.

Initial modeling results indicated a period of approximately 70 years (from 1997) would be required to transport the plume from the main producing zone. Source control was complete as of April 1997. Long-term groundwater monitoring was initiated in September 1997 for OU-1 and in November 1999 for OU-2. Findings of a statistical evaluation of the monitored natural attenuation of groundwater (URS, August 19, 2009) concluded that much of the groundwater will reach the target Remedial Objectives within two or three decades. Within the groundwater discharge zone near Bayou Texar, the time to meet the targets could be longer. In this discharge area, precise estimates for meeting targets cannot be made at this time, but will become possible as more monitoring data is collected.

2.2 SITE ACCESS AND DEED RESTRICTIONS

Access to the Agrico Site is restricted. The property is secured by a perimeter chain link security fence with locked gates, and the Site is regularly inspected. Restrictive and Site informational signs are posted advising the public of the on-site conditions, and a contact phone number is also

posted for inquiries. Posted signs are present at the entry gates of the fenced OU-1 property. The wording on the signs is as follows:

Authorized Personnel Only

Please Do Not Disturb Soil Cover

Impacted Waste Material May Be Present Below the Ground Surface

For Information Call 850-251-7208

The Site is routinely inspected on a monthly basis by authorized personnel and inspection reports documenting on-site conditions are completed twice a year. Additionally, the Site is inspected after each major storm event. Any damages found are repaired.

A Restrictive Covenant (**Appendix D**) for the Site was filed against the property deed with the Escambia County Clerk of the Circuit Court and is dated July 11, 1997. The Restrictive Covenant states in summary that Construction or related activities that would interfere with maintaining the Site remedial measures are prohibited by the legal deed restrictions. Any use of the property contrary to the Record of Decision is prohibited, as per the covenant filed for the property.

2.3 DOCUMENT REPOSITORY

The EPA maintains Site information at the West Florida Regional Library, Genealogy Branch. This repository contains project documents, fact sheets, and reference material. EPA encourages the public to review these documents to gain a more thorough understanding of the Site. The address of the library is as follows:

West Florida Regional Library, Genealogy Branch
5740 N. 9th Ave
Pensacola, Florida 32505
850-494-7373

Through 2011, the West Florida Regional Library on West Gregory Street was the repository for the Agrico documents. Since 2011 and currently, these documents are found at the Genealogy Branch on North 9th Avenue.

EPA also has Site information located at the following web site:

www.epa.gov/region4/superfund/sites/npl/florida/agricchemfl.html

A specific web site was developed for the Agrico Pensacola Site and is located at:

www.agricopensacola.com

This web site contains general information about the Agrico Site, contains the Site fact sheets, and provides contact information for EPA. The web site has been modified and a documents page has been added. Electronic files for three reports were uploaded to this page. The reports that are now accessible via this web site include (1) Evaluation of Monitored Natural Attenuation in Groundwater (URS, 2009), (2) The Third Five-Year Review Report (E2 Inc., 2010), and (3) 2011 Annual Report (URS, 2012).

2.4 SITE HISTORY

The former facility at the Agrico Site was a superphosphate process facility as opposed to a continuous wet-process phosphoric acid facility that became dominant with phosphoric fertilizer industry starting in the 1960s and 1970s and continued during the modern era. According to the U.S. Department of Agriculture and Tennessee Valley Authority document titled *Superphosphate: Its History, Chemistry, and Manufacturing* (December 1964), the Irish firm known as W. & H. M. Goulding, Ltd. of Dublin, Ireland opened the Goulding Fertilizer Company, Pensacola, Florida factory in 1891 at the current Agrico Site location. The Goulding Fertilizer Company plant had an annual fertilizer production capacity of 45,000 tons. A sulfuric acid manufacturing plant co-existed on the Site. The source of sulfur was pyrite ore. The source of the phosphate for manufacturing the fertilizer was Central Florida mines. The Pensacola plant started operations by manufacturing normal superphosphate, and then operated as a concentrated superphosphate plant (the second of its kind in the United States at the time) from 1898 to 1901. Operations by the Goulding Fertilizer Company continued until 1911, when the factory was sold to an American interest, The American Agricultural Chemical Company (TAACC).

TAACC manufactured normal superphosphate and also continued the manufacturing of sulfuric acid using pyrite ore until 1920, when the source of sulfur dioxide was changed to elemental sulfur. TAACC operated the plant through 1963, when Continental Oil Company purchased the assets of TAACC (U.S. Department of Agriculture, 1964).

After the acquisition of TAACC, Continental Oil Company operated the agrichemical business as the Agrico Chemical Company, a wholly owned subsidiary. During the time period from 1963 to 1972, the same manufacturing process was used as during the TAACC period (U.S. Department of Agriculture, 1964). From 1967 to 1968, in addition to producing virgin acid from sulfur, the plant purchased and utilized an unknown volume of spent sulfuric acid (Geraghty & Miller, 1993a and 1993b). Continental Oil Company operated the plant until 1972.

In April 1972, Agrico Chemical Company, a newly formed Delaware corporation and subsidiary of The Williams Companies, Inc. (Tulsa, Oklahoma) purchased the assets of Continental Oil's Agrico Chemical Division. Agrico Chemical Company was one of the country's largest chemical fertilizer companies at the time. In 1972, the Pensacola plant began manufacturing monoammonium phosphate in addition to superphosphate, and continued this manufacturing from 1972 to 1975. Normal superphosphate was combined with ammonia to produce monoammonium phosphate. The ammonification process produced nitrate. The macronutrient potassium was blended into the ammoniated phosphate product in various blends. The potassium source was potash, mostly potassium chloride, stored on-site, inside the plant, on concrete floors. In later years, two micronutrients, zinc and magnesium, were added to the ammoniated phosphate product blends at the plant. According to the plant manager and Agrico corporate purchasing agent, the macronutrient and micronutrient sources were purchased as pure products and not as by-products. The peak season for production at the Pensacola plant was March through June. Agrico Chemical Company operated the plant continuously until June 1975, when the plant was shut down (Geraghty & Miller 1993a and 1993b). Subsequently, the Agrico Chemical assets were sold to Freeport-McMoRan Resources Partners (Freeport McMoRan) in 1987.

The property was sold to Margod, a Florida partnership, and F.A. Baird, Jr. in August 1977. The former plant buildings and process equipment were demolished in late 1979. After demolition,

only the concrete foundations remained in place. A storage warehouse was constructed on the southern portion of the property adjacent to Fairfield Drive between 1979 and 1981, with additional warehouse construction taking place between 1981 and 1986. The warehouse area is considered an out parcel of the original property. The Site property was sold to Conoco, Inc. in 1997 to implement deed restrictions as per the OU-1 remedial action. The majority of Site debris and concrete foundations was later consolidated and placed with the waste material under the RCRA cap during the OU-1 Remedial Action (RA) activities. There are no permanent buildings from the original operations remaining on the Site. One foundation from an original Site building remains in the southwest portion of the property.

EPA conducted a hazardous waste site investigation at the facility in October 1983. The results of the study indicated that the on-site soils and on-site surface water impoundment were impacted with elevated levels of fluoride and lead. Groundwater was not sampled during that investigation. However, an effort was made to locate private shallow wells in the vicinity of the Site, and none were located.

The Florida Department of Environmental Regulation (FDER) (now FDEP) conducted a groundwater assessment at the Site in January 1987 (Watts, et.al., July 1988) followed by a supplementary assessment in January and February 1989 (Watts, et.al., August 1989). The study concluded that the Site contaminants, primarily fluoride and sulfate, had impacted the area groundwater.

EPA listed the Site on the National Priorities List (NPL) on October 4, 1989. Conoco, Inc. and Freeport McMoRan (parents of the Agrico Chemical Company) entered into an Administrative Order on Consent (AOC) on September 29, 1989. According to the terms of the AOC, the companies agreed to conduct source (soils) and groundwater investigations at the Site. The Site was remediated starting in 1995, and remediation of impacted soils and sludges was certified complete by EPA in April 1997. Currently, Williams (on behalf of Agrico Chemical Company) and ConocoPhillips, Inc. are responsible for implementing the activities associated with the O&M Plans for OU-1 and OU-2.

2.5 OPERABLE UNIT ONE REMEDY

The first operable unit (OU-1) addressed the cleanup of the source on-site. **Figure 2** shows a 2004 aerial photograph of the Site and the current features associated with OU-1. A Record of Decision (ROD) for OU-1 issued by EPA Region 4 on September 29, 1992 selected the remedy to be implemented for on-site soils and sludges. The selected remedy was based on a site remedial investigation and feasibility study, including a human health and environmental risk assessment, and soil and groundwater characteristics for the Site. Following the ROD issuance, actions by Conoco were initiated to re-acquire ownership of the property so that the remedy could be implemented.

In 1995, remedial construction activities began. Lead and arsenic-impacted soils and all sludge materials were collected and treated by solidification/stabilization using cement. Other fluoride-impacted soils were collected for consolidation. These consolidated soils and treated soils and sludges were installed in lifts and compacted in the excavation based on engineering designs and standards. The material was placed approximately 20 ft above the saturated groundwater level within the unsaturated, dry portion of the sediments underlying the Site.

On the surface, the material was covered with a 4-ft thick multi-layered engineered cap designed to prevent rainfall from contacting the underlying stabilized soils. The cap covers an area of 12 acres. The impervious nature of the cap causes storm water runoff volumes to be significantly greater than the volume generated before the construction of the remedy. For this reason, an elaborate system of piping and runoff collection devices was installed at the Site. The storm water collection system significantly minimizes runoff from flowing off the Site. Runoff generated on-site is collected and contained on-site by returning runoff to one of two storm water management impoundments constructed as part of the OU-1 remedial action. Because the north storm water impoundment is located upgradient from the stabilized soils, EPA required that a slurry wall be constructed between the north storm water impoundment and the stabilized containment area. The purpose of the slurry wall is to prevent infiltrating storm water from contacting the stabilized materials that are contained within the unsaturated subsurface containment area.

The following actions were performed as part of the OU-1 remedial action completed in April 1997:

- Excavated and solidified approximately 45,000 cubic yards of arsenic- and lead-impacted soil and contaminated sludge and soils from Site sludge ponds.
- Consolidated approximately 110,000 cubic yards of fluoride-impacted soils.
- Within excavation areas, rubble from building foundations and consolidated soils were placed in a layered fashion, with the uppermost portion of the excavation filled with solidified/stabilized soils and sludges.
- An engineered 4-ft thick, seven-layer cap, consisting in part of impervious fabric, High Density Polyethylene (HDPE) liner, and geotextile materials, was constructed over the stabilized soils within the containment area.
- Constructed a 700-ft long, 2-ft thick slurry wall upgradient of the containment area to prevent infiltrating storm water from contacting consolidated/stabilized soils.
- Installed a drainage collection system so that storm water generated on-site is contained on-Site in one of two storm water impoundments, preventing off-site runoff.
- Deed restrictions were attached to the property controlling future uses of the property, assuring protection of the containment structure.
- Security fencing with locked gates was installed to limit access to the property.
- Five monitoring wells were constructed to serve as long-term groundwater sampling locations to evaluate the effectiveness of the implemented OU-1 remedial action. These five monitoring wells were monitored to demonstrate the effectiveness through 2007. After 2007, the wells were integrated and combined with the OU-2 wells to form a site-wide groundwater monitoring network. The purpose of this site-wide network is to demonstrate the effectiveness of the monitored natural attenuation remedy for groundwater.

2.5.1 Operation and Maintenance

In accordance with the EPA-approved Operations & Maintenance (O&M) Plan for OU-1, biannual inspections, and inspections following major storm events, are conducted at the Site. Due to maintenance being performed at the Site, site inspections occur at least once a month.

Elements of the O&M for OU-1 are as follows:

- General facility inspection and regular lawn care service for the Site. Weekly security service, drive by inspections, were discontinued as per EPA's approved change (January 25, 2010) (**Appendix D**). The Site is routinely inspected on at least a monthly basis, and after major storm events. The grass is cut on at least a monthly basis between October and April and on at least a biweekly basis between May and September.
- Cover system inspection.
- Topographic survey (as needed); a topographic survey was previously completed in April 2002. No visual changes have occurred to the cap area; therefore additional survey has not been completed
- Storm water collection system inspection and cleaning of the under drain system every 3 years or as needed as per EPA's approved change (January 25, 2010) (**Appendix D**). Visual inspections of the drain inlet and outlet system during storm events indicate that the system is functioning properly.

Prior to November 2009, the operation and maintenance activities for OU-1 listed above were documented in semi-annual Inspection Report Letters that were submitted to EPA after each May and November site inspection. Beginning in November 2009, the site inspection reports were no longer distributed as individual letters. Instead, the inspection information is incorporated into the Annual Report (**Appendix E**).

There have been no significant erosion issues affecting the integrity of the cap since the cap was constructed in the mid-1990s. Significant storm events occurred in 2004 and 2005. Additionally, above normal rainfall occurred for 2009. On June 7, 2012 through June 9, 2012, the NOAA Hydrometeorological Prediction Center reported 15 to 27 inches of rainfall was recorded in the Pensacola area. On June 9, 2012, it was reported that 13.11 inches of rain occurred as a daily total. A site inspection was conducted during the monthly O&M visit. Stormwater drainage to the on-site stormwater ponds functioned as designed. Accumulation was noted in the south pond which is normally dry. No erosional issues occurred for the cap area as a result of this storm.

The inspection reports for May and November 2012 are presented in **Appendix E**.

2.5.2 Groundwater Monitoring

The surficial zone of the Sand-and-Gravel aquifer is monitored upgradient and immediately downgradient of the cap area. Groundwater monitoring provides for an effective means of evaluating the OU-1 remedy. Long-term groundwater monitoring was initiated in September 1997 for OU-1. Two-background monitoring locations lie upgradient of the containment area, and three monitoring locations lie immediately downgradient of the area (**Figure 2**). These monitoring wells were sampled twice a year from 1997 until May 2008. EPA approved discontinuing the semi-annual sampling as per their letter dated September 2, 2008 (**Appendix D**). EPA requested that all future groundwater monitoring associated with OU-1 be incorporated into the Agrico site-wide monitoring program.

The groundwater performance standards relevant to OU-1 (ROD, September 29, 1992) are as follows:

Constituent of Concern	Groundwater Performance Standard
Fluoride	4 mg/L*
Arsenic	0.05 mg/L**
Lead	0.015 mg/L
<p>* The primary drinking water standard of 4 mg/L for fluoride is the level for groundwater. The Florida secondary MCL of 2 mg/L set forth by Rule 62-550.320, Florida Administrative Code (FAC) applies at nearby municipal potable supply wells, as specified in the contingency remedy.</p> <p>** All groundwater analytical results for arsenic have a reporting limit of 0.010 mg/L to meet the new MCL of 0.010 mg/L for arsenic. mg/L = milligrams per liter</p> <p>MCL = maximum contaminant level</p>	

2.5.3 Annual Contact with Florida Department of Transportation (FDOT)

As per the September 20, 1996 O&M Plan for OU-1, annual communication with the FDOT is required. The purpose of this inquiry is to determine any significant intrusive FDOT activity or plans for such, at the south boundary of the Site along Fairfield Drive (SR-727).

2.6 OPERABLE UNIT TWO REMEDY

The ROD for OU-2 was issued by EPA Region 4 on August 25, 1994. The OU-2 ROD presents EPA's selected remedial action for treatment of groundwater. The following discussion is based on the August 1994 ROD and includes the rationale for the selected OU-2 remedy. The OU-2 area is shown on **Figure 3** which also corresponds to the previously completed irrigation well survey area. This area encompasses a larger area than the defined groundwater impact area. The OU-2 area is roughly bound by Palafox Street to the west, Bobe Street to the south, Fairfield Drive to the north and Bayou Texar to the east.

The EPA selected remedy of monitored natural attenuation meets all EPA and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) criteria. The remedy is protective of human health and the environment and complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action. This remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. The reduction of toxicity, mobility, and volume of the Site groundwater contamination has been controlled through source control (OU-1) and monitored natural attenuation (OU-2).

EPA views the monitored natural attenuation remedy as being at least, more protective of human health and the environment than the pump-and-treat technology alternatives that were previously considered for this Site. This remedy avoids potentially adverse impacts associated with the groundwater extraction and treatment alternatives. Potential impacts from the pump and treat alternative include saltwater intrusion and spreading of impacts from other impacted sites, including the Escambia Treating Company (ETC) Site (source control was completed in 2009), multiple sites in the Palafox industrial corridor, various retail gasoline stations, multiple dry cleaner locations, and other sources of contamination in the proximity of the Agrico Site. Assessments are being conducted by local, state, and federal agencies on these region-wide impacts.

Based on current hydrogeologic conditions and the fact that many of the downtown ECUA municipal supply wells have been deactivated due to non-Agrico impacts, it is highly unlikely that nearby water supply wells will be impacted by the Agrico site-related constituents.

However, if the Agrico site-related constituents adversely impact groundwater withdrawn from public supply wells in the area, a contingency remedy will become necessary, as outlined in the ROD. The contingency remedy includes wellhead treatment or well replacement.

The selected remedial alternative for OU-2 involves actions aimed at limiting exposure while natural attenuation processes remediate the groundwater impacts.

The remedial alternative actions for OU-2 consist of the following:

- 1) Groundwater sampling, and the installation of two additional monitoring wells adjacent to Bayou Texar (AC-35D and AC-36D) completed in 1999;
- 2) Bayou Texar surface water sampling;
- 3) An irrigation well survey;
- 4) Institutional controls to include on-site deed restrictions, groundwater use restrictions, and a request that private landowners allow the plugging and abandoning of impacted irrigation wells; and
- 5) An advisory program.

2.6.1 Operations and Maintenance

In accordance with the EPA-approved O&M Plan for OU-2 dated November 1998 and in accordance with approved (via email from EPA on September 11, 2007) changes resulting from the November 30, 2006 Long-term Monitoring Well Network Evaluation and other approved changes (**Appendix D**), the following elements of the O&M are implemented annually as follows:

- Groundwater sampling of designated long-term monitoring wells (**Figure 1**) during November each year.
- Bayou Texar surface water sampling at two locations (adjacent to groundwater plume discharge area and a location downstream). Three additional sampling locations within the Agrico primary discharge reach of Bayou Texar were added as of 2010 (**Figure 1**). Sampling of Carpenter's Creek upstream of where the creek empties into Bayou Texar, was discontinued as an approved EPA change effective January 25, 2010 (**Appendix D**).
- Irrigation well survey – a survey was completed that identified 59 irrigation wells within the OU-2 area.
- Institutional Controls – currently a moratorium has been placed on the construction of new wells within the OU-2 area.
- Advisory Program – annually the water well contractors, irrigation system contractors, and swimming pool contractors doing business in the Escambia County vicinity are notified of the existing groundwater impacts and the NFWMD moratorium for construction of new wells. The contractor list is reviewed annually and modified as needed.

2.6.2 Groundwater Monitoring

The surficial and main producing zones of the sand-and-gravel aquifer are monitored in long-term monitoring wells distributed in locations downgradient of the OU-1 Site both inside and outside of the existing Agrico plume. Long-term groundwater monitoring was initiated in November 1999 for OU-2. The groundwater monitoring is intended to evaluate characteristics and trends associated with the plume. The monitoring results to date indicate that the monitoring well network serves this purpose. During Five-Year Review periods, sampling is conducted for all long-term and periodic monitoring wells.

The groundwater performance standards relevant to OU-2 (ROD, August 25, 1994) are as follows:

Constituent of Concern	Groundwater Performance Standard
Fluoride	4 mg/L*
Arsenic	0.05 mg/L
Chloride **	250 mg/L
Sulfate **	250 mg/L
Nitrate + nitrite	10 mg/L
Radionuclides Radium 226 Radium 228	5 pCi/L (Radium 226 + 228 combined)
<p>* The primary drinking water standard of 4 mg/L for fluoride is the level for groundwater. The Florida secondary MCL of 2 mg/L set forth by Rule 62-550.320, Florida Administrative Code (FAC) applies at nearby municipal potable supply wells, as specified in the contingency remedy.</p> <p>** Chloride and sulfate were not included in the baseline risk assessment because no toxicity values exist. The remedial goals presented for chloride and sulfates are the Florida standards.</p> <p>mg/L = milligrams per liter pCi/L = pico Curies per liter MCL = maximum contaminant level</p>	

2.6.3 Annual Notifications

In addition to the contractor annual advisory notice, selected local city, county and regional agencies are notified regarding the on-going activities related to the Agrico Site and are asked about known or potential changes to local laws or policies and procedures that may impact existing institutional controls for the OU-2 area. Additionally, all major reports completed for the Agrico Site are distributed to these agencies.

2.7 OTHER CONTAMINATION SOURCES IN THE VICINITY OF THE AGRICO SITE

Contamination from sources other than Agrico was one of the many factors considered in the EPA's preparation of the OU-2 ROD. The OU-2 selected remedy did not include a pump and treat component because of the technology's potentially negative impacts. The potential impacts included: 1) spreading of plumes from other sources and 2) uncontrolled aquifer degradation due to the alteration of groundwater flow, which could impact private irrigation wells and public supply wells. Several FDEP-identified groundwater contamination sources are located in the

vicinity of the Agrico Site. Contaminants from these sources either originate from Sites located within the defined area of OU-2 or originate upgradient of the OU-2 area and, due to the direction of groundwater flow, move into the OU-2 area. It should be noted that some of the constituents from these sites are the same as the Agrico constituents, and include chloride, sulfate, nitrate, and combined radium 226 + 228. These constituents associated with these other sources may be found at concentrations above the drinking water standard and are affecting portions of the southwestern area of OU-2. The reported sampling results from the ongoing FDEP investigations provide evidence of the groundwater impacts. This area is in the vicinity of the existing ECUA public supply well identified as F and Scott Street Well (**Figure 1**).

A U.S. Geological Survey Report (Trapp, 1975) on the hydrology of the Sand-and-Gravel aquifer in southern Escambia County described non-point source nitrate contamination in the vicinity of the Agrico Site. According to the report, non-point source nitrate contamination in the Sand-and-Gravel aquifer has been documented since the 1920s throughout the southern half of Escambia County. Nitrate concentrations of 5 mg/L or higher were generally found in groundwater throughout the City of Pensacola and the urban areas of Bayou Chico, northeast of the junction of I-110 and Brent Lane, along Mobile Highway, and around the junction of Pine Forest Road (SR 297) and I-10, and in the vicinity of Gonzalez and Cantonment. Watts, et al. (1988) reported that elevated nitrates in the vicinity of the ECUA well at “F” and Scott Streets were from sources other than the Agrico Site (e.g., highway runoff, leaking sewer pipes, and septic tanks).

In addition, several point sources of contamination are in close proximity to the Agrico Site (NFWFMD, 1984). The site most likely to impact a portion of the area downgradient of the Agrico Site is the Escambia Treating Company (ETC) Site (**Figure 1**), which is located immediately north/northwest of the Agrico Site. Constituents of concern for the ETC Site are present in groundwater at monitoring well locations that are part of the Agrico long-term groundwater monitoring network. Many of the Agrico monitoring wells are also sampled as part of the ETC groundwater monitoring. The ETC Site is a former wood preserving facility located on Palafox Street between Fairfield Drive and Brent Lane. The facility conducted wood treatment operations from approximately 1942 to 1982 that have resulted in extensive creosote and pentachlorophenol (PCP) contamination in soil and groundwater. In 1996, EPA approved a permanent relocation program for people living in neighborhoods affected by the ETC Site. The homes were purchased by the federal government and have been demolished. This area is expected to be redeveloped as an industrial park. The basis for the relocation is stated in ETC’s Interim ROD dated February 12, 1997. The EPA approved soil remedy for ETC (February 13, 2006) included a previous interim action with approximately 255,000 cubic yards of contaminated soils having been excavated and stockpiled at the Site and an interim action including residential relocation. The major components of the final remedy for the ETC Site for soil are: residential relocation and excavation of on-site and off-site contaminated soils; with on-site containment, solidification/stabilization and capping; and O&M with long-term monitoring and institutional controls. The ETC Site is a Superfund site whose overall remedial actions are being funded by the federal government.

The contamination of groundwater resulting from the ETC Site has been assessed. In 1999 and 2000, groundwater data and surface water data for Bayou Texar were collected as part of the ETC investigation. The results indicate that a groundwater plume emanates from the ETC Site and is transported by groundwater flow into the northern portion of the OU-2 area. The

Remedial Investigation/Feasibility Study was completed as of February 13, 2006. On December 14, 2007, options and concerns over proposed remedy selection for the ETC Site were discussed with EPA and EPA's consultants. The ETC groundwater remedy was approved by EPA in mid-2008. The source controls were completed for ETC in 2009. Implementation of the groundwater remedy is on-going.

The CSX Railroad (Goulding Yard) (**Figure 1**) is located upgradient (northwest and west) of the Agrico Site. A consent order issued by FDEP initiated an assessment of arsenic impacts within the CSX property. Remediation of the impacted soils area was completed during 2008.

In March 1999, FDEP identified two properties collectively referred to as Site 348 for assessment activities. Site 348 is located about 3,000 ft due south of OU-1 (see **Figure 1**). FDEP's Site 348 (also referred to as the Kaiser site) consists of an area-wide investigation that has focused on at least two property parcels with a history of fertilizer production. The assessment of these properties and others in the Palafox Street corridor is part of FDEP's ongoing project No. 348 to identify sources of impacts to ECUA water supply wells (No. 9, East Plant, F and Scott) (**Figure 1**).

Information from the Escambia County Court Records and Escambia County Property Appraisers Office indicate that Site 348 is composed of two parcels. The north parcel is defined by property parcel number 5201. The south parcel is parcel number 5401. These parcels are separated from each other by parcel number 5301 and various sub-parcels which are reportedly not part of the Site 348 assessment. The ownership for the Site 348 parcels is as follows:

PARCEL 5201

00/1932 to 00/1965	The Southern Cotton Oil Company (a Division of Hunt Foods)
00/1965 to 12/1977	Kerr-McGee Chemical Corporation
12/1977 to 03/1981	Agrico Farm Center Fertilizer
03/1981 to 10/1986	Carolina Eastern, Inc. (Division 2 Fertilizer)
10/1986 to 12/1989	Rosenbaum Family
12/1989 to current	Browning, Ferris Industries of Florida, Inc. (BFI)

PARCEL 5401

08/1943 to 07/1958	Merchant's Fertilizer & Phosphate Company
07/1958 to 05/1967	Merchant's Fertilizer Company
05/1967 to 03/1985	Kaiser Aluminum Chemical Corporation (Kaiser Aluminum & Chemical Sales, Inc.)
03/1985 to 03/1985	Quit Claim Deed to Kaiser Agricultural Chemicals Corporation
03/1985 to 02/1994	S & P Investments Corp. (merger of Kaiser Agricultural Chemicals Corporation and S & P Investments Corp.)

02/1994 to 12/1994	Vigoro Industries, Inc. (merger of S&P Investments Corp. into Vigoro Industries, Inc.) (Vigoro Industries, Inc. is merger of Estech Branded Fertilizers, Inc. with and into Kaiser Agricultural Chemicals, Inc. under the name of Vigoro Industries, Inc.)
12/1994 to current	James W. Bradley and Donald W. Moore (Death Certificate for James W. Bradley recorded 01/2007.)

Assessment results indicate several constituents exceeding standards including ammonia, chloride, combined radium 226 + 228, and nitrate. The identified sites (parcels) noted above are located south of the Agrico Site and upgradient of Agrico monitoring wells AC-6S and AC-6D. FDEP study results indicate that these monitoring wells have been impacted by the Kaiser site. Project No. 348 is currently continuing to assess the identified sites, as well as other potential source areas. URS' research regarding these former operations associated with Site 348 is based on aerial photography (1940, 1951, 1958, 1961, 1970, 1981, 2004, and 2007), records from the Escambia County Property Assessor's Office, and Sanborn Maps (1932 and 1950). The Sanborn maps indicate that the operations were present at the site as early as 1932. **Appendix C** presents aerial photographs related to the two focal properties being investigated as Site 348. Corporate filings with the Florida Department of State indicate that one of the focal parcels was formerly the Merchants Fertilizer & Phosphate Company and may have operated as early as 1926. The other focal parcel is associated with the former Southern Cotton Oil Company, which according to the Sanborn Maps operated a fertilizer manufacturing business as part of its operation. As of 1981, the aerial photography indicates that the operations may have ceased at the Southern Cotton Oil Company. However, in 1981 a business appears to be operational on the Merchants Fertilizer & Phosphate Company property with trucks and railcars parked on-site. It appears from the 2004 aerial photograph that buildings on both properties were removed by that year.

Sanborn maps (1932 and 1950) indicate the following features associated with each property. It should be noted that the Southern Cotton Oil Company is located north of the Merchants Fertilizer & Phosphate Company, and the two properties are separated by an unknown business property parcel.

Southern Cotton Oil Company – Fertilizer Storage Warehouse (shown on 1932 map but not on 1950 map); Fertilizer Mixing and Storage Warehouse; Fertilizer Factory and Dry Mixing Warehouse (shown on 1950 map but not 1932 map); nitrate of soda storage (1932 only); ammonia tank (1950 only); railroad spur adjacent to Fertilizer Factory; Water supplied by City as early as 1932.

Merchants Fertilizer & Phosphate Company- Fertilizer Mixing Building (1932); Fertilizer Mixing Building called Dry Mixing Building in 1950 map; Ammonia Tank (1950 only); Nitrate of Soda Storage (1932 only; different location in 1950); Insecticide Storage Area (1932 only); railroad spur adjacent to mixing building; water supplied by City as early as 1932; overall size of mixing building smaller in 1950.

The assessment of Site 348 is currently on-going. Two additional reports were reviewed in 2011 and include the following:

- *Summary of Phase VIII Groundwater Investigation Findings Report, ECUA Well Field Site, Pensacola, Escambia County, Florida; prepared for FDEP (Site 348) by Mactec Engineering & Consulting, Tallahassee, Florida (February 2010)*

- *Site Assessment Report, Former Kaiser Agricultural Chemical Company, 2710 North Palafox Street, Pensacola, Florida; prepared for Mr. James W. Bradley and Mr. Donald W. Moore by Cameron-Cole, LLC, Pensacola, Florida (September 15, 2011)*

Conclusion excerpts from the Phase VIII Mactec report (February 2010) include:

- “Interpretation of the capture zone and flow path simulations suggest that the ECUA #6 {Hagler Well} water supply well does not appear to be in the same recharge and flow path setting as the Agrico facility and therefore, is not likely to have any hydraulic connection.”
- “Under typical aquifer conditions the aquifer simulation suggests that groundwater flow from the former Kaiser Fertilizer Plant appears to be in a general southeastern direction towards Bayou Texar and Escambia Bay, this is consistent with the measure(d) water levels and calculated potentiometric surface.”
- “Interpretation of the capture zone, flow path and water supply well pumping simulations suggest that water supply wells ECUA #3 {formerly No.9}, ECUA #4 {East Plant Well} and potentially ECUA #1 {formerly No.6} are hydraulically downgradient from the former Kaiser Fertilizer Plant.”
- “Interpretation of the capture zone, flow path and water supply well pumping simulations suggest that water supply wells ECUA #9 {F & Scott Well} and ECUA #5 {West Plant Well} appear to be hydraulically sidegradient to the former Kaiser Fertilizer Plant.”
- “The concentrations of ammonia nitrogen detected at and hydraulically downgradient from the former fertilizer distributor site {Southern Cotton Oil} and the Former Kaiser Fertilizer Plant may be considered site {Site 348} related based on the groundwater modeling results and historical data evaluation.”
- “The concentration of Radium 226/228 detected in groundwater samples collected from monitoring wells located at and hydraulically downgradient from the former Kaiser Fertilizer Plant suggest that they may be attributed to the site {Site 348}, however, they may also be related to natural occurrences based on the groundwater modeling results and historical data evaluation.”

Conclusion excerpts from the Cameron-Cole report (September 2010) include:

- “A review of the previous area-wide investigation {for Site 348} shows that radium 226/228 was detected in multiple wells in the area during the Phase III field event, with all but two exceeding the CTL. Documentation in the FDEP’s OCULUS database indicates a consultant for the former BFI property {Southern Cotton Oil} also reported ammonia and radium 226/228 present in monitoring wells at their site, located approximately 500’ north of the former Kaiser property.”
- “Subsequent Phase VI sampling results for radium 226/228 revealed that concentrations were within the “naturally-occurring” background range for north and central Florida. The FDEP concurred with this statement in their deliverable review letter. The September 23, 2003 FDEP summary memorandum for the Phase VII investigation stated that, of the wells sampled that exceeded the CTL for radium 226/228, several were located upgradient of the former Kaiser property {on Southern Cotton Oil property}.”

- “The Agency for Toxic Substances and Disease Registry (ATSDR), an agency of the U.S. Department of Health and Human Services, also recognizes that north and central Florida may exhibit “high” background levels of uranium and radium.”

In 2002, another source of radium contamination was identified by FDEP near an active public supply water well (Hagler) (**Figure 1**) located east of Bayou Texar near the Pensacola Airport. Reportedly, the source is an abandoned construction debris dump site. The Mactec report (2010) later confirmed that the Hagler well is not in the same recharge and flow path setting as the Agrico facility. The Hagler well was subsequently temporarily inactivated. This location is on the east side of Bayou Texar, and impacts have the potential to move westerly into Bayou Texar or easterly into Pensacola Bay. Preliminary assessments are expected to be conducted by FDEP in the future. The Hagler well is currently active.

2.8 BAYOU TEXAR STUDIES

Bayou Texar has historically experienced non-point source storm water impacts from development in the bayou watershed. Stone and Morgan (1990) reported the leading causes of impacts as:

- Construction of roads and bridges that interfere with normal circulation and tidal flow patterns and thus have augmented the detrimental effects of siltation and nutrification from various non-point and point sources within the watershed.
- Overloading of wastewater and treatment facilities in the watershed, resulting in ruptures and spills to the bayou.
- Major alterations of the watershed, which have increased the storm water runoff, resulting in increased organic and inorganic nutrient load, as well as sediment loading.
- Runoff affected by fertilizing residential lawns.

In addition to water and sediment entering the Bayou Texar system from Carpenter Creek, there are numerous culverts, storm water drains, and road ends throughout the length of the bayou which serve to direct non-point source storm water contamination to it. More than 60 outfalls have been identified that discharge storm water to Bayou Texar. All of these factors contribute to contaminant loading of the bayou system. Based on numerous studies over the past 40 years and based on the most recent EPA funded study by the University of West Florida (UWF) (Mohrherr et al., 2005), Bayou Texar is an urban body that is impacted by a variety of pollutants and pollution sources. This UWF study corroborated the Agrico reports that fluoride and radium are discharged to Bayou Texar via groundwater discharge, but concentrations in the bayou surface water and bottom sediments are low enough that adverse effects on biota are not likely to occur.

Bayou Texar is a coastal brackish water estuary connected to Pensacola Bay. The bayou empties into the bay system approximately at the point where Escambia Bay and Pensacola Bay converge, which in turn is connected to the Gulf of Mexico. **Figure 1** shows the location of Bayou Texar and its relationship to the Agrico Site. The uppermost (northern) boundary of the bayou is marked by the 12th Avenue Bridge. The bayou is tidally influenced along its entire length. The normal tide range for the bayou seldom exceeds 2 ft (Stone and Morgan, 1990). The bottom water salinity ranges from about 5 to 20 parts per thousand (ppt) (Stone and Morgan,

1990). Surface salinities increase from upstream to downstream, and a bottom saltwater wedge is present. At mean tide, the average volume of water in Bayou Texar is about 100.4 million cubic ft, and the average volume exchange is 23.8 million cubic ft per day or about 24 percent of the average volume (Stone and Morgan, 1990). The daily exchange ranges from 11 to 34 percent. The average depth is about 6 ft.

The bayou trends north to south, and is approximately 4 miles in length. The shoreline is highly developed, bordered almost its entire length by suburban residential housing. It is a “residential” bayou, with lawns maintained to the water edge for most of its shoreline. Many piers extend into the bayou. The environmental quality of the bayou is affected by extensive urbanization in its watershed. Storm water runoff enters the bayou from culverts and storm drains, and Carpenter’s Creek. It has been reported that between 50 and 80 storm water outfalls discharge storm water runoff from the urban streets of the watershed into Bayou Texar (Stone et al., 1990). Bayou Texar is classified as a Class III Marine body of water by the State of Florida. Under this classification the bayou is suitable for recreational uses and the propagation of fish and wildlife. However, shellfish propagation and harvesting is not supported by the water quality of the bayou. It serves as a popular recreational water body.

The water quality of Bayou Texar is typical of a brackish water environment, exhibiting characteristics of a saline environment due to tidal influences from Pensacola Bay, with some freshwater input from Carpenter’s Creek. In general, the saltwater marine environment dominates over the freshwater input.

Carpenter’s Creek, the only freshwater tributary that flows into Bayou Texar, discharges to the bayou at the 12th Avenue Bridge. The creek extends about 6 miles north of the 12th Avenue Bridge and drains a fairly extensive watershed into the bayou. The creek drains suburban, commercial, and industrial neighborhoods to the north.

2.8.1 Effects of Urbanization on Bayou Texar

As discussed in Mohrherr et al. (2005), Bayou Texar has experienced substantial environmental degradation over at least the last half century. This has resulted from a number of factors. Because it is an urban estuary, it is subject to a number of industrial and domestic point and non-point discharges, including storm water drains, industrial releases, sewage spills, septic system leakage and uncontrolled urban runoff of domestic fertilizers from the homes that line the shore. In addition, the physical characteristics of the bayou have been substantially modified by filling, channelization, and construction of bridges, homes, and other shoreline structures. As a result, turbidity and sedimentation have significantly increased and sediments are contaminated. Biological and chemical oxygen demand is high, resulting in decreases in dissolved oxygen in surface water; and sediments are contaminated. To a large extent, Bayou Texar is functioning as a poorly designed and inadequately flushed catch basin. These factors have caused a fairly substantial impact to estuarine biota. The health and diversity of both the benthic community and the fish community have been significantly impacted. Fish kills have occurred on a number of occasions, and the health and diversity of both the benthic community and the fish community have been significantly impacted. Although there is no recent documentation of anoxic conditions in the upper Bayou Texar, it is likely that oxygen levels in upper portions of the bayou decrease to levels that are stressful to benthic invertebrates and fish.

2.8.2 The Nature of Fluoride

Fluoride is an ion of the element fluorine and is a component of most natural waters. The primary factors that control the concentration of fluoride in natural waters include mineral precipitation and dissolution reactions, and ion exchange with clay minerals. Common fluoride-bearing minerals include fluorite (CaF_2), and a group of phosphate-bearing minerals called apatite. The general formula for apatite is $\text{Ca}_5(\text{PO}_4)_3(\text{OH}, \text{F}, \text{Cl})$, or Calcium (Fluoro, Chloro, Hydroxyl) Phosphate. Apatite is actually three different minerals, depending on whether fluorine, chlorine, or the hydroxyl group is predominant. These ions freely substitute in the crystal lattice, and all three are usually present in natural minerals, although some natural minerals may be nearly 100 percent of one ion. The names of the three pure phase minerals are fluorapatite, chlorapatite, and hydroxylapatite.

The minerals fluorite and apatite are present in many natural systems, and these minerals are known to control the concentration of fluoride in water through equilibrium reactions. In its simplest form, this type of reaction is similar to that of dissolving salt (the mineral halite) in a glass of water—the salt will readily dissolve until the water reaches saturation with halite (NaCl), and at that point the concentration of dissolved Na^+ and Cl^- is said to be at equilibrium with the mineral. More halite can be added to the system, but the concentration of Na^+ and Cl^- in water will not change. If more dilute water is added to the saturated system, more halite will dissolve; conversely, if the water is allowed to evaporate, halite will precipitate out of solution. Natural mineral systems work in a similar manner, and the concentrations of dissolved ions in these systems are controlled through predictable geochemical relationships.

2.8.3 Fluoride within the Bayou Texar System

In many systems (e.g., groundwater from the Agrico Site), fluoride appears to act as a conservative ion, meaning it travels without much change in concentration with the advective flow of groundwater in the dissolved state. However, the solubility of fluoride is significantly influenced by changes in pH, alkalinity, salinity, and the availability of phosphate and calcium. Transition zones between groundwater and surface waters, such as is the case in Bayou Texar, typically produce significant changes in all of these variables, and it is possible that the solubility of fluoride changes as a result of interactions between the two water sources.

Fluoride and other natural elements that are complexed in solid mineral phases, such as fluorite or fluorapatite, are generally not considered to be bioaccessible, so the focus of any ecological risk evaluation is typically on understanding the availability of the dissolved fraction of fluoride at potential exposure points. The biologically active zones, or potential exposure points, for fluoride in Bayou Texar include surface sediments via the pore water and surface water.

Fluoride in Bayou Texar Surface Water

Elevated concentrations of fluoride have been detected in the sediment and pore water in the bayou, however, fluoride in the bayou surface water is not elevated. Near-bottom surface water in Bayou Texar contains fluoride concentrations ranging from ambient levels to 1.5 mg/L, as measured during annual sampling associated with the Agrico Site (URS 2007a) and during the Bayou Texar evaluation (URS, 2009c). The Florida Surface Water Quality Criterion (62-302.530 Florida Administrative Code [FAC]) for Class III Marine waters for fluoride is 5 mg/L.

Fluoride in Bayou Texar Sediments and Pore Water

Fluoride in bayou sediments ranges as high as 930 mg/kg (Mohrherr et al. 2005) in the area where the deep groundwater plume from the Site discharges into the bayou. In this limited area, Mohrherr et al. (2005) observed that the highest fluoride concentrations in surface sediment were generally found nearer the sediment surface. It should be noted, however, that the surface sediment samples that were collected in this study were from either the top 30 cm or top meter, but not from the shallow biotic zone (0-10 cm).

Fluoride in sediment pore water has been detected at concentrations over 200 mg/L (Entrix 1993); although in the more recent Mohrherr et al. (2005) study the highest concentration was 112.7 mg/L. These results from the above studies indicate that elevated concentrations of fluoride in the sediment pore water are occurring in a segment of the bayou that has a length of approximately 160 meters. The depths of the maximum fluoride recorded in this 160 meter segment concentrations varied. Although there is some evidence fluoride in pore water increases with depth in this discharge zone, this trend is not consistent. In the Entrix (1993) study vertically stratified measurements of fluoride in sediment pore water were obtained. The results of this study indicated that the highest concentration of fluoride in pore water near the sediment surface (20-26 cm) was 240 mg/L. However, in this study only one other measurement of fluoride in pore water near the sediment surface exceeded 12 mg/L. In the Mohrherr et al. (2005) study the highest concentration measured in the 0-1m interval was 14.2 mg/L. It should be noted that none of the Entrix (1993) or Mohrherr et al. (2005) pore water samples specifically measured the pore water in the uppermost 10 cm, the biotic zone. The intervals closest to the sediment surface were generally in the range of 10 to 30 cm below the sediment surface.

Groundwater Discharge to Bayou Texar

Surficial zone groundwater reaching Bayou Texar from the west is not impacted by the Agrico plume. Typically, fluoride concentrations in the surficial zone near the bayou historically have been less than 1 mg/L (**Figure 8**). The deeper main producing zone groundwater impacted by the Agrico plume immediately west and adjacent to the bayou contains fluoride. Specifically, the groundwater discharging to Bayou Texar shows current concentrations of fluoride (180 mg/L) from the main producing zone aquifer at monitoring well AC-35D near Bayou Texar. This compares to the observed average concentrations of fluoride in surface waters (1.5 mg/L) at ACSW-1 (a station in the area where the groundwater plume discharges the highest concentrations of fluoride into the bayou). There are several distinct chemical differences in the two waters (i.e. surface water and groundwater) that can affect the fate and transport characteristics of fluoride. Those differences include the following:

- The pH of the receiving water in Bayou Texar is much higher than the adjacent groundwater (6.95 versus 4.05, respectively).
- The alkalinity of the groundwater is near zero because of the low pH; however, the surface water in Bayou Texar has an alkalinity of 58 mg/L.
- The overall ionic strength of the surface water in Bayou Texar is significantly higher than the adjacent groundwater because of the saltwater influence of Pensacola Bay.

These changes indicate that the saturation states of several minerals, including fluoride-bearing minerals, may change as groundwater and surface waters in the Bayou Texar area interact.

Conclusions on Fluoride and Bayou Texar

Field data from the Bayou Texar evaluation (URS, September 4, 2009) indicate that the surface water and shallow pore water in Bayou Texar sediments have a source of phosphate and alkalinity required to induce fluorapatite precipitation (as does almost all seawater). The change in chemical conditions of the groundwater plume as it interacts with the overlying pore and surface waters in Bayou Texar causes a fundamental change in the equilibrium state of the system. As the system works its way back toward chemical equilibrium, it is likely that fluorapatite is precipitating out of groundwater as it moves vertically upward along its flow path. The precipitation of fluoride as fluorapatite is indirectly evident from the higher concentrations of fluoride in surface sediments as reported by Mohrherr et al. (2005). The apparent decrease of fluoride in near-surface pore water is also likely related to removal of dissolved fluoride in this zone by mineral precipitation, and is not necessarily solely due to dilution.

3.1 HYDROGEOLOGIC FRAMEWORK OF THE SAND-AND-GRAVEL AQUIFER

The vertical profile of the Sand-and-Gravel aquifer consists of beds of sand and gravel interbedded with beds of silt, clay, and fine sand sediments (**Figure 4**). The permeability of these beds is variable, both laterally and vertically. However, the subsurface sequence can be divided into three distinct zones. These zones vary greatly in thickness and lithology throughout Escambia County. In addition, individual beds of sand or clay within these zones are highly discontinuous, resulting in considerable heterogeneity within the zones. The major zones are the surficial zone, the low-permeability zone, and the main producing zone (Roaza, et al., 1991).

3.1.1 Surficial Zone

The surficial zone consists of the uppermost layer of sediments. It contains the unsaturated zone and the shallow surficial water table. The surficial zone varies in thickness, but is generally less than 100 ft thick beneath the OU-2 monitoring area. The surficial zone consists primarily of quartz sand ranging in size from fine sand to gravel. Thin beds of limonite-cemented sandstone also occur. The zone contains thin beds of clay and silt that are highly discontinuous. These low-permeability beds occur both in the unsaturated and the saturated portions of the zone. Groundwater within the surficial zone primarily moves downward through the underlying lower-permeability zone to recharge the main producing zone of the aquifer.

3.1.2 Low-Permeability Zone

The low-permeability zone underlies the surficial zone and is composed of sediments with overall lower permeability characteristics than sediments above or below the zone. This zone forms a semi-confining layer and acts to restrict the vertical flow of groundwater between the overlying surficial zone and the underlying main producing zone. The actual lithology of this zone is variable, ranging from poorly sorted sand and silt to sandy clay to clay beds. Locally, well-sorted, water-bearing sands can also occur within this zone. Poor sorting and a higher percentage of clays and silts distinguish this zone from the other zones. The thickness of this zone in the subsurface underlying the facility ranges from about 20 to 50 ft (Roaza, et al., 1993).

The thickness and lithology of this zone is important because of its effect on vertical permeability. The low vertical permeability of this zone maintains the hydraulic head difference between the surficial and main producing zones in certain areas. This head difference imparts the vertical gradient responsible for the transport of dissolved constituents downward from the surficial zone to the main producing zone beneath the OU-1 Site (see **Figures 5 and 6**).

3.1.3 Main Producing Zone

The main producing zone is the most productive portion of the Sand-and-Gravel aquifer and is the zone tapped by most water supply wells. The main producing zone is the deepest portion of the aquifer. The groundwater within this zone exists under semi-confined conditions. The main producing zone consists of moderate to well-sorted sand and gravel, along with minor interbedded layers of sandy clay and clay. Locally and regionally, variations occur in the lithology of the main producing zone. Changes with depth tend to be gradual and include varying grain size distribution and changes in the degree of sorting.

The clay beds interbedded within this zone generally constitute 10 to 40 percent of the thickness. In some areas, the productive intervals can be correlated and appear to be continuous over a distance of many miles. The saturated thickness of the main producing zone near the Site is approximately 100 ft.

The main producing zone is recharged by leakage through the low-permeability zone. The actual amount of recharge is determined by the hydraulic head difference between the surficial zone and the main producing zone, the vertical permeability of the low-permeability zone, and the presence of any pumping wells. Groundwater from this zone discharges into Bayou Texar from east and west directions, which represents a discharge boundary for groundwater in OU-2.

3.2 HYDRAULIC HEAD DIFFERENCES AND GROUNDWATER FLOW BOUNDARIES

Within the former Site boundary (OU-1), the hydraulic head for the surficial zone is higher than the hydraulic head in the main producing zone, which causes the surficial zone to infiltrate and recharge the main producing zone. This causes the plume emanating from the Site to be transported and diverted to the main producing zone within about 0.4 mile of the Site. For this reason, the surficial zone plume has limited areal extent; and since source control has been completed, significant trends toward decreasing concentrations within the plume have occurred in the surficial zone. Near the bayou, the main producing zone hydraulic head is slightly higher than the surficial zone, causing the main producing zone to discharge into the bayou (see **Figures 4, 5, and 6**). The bayou is a discharge boundary; therefore, groundwater from the west and east directions of Bayou Texar discharge into the bayou. This creates a boundary condition for the groundwater flow and plume transport. The Agrico plume discharges from the west into Bayou Texar along with the westerly groundwater component. Groundwater from the east (at least as far away as the Pensacola Airport) also discharges to the bayou. **Figure 4** shows the hydrogeologic conceptual model from the Agrico Site to Bayou Texar.

Within OU-2, groundwater generally flows laterally and vertically (both upward near the discharge boundary and downward in recharge areas) within the Sand-and-Gravel aquifer. The overall direction of groundwater flow is easterly toward Bayou Texar. Head variations between zones are important in controlling the vertical direction of groundwater flow. **Figures 5 and 6** show the potentiometric surfaces on November 15, 2010 for the surficial zone and main producing zone, respectively. These surfaces are similar to those measured historically.

The flow direction downgradient of the Agrico Site is primarily controlled by the Bayou Texar discharge boundary conditions. Near the bayou, vertical head differences between aquifer zones cause groundwater to flow vertically from the main producing zone upwards, and groundwater discharges to the bayou. There is evidence that the bayou is a discharge boundary for both the surficial and main producing zones of the aquifer, and that groundwater does not pass under the bayou as underflow. Water levels within both zones to the north, east, and west of Bayou Texar indicate a groundwater flow direction toward the bayou boundary. Conditions for Bayou Texar have been substantiated by comprehensive groundwater modeling using actual water level data for modeling calibration. The work has primarily been conducted by the NFWFMD. Information concerning the discharge boundary for Bayou Texar is found in the following references:

- NFWFMD. (Roaza, Pratt, Richards). June 1993. Numerical Modeling of Ground Water Flow and Contaminant Transport in the Sand-and-Gravel Aquifer, Escambia County, Florida. Water Resources Special Report 93-4.
- NFWFMD. April 1996. Analysis of Ground Water Availability in the Cordova Park Area, Southeastern Escambia County, Florida.
- NFWFMD. (Richards, Pratt, and Milla). December 1997. Wellhead Protection Area Delineation in Southern Escambia County, Florida. Water Resources Special Report 97-4.
- NFWFMD. (Countryman, Baker, Pratt, and Miller). October/November 2000. Potentiometric Surface of the Surficial Zone of the Sand-and-Gravel Aquifer, Escambia County, Florida. Water Resources Map Series 01-1.
- NFWFMD. (Countryman, Baker, Pratt, and Miller). October/November 2000. Potentiometric Surface of the Main Producing Zone of the Sand-and-Gravel Aquifer, Escambia County, Florida. Water Resources Map Series 01-2.

3.3 CURRENT GROUNDWATER PUMPING CONDITIONS

The only wells present within the immediate vicinity of the Agrico plume are residential irrigation wells. No public supply wells are operating within the plume vicinity. Active public supply wells within 2 miles of the Agrico Site include the ECUA's F and Scott Street Well (approximately 1 mile southwest), Royce Street Well (approximately 1.1 miles northeast), and Well No. 6 (approximately 1.9 miles south) (see **Figure 1**). Based on the potentiometric surface data for the past 11 years, the pumping from the active supply wells and the irrigation wells does not adversely affect the groundwater flow direction in the area of the Agrico plume. This is also evident in the groundwater level trends for both the surficial zone and the main producing zones presented in **Appendix B**. These trends are closely related to rainfall conditions and show no evidence of pumping influences.

ECUA supply wells No. 8 (1995), No. 9 (1998), and East Plant (2000) have all become inactive (see **Figure 1**). ECUA's closure of these wells was not associated with the Agrico plume. Other sources have been identified by FDEP and are currently being investigated as potential sources that caused impacts to these closed wells.

The locations of the active and inactive public supply well sites in the vicinity of the Agrico Site are shown on **Figure 1**.

3.4 RAINFALL CONDITIONS

Rainfall records collected at the Pensacola Airport indicate that 2012 was characterized by above average normal rainfall (61.53 inches based on 1900-2012 period of rainfall record), with a total accumulation of 66.63 inches. During 2006, rainfall was the lowest for the past five-year period, with a total of 45.26 inches, or 16.27 inches below normal. The hurricanes during 2005 produced a very wet year, with an annual total of 87.32 inches, or 25.79 inches above normal.

Figure 7 presents the annual rainfall data for the period of record from the NOAA Pensacola station. Also included on **Figure 7** is a graph showing the cumulative departure from normal rainfall. This graph, in general, mimics groundwater level trends. For 2003-2005, the

cumulative departure from normal data indicates that groundwater levels were on the rise, reaching a high in 2005, and an overall declining trend since that time.

The field activities associated with this 2012 Annual Report included O&M tasks as outlined in the approved O&M Plans, September 1996 and November 1998 and as modified by implementation of EPA-approved long-term monitoring evaluation recommendations (URS, 2006d). On September 5, 2008, EPA approved discontinuing the semi-annual sampling program for OU-1 and instead these wells are incorporated into the long-term monitoring program as described below. The annual O&M tasks conducted in 2012 are as follows:

- Annual groundwater sampling (November 2012) of 23 long-term groundwater monitoring wells (for both OU-1 and OU-2)
- Annual surface water sampling at two long-term locations in Bayou Texar.
- Annual surface water sampling at three surface water sampling locations within the primary groundwater discharge reach of Bayou Texar (annual monitoring started in 2010).
- Irrigation well identification (an annual well permit search) and voluntary sampling and voluntary abandonment (by ConocoPhillips and Williams Companies, Inc.) for irrigation well owners (Voluntary Program).
- Annual advisory notices distributed to water well contractors, irrigation system installers, and pool contractors. This list of contractors was compiled from the NFWFMD list of licensed water well contractors, from Escambia County construction permit records, and from the telephone directory.
- Coordination and dissemination of site information to local, regional, and state agencies.
- Annual Florida Department of Transportation inquiry of construction activities scheduled for Fairfield Drive between the CSX overpass and the I-110 interchange.
- Annual review of NFWFMD well construction permits records to identify any potential new well construction downgradient of the Agrico Site. Also annual inquiry on status of NFWFMD well construction moratorium in the vicinity of the ETC and Agrico sites.
- Regular maintenance of property associated with the former Agrico Chemical Company (OU-1).

The Advisory Notice, Voluntary Program, Institutional Controls Coordination, and findings of the sampling results are further detailed in **Sections 5, 6, 7, and 8**, respectively.

4.1 GROUNDWATER SAMPLING

Annual groundwater samples were collected from the long-term monitoring network in November 2012. The total number of monitoring wells sampled for November 2012 includes 7 surficial zone wells and 16 main producing zone wells.

Groundwater samples were collected in accordance with the FDEP's SOPs for Field Sampling (Revision - December 2008). Sample collection techniques, sample documentation, preservation requirements, sampling equipment decontamination procedures, the types and number of quality assurance/quality control (QA/QC) samples collected, and specifications that allow for the verification of the precision, accuracy, and completeness of data collected are all detailed in the SAP (O&M Plan, November 1998).

4.1.1 Monitoring Well Network

Monitoring Locations

Monitoring locations for wells installed either in the surficial or main producing zones of the Sand-and-Gravel aquifer are shown on **Figure 1**. **Table 1** lists the wells in the Agrico monitoring network, including long-term monitoring wells which are sampled annually (includes measuring groundwater levels) and periodic monitoring wells where groundwater levels are measured annually and wells are sampled during the Five-Year Review. **Table 2** presents the well construction details for all monitoring wells associated with the groundwater monitoring program for the Agrico Site.

Sampling Constituents

The following constituents of concern are currently included as part of the long-term groundwater monitoring associated with the monitored natural attenuation remedy in both the surficial and deep zones:

- Fluoride
- Arsenic, Total (AC-2S and AC-3S)
- Chloride
- Sulfate
- Nitrate
- Radium 226 and Radium 228 (naturally occurring); also reported as the sum of combined radium 226 + 228 results

Lead and arsenic are no longer included as an analytical parameter for groundwater samples. However, arsenic is analyzed in AC-2S and AC-3S wells. Both of these modifications have been approved by the EPA (**Appendix D**). Reasons for these changes to the monitoring program are explained along with other recent modifications in Sections 4.1.2 through 4.1.4 below.

4.1.2 Summary of Sampling Modifications Initiated in November 2007

- Semi-annual sampling of OU-1 groundwater monitoring wells was discontinued and changed to annual sampling as part of the November sampling event. The OU-1 surficial zone monitoring wells, ACB-31S, ACB-32S, AC-33S, AC-34S, and AC-7SR, were integrated into a site-wide groundwater monitoring network. The analyte list for these wells was changed to include the OU-2 analyte list. In addition to total lead, total arsenic and fluoride (COCs in the OU-1 ROD), the groundwater samples from these wells were analyzed for chloride, sulfate, nitrate, radium 226, and radium 228(COCs in the OU-2 ROD) (**Appendix D**).
- All Agrico long-term sampling of groundwater and surface water included nitrate. Nitrite has been deleted from the site's analyte list as modified by implementation of EPA-approved long-term monitoring evaluation recommendations (URS, 2006d).

- Surficial zone monitoring wells AC-5S, AC-24S, AC-26S, NWD-2S, and NWD-4S were changed from long-term to periodic monitoring wells. Additionally, monitoring well NWD-3S was removed from the monitoring network because it was destroyed as a result of off-site construction.
- The groundwater sampling purging procedure was changed from extracting a minimum of three well volumes to a low-flow purge procedure that allows for collecting water quality field parameters after one well volume is purged, and then one-quarter well volume thereafter until three stable water quality parameter readings are collected. This procedure is in accordance with the FDEP SOP for sampling monitoring wells.
- Prior to November 2006, annual reports were prepared for OU-1 and OU-2. Annual reporting for these areas has been combined into one annual report.

4.1.3 Summary of Sampling Modifications Initiated in November 2009

- Additional groundwater sampling was requested by EPA in their comment letter dated October 15, 2009 regarding the Evaluation of Monitored Natural Attenuation in Groundwater Report. The additional wells included periodic monitoring wells AC-9D2, AC-24D, and AC-28D. Constituents to be analyzed from the groundwater from these monitoring wells are the same as the long-term network constituents. The status of these wells was changed from long-term until sufficient sampling results have been collected on an annual basis.

4.1.4 Summary of Sampling Modifications Initiated in November 2010

- Analysis of lead and arsenic were discontinued from the long-term network groundwater analyses for monitoring wells based on the EPA approval (February 5, 2010) of recommendations in the August 19, 2009, “*Evaluation of Monitored Natural Attenuation in Groundwater*” (**Appendix D**). In that report, the absence of arsenic and lead in groundwater samples collected from the monitoring well network was reported. The exception is for AC-2S and AC-3S. Total arsenic will continue to be analyzed for these wells to verify the continued effectiveness of the OU-1 cap.
- Sampling of Carpenter’s Creek at the Ninth Avenue Bridge (ACSW-BL) was discontinued as per January 25, 2010 approval of the November 18, 2009 Recommendations to Operations and Maintenance Plans for OU-1 and OU-2 (**Appendix D**).
- Three surface water sampling locations were added to sampling program and include BT-02, BT-107 and BT-127. These near-bottom surface water samples are analyzed for fluoride only (EPA recommendation in June 2010, Third Five-Year Review Report).

4.1.5 Well Purging

Each monitoring well associated with the monitoring network was purged and sampled with an electric, 2-inch, stainless steel, low-flow submersible pump and polyethylene tubing. All wells were purged a minimum of one and a half well volumes before sampling. When a well was purged dry, it was allowed to recover before sampling. Field parameters, including pH, specific conductivity, turbidity, temperature, dissolved oxygen, and oxidation reduction potential were

collected from all wells during purging. A summary of groundwater field parameters is presented in **Table 3**.

4.1.6 Investigation Derived Waste

Development and purge water pumped from each well was collected in a temporary storage tank installed on a field trailer. When the mobile storage tank was filled to capacity, the recovered water was transferred to a larger temporary storage tank located on the Agrico OU-1 site. In accordance with the FDEP guidelines, the wastewater is managed as industrial waste.

The IDW (non-hazardous groundwater purge water) is transported by Liquid Environmental Solutions (LES) to their Mobile, Alabama facility (EPA ID Number ALO 000 859 421). There it is treated and disposed of in accordance with state and federal regulations. The purge water, 2,935 gallons, was picked up and transported for disposal on December 7, 2012.

4.1.7 Water Level Measurements

In November 2012, groundwater levels were measured in all Agrico monitoring wells for OU-1 and OU-2 (26 main producing zone wells and 14 surficial zone wells). Water levels were collected prior to purging in wells scheduled for sampling. These water level measurements were used to evaluate water level fluctuations and groundwater flow direction. All measurements were used to prepare potentiometric surface maps for the surficial and main producing zones of the Sand-and-Gravel aquifer.

Static groundwater levels from all identified monitoring wells associated with the Agrico Site (**Figure 1**) were measured to within ± 0.01 ft on November 7, 2012. Measurements were collected with an electronic water level tape using the top of casing (TOC) as the measuring point. The measurements were subsequently referenced to the TOC elevations and used to calculate groundwater elevations. This information was used to confirm that groundwater flow directions remain similar to previous years. Groundwater elevations are presented in **Table 4**.

4.2 BAYOU TEXAR SAMPLING

Five surface water sampling locations were selected in specific areas of Bayou Texar based on the following information: (1) concentration pattern of the Agrico groundwater constituents moving downgradient toward Bayou Texar; (2) previous results of work performed in the bayou (Entrix, 1993a, 1993b, and 1993c); and (3), results of sampling during August 2008 and May 2009. Four of the sampling locations were within the primary groundwater discharge reach of Bayou Texar. One sampling location was downstream of the Agrico plume discharge area (**Figure 1**).

Surface Water Sampling

Two near-bottom surface water samples (ACSW-1 and ACSW-2 (**Figure 1**)) are annually collected as part of the long-term monitoring O&M network to assess the quality of surface water in Bayou Texar. Surface water sample ACSW-1 is collected within the segment of the brackish bayou known to receive groundwater discharge from the plume and surface water

sample ACSW-2 is also collected in the brackish bayou downstream of the identified impacted discharge segment.

Three near-bottom surface water samples (BT-02, BT-107, and BT-127) are located within the vicinity of ACSW-1 (**Figure 1**). These locations became part of the surface water network in November 2010.

All sampling points are in brackish water locations that are tidally influenced. Saline water from Pensacola Bay is drawn into the bayou during high tide. The locations of the surface water sampling are shown on **Figure 1**. All surface water samples are collected at low tide.

Surface water sampling is conducted in accordance with the November 1998 Sampling and Analysis Plan (SAP). The samples are collected from a boat. A discrete sample is collected at the deepest section of each transect. Samples are collected using a peristaltic pump and disposable polyethylene tubing attached to PVC pipe, which is lowered to the appropriate depth. The depth of each sample collected is approximately 6 inches above the floor of the bayou. Field parameters, including pH, specific conductivity, turbidity, and temperature, are collected in conjunction with the surface water samples.

A summary of the 2012 surface water field parameters is presented in **Table 5**.

Sampling Constituents

The following constituents were analyzed for in surface water samples ACSW-1 and ACSW-2 in November 2012:

- Fluoride
- Chloride
- Sulfate
- Nitrate
- Radium 226 and Radium 228 (naturally occurring); reported also as the sum of combined radium 226 + 228 results.

For sampling locations BT-02, BT-107, and BT-127, fluoride was the only constituent analyzed.

4.3 CHEMICAL ANALYSES

Groundwater and surface water samples collected for the 2012 (November) event were submitted to TestAmerica Laboratories, Inc. (TA), Tallahassee, Florida. All analyses were performed by the Tallahassee and Pensacola laboratories (Certification No. E81005 and E81010, respectively), except radium 226 and radium 228 which was analyzed by TA Richland (Certification No. E87829). All analyses were performed pursuant to NELAP requirements. TA is a certified analytical laboratory by EPA, and the State of Florida. All analytical reports were prepared in accordance with TA's Level III report format. The following analytical methods were used to analyze the specific media in accordance with SW-846.

CONSTITUENT	ANALYTICAL METHOD
Fluoride	340.2
Chloride	300.0 (Ion Chromatography)
Sulfate	300.0 (Ion Chromatography)
Nitrate	353.2 Nitrate by calculation
Arsenic	6010B
Radium 226	903.1 Mod (RL-RA—001)(Alpha Scintillation)
Radium 228	904 Mod (RL-RA—001)(Gas Proportional Counters)

The laboratory reports are contained in **Appendix A**. The analytical results are further detailed in **Section 8**.

4.4 VOLUNTARY IRRIGATION WELL ABANDONMENT PROGRAM

In July 1999, an irrigation well survey was mailed to the residences downgradient of the Agrico Site area in accordance with the Remedial Action Work Plan. The surveyed area is defined on **Figure 3**. A total of 1,638 surveys were distributed, and 338 responses were received from July 1999 through December 1999. Thirty-three irrigation wells were identified from the survey.

The survey also attempted to solicit information to identify the types of uses of the irrigation wells. For the irrigation wells identified, one well was reported to be used occasionally to fill a swimming pool. This well was sampled in August 1999 for a list of analytes including volatile organic compounds, semi-volatile organic compounds, eight RCRA metals, and the Agrico site-related constituents. The results indicated that all constituent concentrations were less than the detection limit or below maximum contaminant levels. All other wells were reported to be used for irrigation. The entire OU-2 area is served by the ECUA public water system. Irrigation well owners can request the sampling or abandonment of their irrigation wells through FDEP's District Office in Pensacola or the Escambia County Health Department. These requests are forwarded to the PRP's consultant for action.

During 2000, continued efforts were made to identify additional irrigation well locations. Additionally, where well owners granted permission, sampling and analysis of well water was conducted. Three locations identified by the original survey were determined not to have wells. One additional irrigation well was identified during the field visits. Based on the 2000 information and the 1999 survey results, a total of 58 wells were identified within the OU-2 area. During 2000, 11 irrigation wells were sampled. The analyses, in addition to Agrico site-related constituents, included volatile organic compounds (Method 8260), semi-volatile organic compounds (Method 8270), and eight RCRA metals. The results for irrigation wells sampled during 2000 are presented in the 2000 Annual Report for OU-2 (URS Greiner Woodward-Clyde, 2000a).

During 2001, efforts continued to identify additional irrigation wells, sample identified wells, and allow well owners to participate in the voluntary well abandonment program. One additional well was identified within the defined irrigation well survey area. Also during 2001, nine additional irrigation wells were sampled. The wells were sampled for the voluntary

program analyte list as in previous years. Two irrigation wells were plugged and abandoned with the owners' permission during 2001.

During 2002, efforts continued to identify new or existing irrigation wells. One additional well was identified.

During 2003 through 2012, efforts continued to identify new irrigation wells. No additional new wells were identified by searching the NFWFMD's well construction permit file. Also, no irrigation well owners requested their wells to be sampled or abandoned.

For 2012, a review of the NFWFMD well construction permit database yielded no new wells installed in the area downgradient of the Agrico Site. Also, no owners of existing irrigation wells requested their wells to be sampled or abandoned.

Section 6 further details the irrigation well abandonment program.

4.5 ADVISORY PROGRAM

An annual advisory notice is sent to contractors conducting work in southern Escambia County. On October 24, 2012, the advisory notice was sent to water well contractors, irrigation system installers, and pool contractors, informing them of groundwater conditions in the vicinity of the Agrico Site. The contractor listing was updated from yellow pages listing, well contractor licenses listing, and returned "not deliverable – no forwarding address" notices. For the purposes of the advisory notice, the area identified is approximately bounded on the north by Fairfield Drive, on the west side by Palafox Street, on the south side by Bobe Street, and on the east side by Bayou Texar. The notice stated that the construction of wells in this area, including lawn irrigation wells, may be restricted due to the occurrence of impacted groundwater. The contractors were advised to contact the NFWFMD, the Northwest District of FDEP, or the Escambia County Health Department for further information. **Section 5** further details the advisory notice distributed.

4.6 INSTITUTIONAL CONTROLS COORDINATION

As part of the O&M activities, a memorandum is annually distributed to local, regional, and state agencies. The memorandum is intended to solicit information on any changes in regulatory rules or policies that may affect the institutional controls currently in place for the former Agrico Site and downgradient area where impacts caused by the Agrico plume are defined. The annual memorandum was distributed on December 13, 2012 to the agencies listed below:

- Florida Department of Environmental Protection (FDEP) (Northwest District)
- Florida Department of Environmental Protection (FDEP) (Tallahassee)
- Emerald Coast Utilities Authority (ECUA) (formerly Escambia County Utilities Authority)
- Northwest Florida Water Management District (NFWFMD)
- City of Pensacola
- Escambia County Health Department (ECHD)
- Escambia County Neighborhood and Environmental Services Department
- Florida Department of Transportation, District Three (FDOT) (Chipley)
- United States Environmental Protection Agency (EPA), Region 4

In addition to the annual memorandum, all major reports generated as a result of data collected for the Agrico Site will be distributed to these agencies following review and approval by EPA to distribute reports. **Section 7** further details the Institutional Controls Coordination.

As part of the advisory program, vicinity water well contractors, irrigation system installers, and pool contractors were sent a notice informing them of certain restrictions that may exist within the OU-2 area. The annual advisory notice was distributed on October 24, 2012 to the contractors listed in **Table 6**. **Table 6** was revised to reflect new contractors and changes in information since last year. The notice was as follows:

Water Well Contractors

Irrigation System Contractors And

Pool Contractors

Please be advised that additional well construction requirements may be specified for wells constructed in the following localized area of Pensacola, Florida.

- South of Fairfield Drive
- East of Palafox Street
- West of Bayou Texar
- North of Bobe Street

Areas outside of the area described above may also be affected. Please contact Northwest Florida Water Management District (NFWFMD), the Florida Department of Environmental Protection (FDEP), or the Escambia County Health Department (ECHD) for further information.

Per Chapter 62-524, Florida Administrative Code, New Potable Water Well Permitting in Delineated Areas and Chapter 40A-3, Florida Administrative Code, Regulation of Wells, water well construction permits issued by the NFWFMD, including wells used for lawn irrigation, may have certain specific conditions or limitations attached.

On February 22, 2001 the NFWFMD governing board passed a well construction moratorium that includes the area specified above. This moratorium applies to all wells except monitoring wells. The moratorium is currently in effect and prohibits new wells in the designated area.

Also, additional requirements for irrigation systems may be required by the Escambia County Health Department.

For further information contact:

Northwest Florida Water Management District

Tallahassee Office: 850-539-5999

Or

Florida Department of Environmental Protection, Northwest District

850-595-8300

Or

Escambia County Health Department

850-595-6700

During each year, efforts are made to identify additional irrigation wells within the area shown on **Figure 3**. For each well identified, permission from the well owners is sought to sample the wells and have the wells plugged and abandoned. Experience to date indicates that irrigation well owners generally allow wells to be sampled, but do not want their wells to be abandoned. If irrigation wells are sampled, all results are submitted to the well owner and the Escambia County Health Department.

6.1 IRRIGATION WELL SURVEY

No additional irrigation wells were identified during 2012. NFWFMD well construction permit records became available on-line in 2007 and a search/query is performed on the records each year. The Escambia County permitting data were queried for data in Townships 1S and 2S and Ranges 29W and 30W. The OU-2 defined area lies within these townships and ranges. These data were then address matched to determine if the address is in or out of the defined search area. As part of the process, addresses are converted to points on a map via a geo-coding function in ESRI's ArcGIS using Street Map data as a reference layer. Details for previously identified wells are provided in **Table 7**, and the irrigation well locations are shown on **Figure 3**.

6.2 IRRIGATION WELL SAMPLING RESULTS

No irrigation well sampling occurred during 2012.

6.3 IRRIGATION WELL ABANDONMENT LOCATIONS

No irrigation wells were abandoned during 2012.

Currently, institutional controls are in place that provides protection to the public drinking water supply. As part of the OU-2 remedy, periodic checking is performed to determine the status of institutional controls established by local, regional, and state agencies. In order to verify that controls remain in place, annual letters are sent to the various agencies requesting information on any changes or proposed changes. Since these agencies also receive reports regarding groundwater conditions, the purpose of the communications are: 1) to address any questions the agencies have concerning groundwater conditions and 2) to receive a status report from the agencies concerning the existing regulations, planned rule changes, or new regulations which control groundwater use in the Agrico OU-2 area.

Institutional controls include the following:

1. Well construction and consumptive use approval (NFWWMD)

On February 22, 2001, the NFWWMD Board passed a moratorium on drilling new wells, including irrigation wells, in the Agrico and Escambia Treating Company areas. The moratorium remained in effect during 2012 and is expected to continue for 2013.

The moratorium affects the west side of the bayou only because the Agrico plume does not extend across the bayou due to hydrogeologic boundary flow conditions (the bayou is a discharge boundary, receiving groundwater recharge from both the east and west).

This moratorium is governed by the NFWWMD Rule 40A-3 which is incorporated into the rule as 40A-3.055 Prohibitions:

- (1) The construction of certain, specified types of water wells shall be prohibited in the following areas:
 - (a) Escambia Treating and Agrico Superfund Sites, South Escambia County – permitting of all water wells other than monitor wells or aquifer restoration wells shall be prohibited with the area inside and bounded on the west by CSX railroad corridor, on the east by Bayou Texar, on the south by East Cross Street projected in a straight line until it intersects Bayou Texar, and on the north by Hyatt Street, North Davis Highway, Wynnehurst Street, Kenneth Street, Boxwood Drive, Ash Drive, Ninth Avenue, and Hillbrook Way projected in a straight line until it intersects Bayou Texar.

2. Irrigation systems approval (ECHD):

A letter dated February 2, 2005 was received from the Director of the Environmental Health Services, Escambia County Health Department, indicating that the ECHD no longer approves or disapproves irrigation systems. The coordination with the City of Pensacola Building Inspection office for installation of irrigation systems is no longer a function performed by ECHD.

Based on this information, the only regulatory control as it relates to groundwater within the OU-2 area is managed by the Northwest Florida Water Management District in their well construction permit program.

3. The location of the Agrico plume is well defined, and ECUA is on the distribution list for reports related to the Agrico plume. Because of this information, a future well location in the vicinity of the Site is highly improbable.

4. Existing wells are regularly sampled by ECUA, which reports these data as part of their permits to FDEP. Therefore, any potential impacts to the supply wells caused by existing plumes can be assessed. For example, existing impacts from Site 348 are currently under assessment by FDEP as a result of analytical results from ECUA wells (F & Scott Well, East Plant Well, Well No. 8, and Well No. 9).
5. The Northwest District for the Florida Department of Environmental Protection has designated the area that encompasses both the Agrico plume area and the ETC plume area as a contaminated area under Chapter 62-524, Florida Administrative Code (FAC). The area is the same as the OU-2 area defined on **Figure 3**. The FDEP designated area also includes a portion to the north of the Agrico OU-2 area that is associated with the ETC plume. Chapter 62-524 FAC is closely tied to the NFWFMD well construction permit program since the designated area requires more stringent processes by the permit applicant before a well construction permit can be issued by the NFWFMD. Since there is a moratorium on the issuance of a well construction permits within the designated area, the moratorium provides more stringent restrictions than Chapter 62-254.
6. Deed restrictions on Agrico Property provide for certain future land use and subsurface limitations.

On November 14, 2012, a memorandum (see following page) was distributed to:

- Karen Shea– FDEP, Northwest District, Pensacola
- Walsta Jean-Baptiste - FDEP, Tallahassee
- Danny Majors and Tim Haag - Emerald Coast Utilities Authority
- Guy Gowens – NFWFMD; as of November 2012, Tom Brown replaces Guy Gowens
- Thaddeus Cohen - City of Pensacola
- Mark Spitznagel and Robert Merritt - Escambia County Health Department
- Keith Wilkens – Escambia County, Neighborhood and Environmental Services
- Alan Hagans – Florida Department of Transportation, District Three (Chipley)

A copy of the memorandum was also distributed to Scott Miller, Project Manager, EPA, Region 4.

On November 13, 2012, FDOT was sent an annual inquiry regarding construction activities. On November 14, 2012, Alan Hagans (FDOT-Chipley), District 3 Contamination Impacts Coordinator, responded to the inquiry by indicating that that any planned projects were non-intrusive activities (**Appendix D**).

To: Karen Shea (FDEP NW District)
Walsta Jean-Baptiste (FDEP, Tallahassee)
Tim Haag (ECUA)
Danny Majors (ECUA)
Guy Gowens (NFWFMD)
Thaddeus Cohen (City of Pensacola)
Mark Spitznagel (ECHD)
Robert Merritt (ECHD)
Keith Wilkins (Escambia County)
Alan Hagans (FDOT Chipley)

From: Jeffry R. Wagner, P.G.
Office: URS - Tallahassee
Date: November 14, 2012

**Subject: Institutional Controls Coordination
Agrico Site, Pensacola, Florida**

As part of the U.S. Environmental Protection Agency (EPA) approved Remedial Action Work Plan for Operating Unit Two (OU-2) (November 1998), periodic communications are planned with the agencies in order to ensure and verify that existing institutional controls remain in place. The purpose of this Memorandum is to solicit, in writing, information on any changes in existing or any proposed new regulatory requirements that may affect the existing institutional controls pertaining to the Agrico Site.

INSTITUTIONAL CONTROLS

Several rules, regulations and policies already exist which control the use of groundwater within the OU-2 area. These serve as institutional controls, and include:

1. Well construction and consumptive use is approved by Northwest Florida Water Management District (NFWFMD). On February 22, 2001 the Northwest Florida Water Management District (NFWFMD) Governing Board passed a well construction moratorium for the area bounded to the north by Hyatt Street, Wynnehurst Street, Kenneth Street, Boxwood Drive and Brookside Place; to the west by the CSX Railroad; to the south by East Cross Street; and to the east by Bayou Texar. This moratorium applies to all new well construction within the designated area except monitoring wells and encompasses both the Agrico and Escambia Treating Company areas. The moratorium remains in effect during 2012.
2. Access is restricted on the Agrico site. The property is secured by a perimeter chain link security fence and locked gates. Restrictive and site information signs are posted advising the public of the on-site conditions, and a contact phone number is also posted for inquiries. The site is routinely inspected by authorized personnel and inspection reports on the site conditions are completed twice a year. Additionally, the site is inspected after each major storm event. Any damages found are repaired. Construction or related activities which would interfere with maintaining the site remedial measures are prohibited by the legal deed restrictions. Any use of the property contrary to the Record of Decision is prohibited, as per covenants filed for the property.
3. The location of the Agrico plume is well characterized and documented. Because this information is submitted to the ECUA and other agencies in an annual report, and because of the NFWFMD well moratorium, it is highly improbable that future municipal wells will be located in the vicinity of the site. It should also be noted that non-Agrico groundwater impacts are present outside of the Agrico plume. To the north of the Agrico site, groundwater impacts have been caused by the Escambia Treating Company (ETC) site. This plume intrudes into the Agrico area to the south. Also south of the Agrico plume, Florida Department of Environmental Protection (FDEP) is assessing a site referred to as Site 348. This site has reportedly contributed to groundwater impacts to the south of the Agrico plume. The Site 348 plume has the potential to intrude into the Agrico area, and Site 348 has similar COCs to those of Agrico. This site is being assessed for possible impacts to ECUA wells, including F& Scott Streets well, No. 9 well, and East Plant well. Groundwater from Site 348 moves easterly and may discharge into Bayou Texar, if not affected by pumping from F & Scott Streets Well. Additionally, other sources of groundwater impacts exist within and in the near proximity of the Agrico plume and include releases from petroleum and dry cleaning related sites as documented by FDEP.
4. The ECUA regularly samples and analyzes water being pumped from public supply wells. ECUA controls the pumpage from these wells. The cause of current impacts to ECUA wells, as noted above, is the subject of an ongoing assessment by FDEP. Pumping of both East Plant and well No. 9 have been discontinued. The F& Scott Street well is still active and within a distance from Site 348 impacts that pumping influences could potentially draw the Site 348 plume toward this active well.
5. In 1997, the Northwest Florida Water Management District (NFWFMD) established 7-year and 20-year capture zones around each ECUA water supply well. These captures zones constitute the wellhead protection area for each well

(Richards, Pratt, and Milla, December 1997, Wellhead Protection Area Delineation in Southern Escambia County, Florida; Water Resources Special Report 97-4, NFWFMD). The Agrico plume remains outside of the 20-year capture zone for all supply wells. Site 348 lies within the 20-year capture zone for inactive ECUA Well No. 9. And Site 348 lies in close proximity to the designated capture zone for active ECUA Well F & Scott.

6. The Designated Area has been established by the FDEP and regulated by Florida Administrative Code, Chapter 62-524, FDEP rules. New potable well permitting requirements must be met in order to install a new potable water well. This designated area is the same as the area defined in item number 1. At this time, the NFWFMD moratorium is a more stringent restriction than that related to the Chapter 62-524 designation.

Beginning with the 2006 Annual Report, the OU-1 and OU-2 annual reports have been combined into a single report. The 2011 Annual Report was distributed to you in June 2012. The 2012 Annual Report is currently in preparation and will not be submitted until the second quarter of 2013. This report will be distributed following review and approval by EPA.

Site information is available at the local EPA repository, the West Florida Regional Library [*Genealogy Branch – N. 9th Ave*]. Information includes various project documents. Additionally, a site specific internet web site has been established at: <http://agricopensacola.com>. The web site contains general information and includes all Fact Sheets for the site.

Three Five-Year Reviews of the Agrico Site have been completed by EPA. Each Review has concluded that the remedy at the Agrico Site is functioning as intended by the Records of Decision for OU-1 and OU-2, and remains protective of human health and the environment. The next Five-Year Review will be conducted in 2015.

As part of the 2010 Five-Year Review, an evaluation of monitored natural attenuation in groundwater was conducted for the Agrico site. The results of this evaluation were submitted to EPA and FDEP in the report “*Evaluation of Monitored Natural Attenuation in Groundwater, Agrico Site, Pensacola, Florida, August 19, 2009*”. The data show that mechanisms for attenuation are in place throughout the area and the effects of the source remedy (implemented in 1997) are propagating downgradient, as expected. The report was approved by EPA on February 5, 2010.

In addition to this evaluation, an assessment of potential impacts downgradient of the Agrico groundwater plume was presented to EPA and FDEP on September 4, 2009 in the report, “*Conceptual Site Model, Ecological Impact Evaluation of Bayou Texar Downgradient of Agrico’s Groundwater Fluoride Plume, September 14, 2009*.” The report concluded that there is no completed exposure pathway between populations of demersal fish and benthic receptors in the Bayou downgradient of the Site, and concentrations of fluoride in pore water and near-bottom surface water that potentially would cause adverse effects to the populations of demersal fish and benthic receptors. The report also concluded that the fluoride solubility in the majority of surface sediments and in all pore waters within the groundwater plume discharge area is controlled by mineral precipitation reactions that are responsible for buffering dissolved concentrations of fluoride. This report was approved by EPA on September 20, 2010. The approval modified the report recommendations to include three additional surface water sampling locations to be added as part of the annual sampling for the site.

Annual groundwater/surface water monitoring continues for the Agrico site. Fourteen years of annual monitoring have been conducted since 1999.

Please respond in writing concerning any contemplated changes in existing or any proposed new regulatory requirements that may affect the existing institutional controls pertaining to the Agrico Site to Jeffry R. Wagner, URS Corporation, 1625 Summit Lake Drive, Suite 200, Tallahassee, Florida 32317, or send an e-mail to Jeffry.Wagner@urs.com. Your assistance in this cooperative effort is greatly appreciated.

If you have any questions, please contact me at (850) 402--6409.

JRW/lc

cc: Scott Miller, EPA Region 4

8.1 SAMPLING RESULTS

The November 2012 sampling activities completed the annual sampling requirement for the Agrico Site. A total of 23 long-term monitoring wells were sampled for the Agrico Site.

Groundwater field parameters results are discussed in Section 8.2. Details from the November 2012 sampling event are shown in **Table 3** and historical trends are shown on graphs within the section discussion.

The surface water sampling results for Bayou Texar are discussed in Section 8.3. Details of results are presented in **Table 9** and **Figure 32**.

The groundwater sampling results for the identified COCs detected in the surficial and main producing zones for the site-wide monitoring wells are discussed Section 8.5. Details of results are provided in **Table 8**. **Figures 8, 14, 20 and 26** show the locations of monitoring wells for each grouping of trend plots. **Figures 9 through 31** (excluding the location figures) show the concentration trends for fluoride, chloride, sulfate, nitrate, and combined radium 226+228 for each of the long-term monitoring locations.

Appendix A contains all laboratory analytical reports from the November 2012 sampling event.

8.2 GROUNDWATER FIELD PARAMETERS

In addition to the Agrico COCs, several field parameters are collected as part of the groundwater sampling program (**Table 3**). These parameters include water temperature, pH, dissolved oxygen, turbidity, specific conductance, and the oxidation-reduction potential. An understanding of these parameters can be important in understanding the relationships between COC concentrations and field parameter ranges in values, in defining and understanding ranges of background concentrations, and in evaluating overall COC concentration trends. A more detailed discussion of selected field parameters, including specific conductance, pH, dissolved oxygen and the oxidation-reduction potential follows.

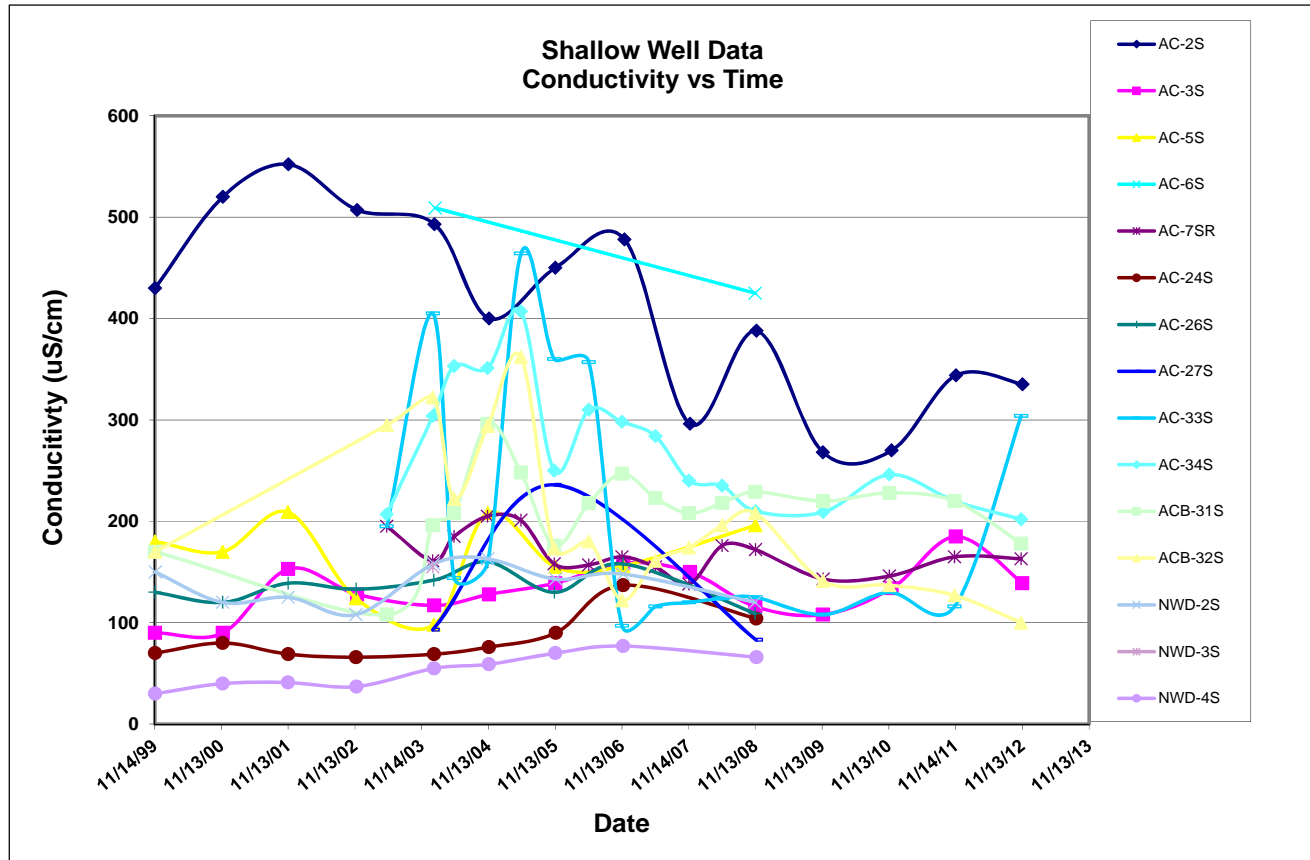
8.2.1 Specific Conductance

Specific conductance is a measure of how well a water sample conducts an electrical current. It is a straightforward measurement that can be made with reasonable accuracy in the field. It is, therefore, often used as a proxy for the total dissolved solids (TDS) analysis.

Within the main producing zone plume, the specific conductance values were generally greater than 200 micro Siemens per centimeter (uS/cm) and currently ranges as high as 1,545 uS/cm. Outside of the plume, conductance ranged from a low of 80 to less than 250 uS/cm, which are within in the range of background values. As groundwater recharges the Sand-and-Gravel aquifer in Escambia County, it encounters relatively little soluble material, and the water has characteristically low hardness (soft) and is relatively unmineralized. The aquifer is composed of mostly quartz sand, which is not very soluble. The abundant rainfall and the aquifer's high permeability keep the groundwater moving, and the residence time is such that the water does not tend to contain a significant quantity of dissolved mineral matter. Specific conductivity within the surficial zone of the sand-and-gravel aquifer appears to be within the range of background for all shallow well samples.

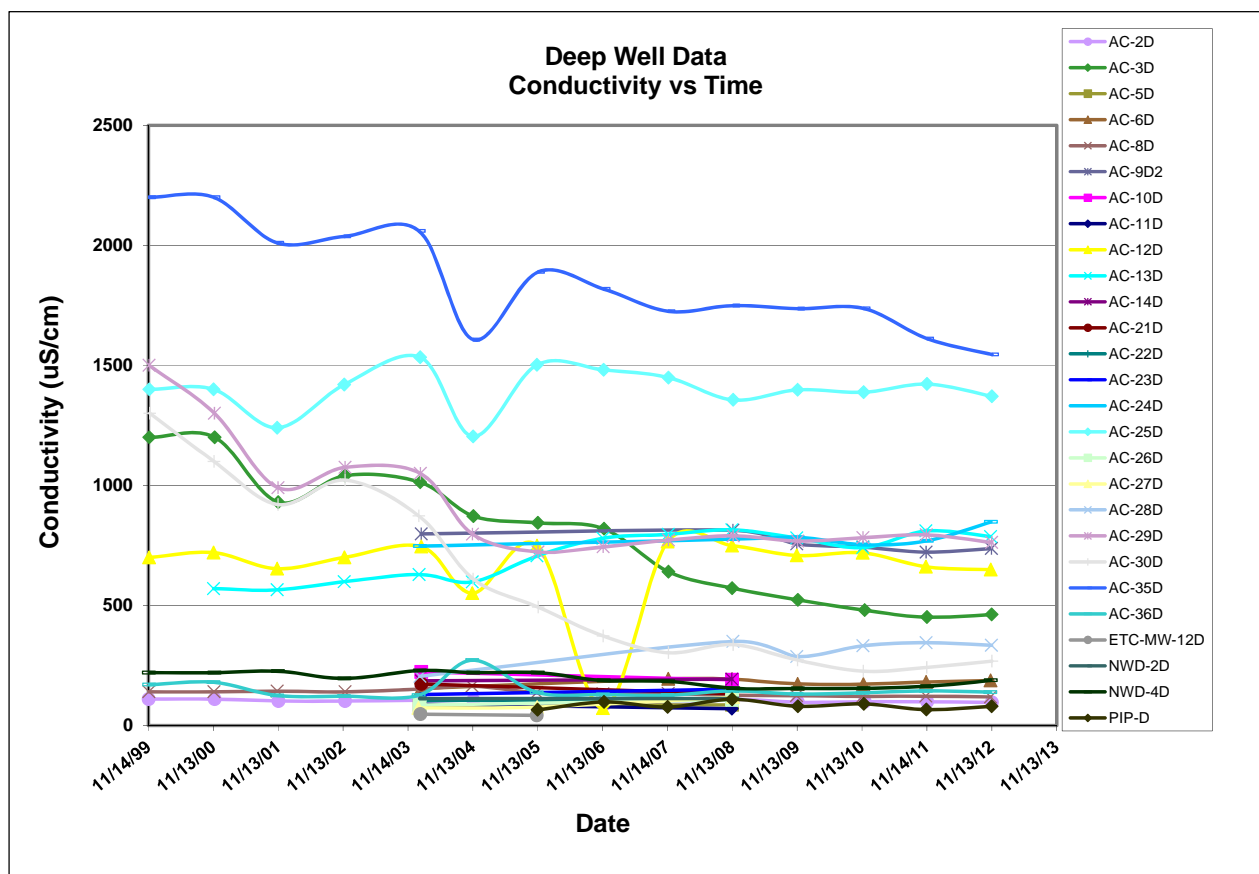
Surficial Zone Groundwater:

The shallow groundwater conductivity vs. time chart is shown below.



Main Producing Zone Groundwater:

The deep groundwater conductivity vs. time chart is shown below.



8.2.2 pH

Groundwater pH within the Sand-and-Gravel aquifer underlying Escambia County reflects generally acidic conditions (less than 7.0 standard units, su). The reason for the acidic conditions is that rainwater has a pH generally less than 5.5 su in the Escambia County area (Trapp, 1973). This low rainfall pH, coupled with the high recharge from rainfall to the aquifer and the relatively inert nature of the sandy sediments that comprise the aquifer, yields a groundwater pH that is acidic.

Information from the U. S. Geological Survey (USGS) collected in Escambia County was reviewed for groundwater pH data. The period 1968 to 1980 was an extensive data collection time in Escambia County by the USGS. A total of 222 observations of pH (Coffin, 1982) were collected from 69 sites distributed throughout southern Escambia County. The sites were located to characterize general groundwater conditions and were not associated with any assessment of known contamination sites. The range of pH for the 222 observations was 3.4 to 8.9 su. The average pH for the 12 year period was 5.28 su. Background pH conditions are variable and are controlled by local recharge conditions, seasonal rainfall patterns, and whether the groundwater is from a shallow or deep source. Generally, the groundwater occurring at shallow depths (less

than 100 ft below land surface) is more acidic than deeper occurring groundwater that tends to approach neutral conditions.

In addition to the above pH data for groundwater, a review was conducted of long-term pH data for a surface water gaging station on the Perdido River at Barrineau Park. The Perdido River is the westernmost boundary for Escambia County. The station is located about the middle portion of the county and shows that base flow streamflow conditions have pH values generally less than 5 su. Since the base flow of this stream, as well as, other streams in the county is derived from groundwater, this is another line of evidence that groundwater pH conditions are acidic.

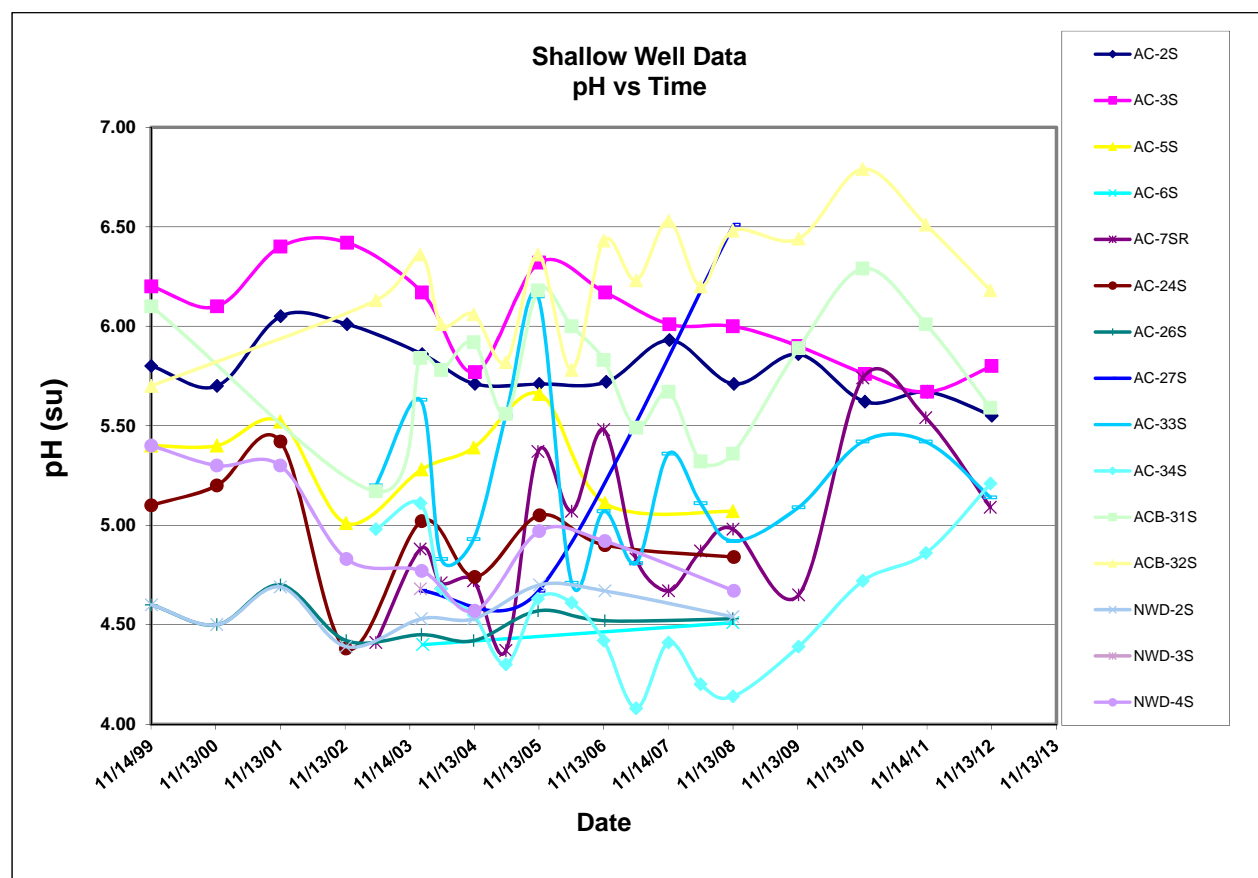
Geochemically, pH is an important factor in understanding the occurrence of radium in the groundwater beneath Escambia County. Historically, the impacts from radium are well documented within the county and many of these exceedances are not associated with known contaminated sites. The public supply well known as the Hagler Well located at the regional airport in Pensacola is just one example where exceedances are documented and there are no known sources other than possibly background pH groundwater conditions. As the USGS data indicates, the groundwater can have a naturally occurring background value as low as 3.4 su. Likewise, the data showed that 101 of the 222 observations of pH were less than 5 su. This indicates acidic background conditions existing for the groundwater in southern Escambia County.

Exceedances of radium in Escambia County are believed to be associated with naturally occurring thorium minerals in the subsurface. USGS research (Zapacza and Szabo, 1988) at sites throughout the eastern United States indicate that when groundwater pH is approaching 4.5 to 5 su or lower and thorium is present, a process known as recoil mobilization is possible. This recoil process allows radium 228 to be released to the groundwater from the minerals containing thorium. For Escambia County as a whole, it is possible to activate this release with what is considered background groundwater conditions.

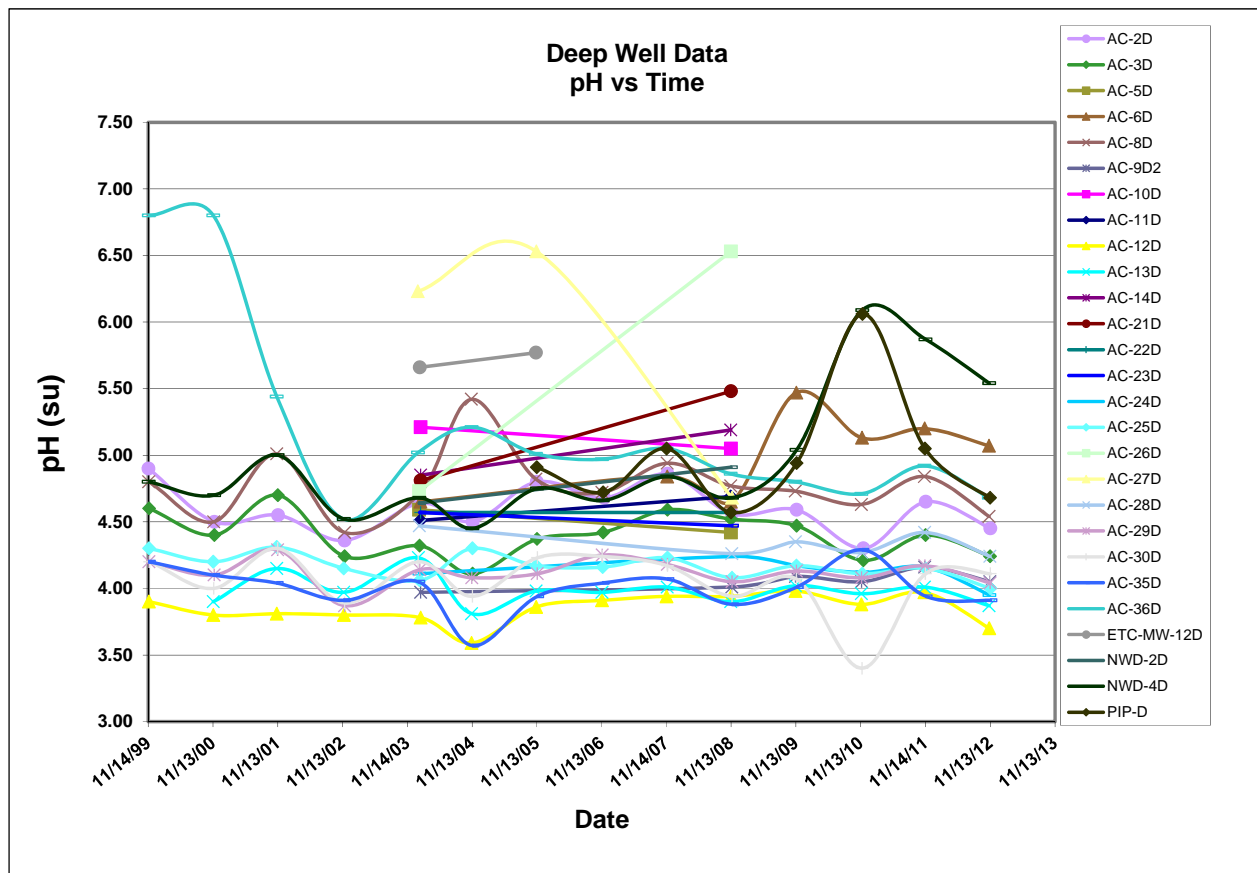
The acidity reflected by low pH in groundwater within the Agrico plume is most likely the result of former operational processes whereby wastewater was disposed in the former on-site impoundments at the former Agrico facility (Watts, et al, 1988). Since the completion of the OU-1 Remedial Action, the pH of shallow groundwater conditions within the plume has improved and currently is between 4.86 and 6.51 su. The current range of pH values within the main producing zone plume is 3.94 to 4.40 su. Upgradient of the former Site, the designated off-site upgradient monitoring well, PIP-D shows a current groundwater pH of 5.05 su.

The trends in groundwater pH from the Agrico network monitoring wells are reflected in the following graphs for the surficial and main producing zones of the aquifer

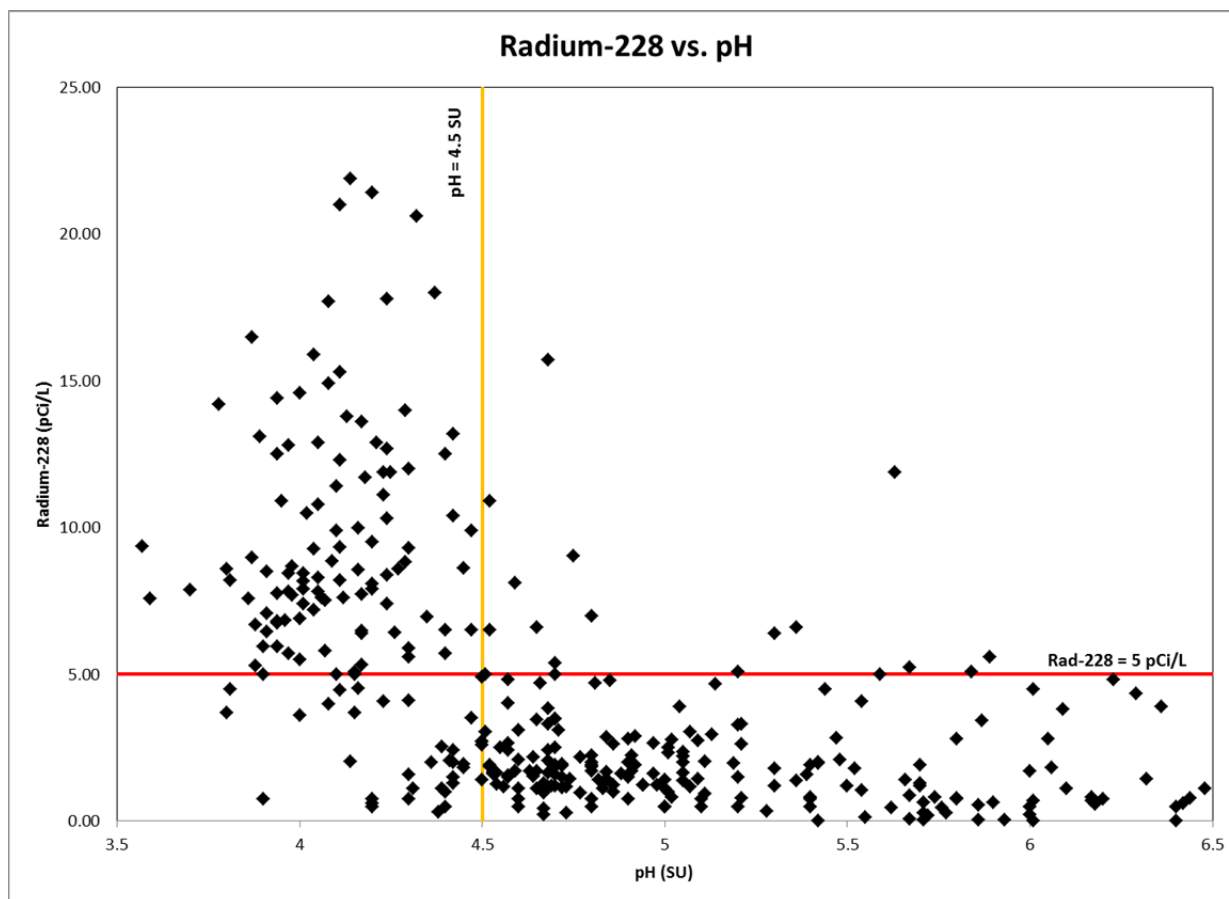
The surficial zone groundwater pH vs. time chart is shown below.



The main producing zone groundwater pH vs. time chart is shown below.



The following graph is updated from the original graph (URS, 2007) to show data from all sampling events conducted for the Agrico Site. The graph shows the relationship between pH and radium 228 concentrations whereby as the groundwater pH approaches about 5 to 4.5 su or lower, the radium 228 concentration generally exceeds the 5 pCi/L drinking water standard for combined radium 226 + radium 228. It should be noted that the use of a pH of 4.5 su to demonstrate this relationship is within the range of pH that the recoil process generally is activated. The recoil activation range is plus or minus a pH of 4.5 su (Zapeczka and Szabo, 1988).



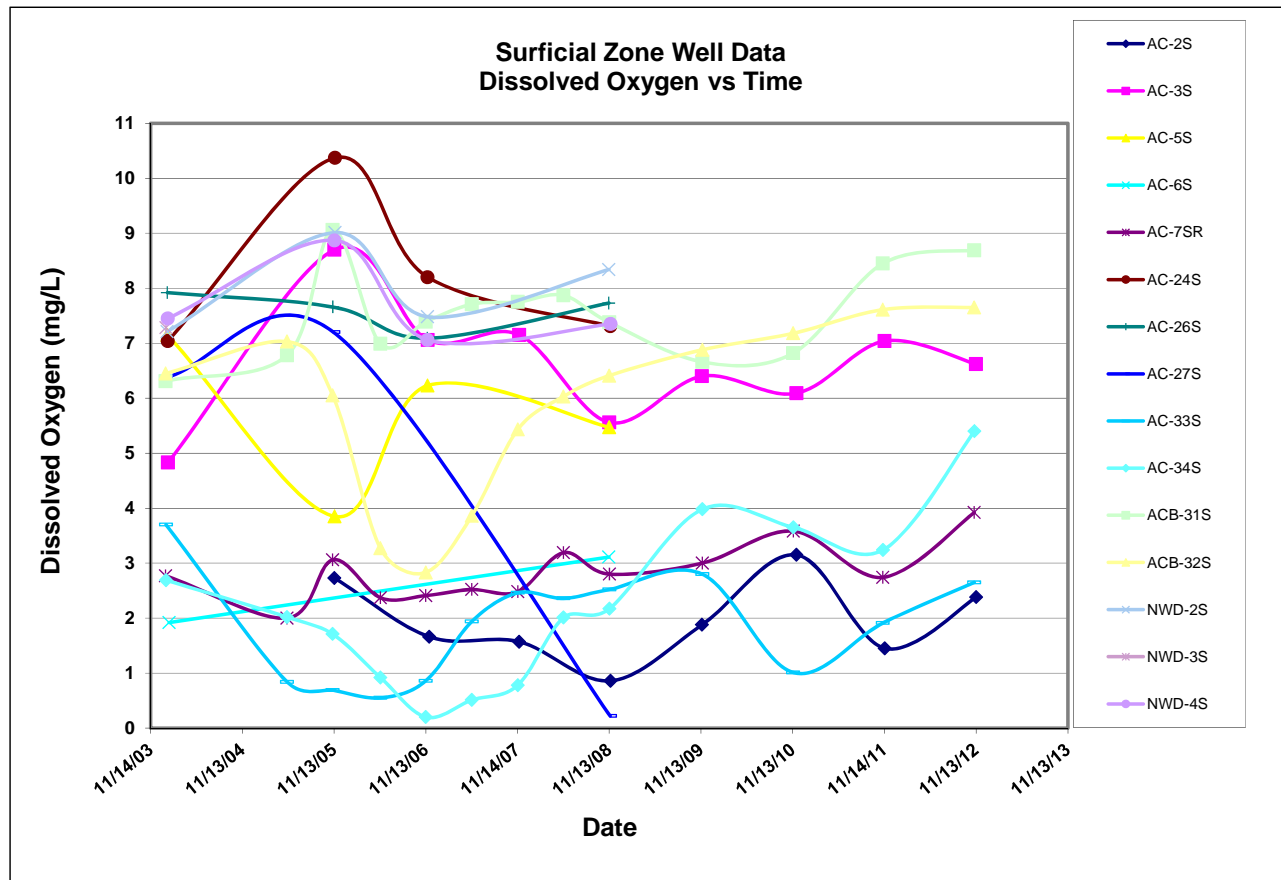
Acidic groundwater conditions are also associated with Site 348. This site is located approximately 3,000 feet south of the Agrico Site. Assessment reports for Site 348 (MACTEC, 2010) present pH and radium 228 data which show that low pH conditions result in exceedances of the radium standard of 5 pCi/L for combined radium 226 and radium 228. Data from Site 348 indicates that radium 228 is the predominant isotope present in the groundwater beneath the Site 348. Site 348 is located in close proximity to nearby former municipal water supply wells.

8.2.3 Dissolved Oxygen

The solubility limit (saturation concentration) of oxygen in water (in equilibrium with air) at the temperatures, pressures, and salinities encountered in shallow groundwater at the Site is on the order of 8.5 mg/L (ppm). Oxygen's solubility limit increases as temperature decreases. Dissolved oxygen concentrations greater than 1 mg/L (aerobic conditions) are considered to support aerobic microbial metabolism, and conversely, DO concentrations less than 1 mg/L (anaerobic conditions) support anaerobic microbial systems.

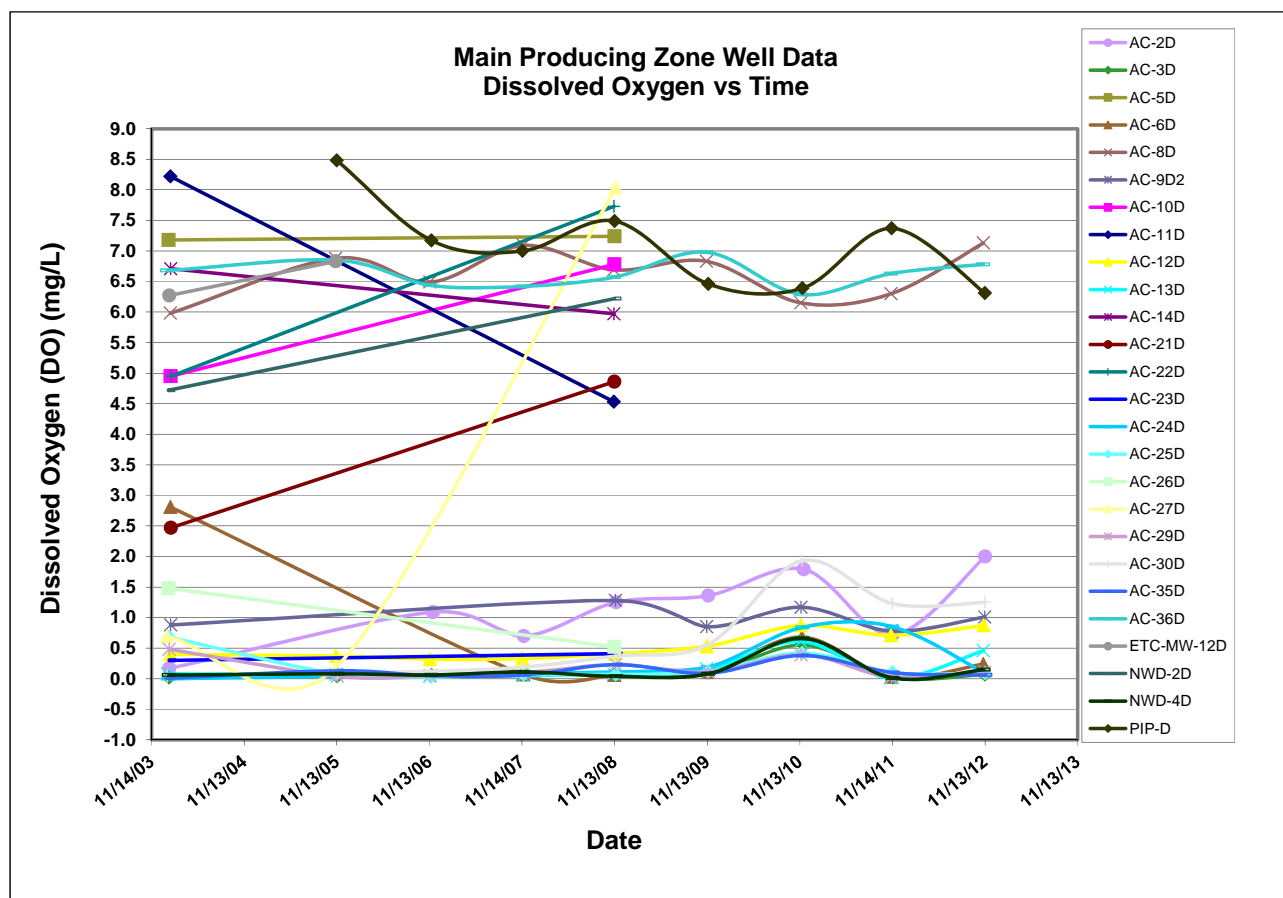
Surficial Zone Groundwater:

The shallow groundwater DO vs. time chart is shown below.



Main Producing Zone Groundwater:

The deep groundwater DO vs. time chart is shown below.



8.2.4 Oxidation-Reduction Potential

Oxidation-reduction potential (ORP) reactions control the behavior of many chemical constituents in groundwater. ORP refers to the electric potential required to transfer electrons from one compound or element (the oxidant) to another compound (the reductant). The process of oxidation involves losing electrons, while reduction involves gaining electrons. ORP is used as a qualitative measure of the state of oxidation in aqueous solutions. ORP (and Eh) are typically given in terms of millivolts (mV).

Although similar to ORP, Eh is reserved for consideration where the redox potential is measured with a relatively fragile standard hydrogen electrode (SHE). Positive Eh values indicate an oxidizing environment, while negative Eh values indicate a reducing environment. For field applications, ORP is typically measured using Ag/AgCl reference electrodes.

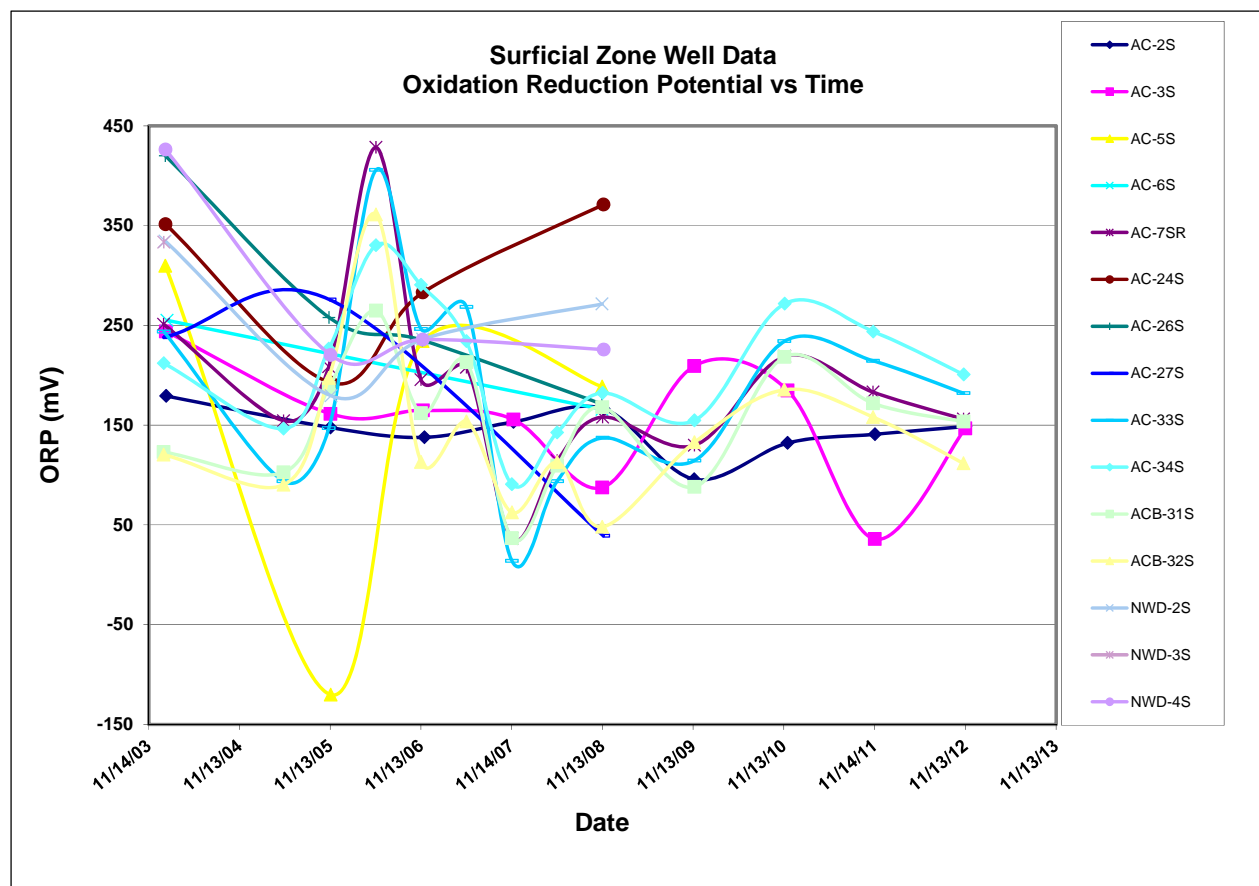
Field ORP readings can be converted to Eh values by adding the offset value provided by the manufacturer of the ORP calibration solution used (or by experimentation). ORP has been measured at the Site with an YSI (brand) instrument equipped with an Ag/AgCl electrode and

calibrated against a Zobell 4M KCl solution where the offset to Eh is 200 mV. To convert the Site's field ORP readings to Eh, the offset value of 200 mV is added to the Site's ORP readings. For example, ORP readings of +150 and -172 mV translate to Eh values of +350 and +28 mV, respectively. It is common for natural groundwater to present ORP between +300 mV to -400 mV (Eh between +500 mV to -200 mV).

Generally, oxygen-rich water is expected to exhibit positive ORP values (reflecting oxidizing conditions); and, conversely, anaerobic water often presents negative ORP values (reflecting reducing conditions). However, oxidation-reduction reaction couples are numerous and often competitive, so that natural environments affected by anthropogenic constituents can induce ORP behavior atypical of the otherwise classic correlation with dissolved oxygen. ORP is expected to reach equilibrium in groundwater that is at or approaching steady state. Changes in ORP can indicate a system that is out of equilibrium.

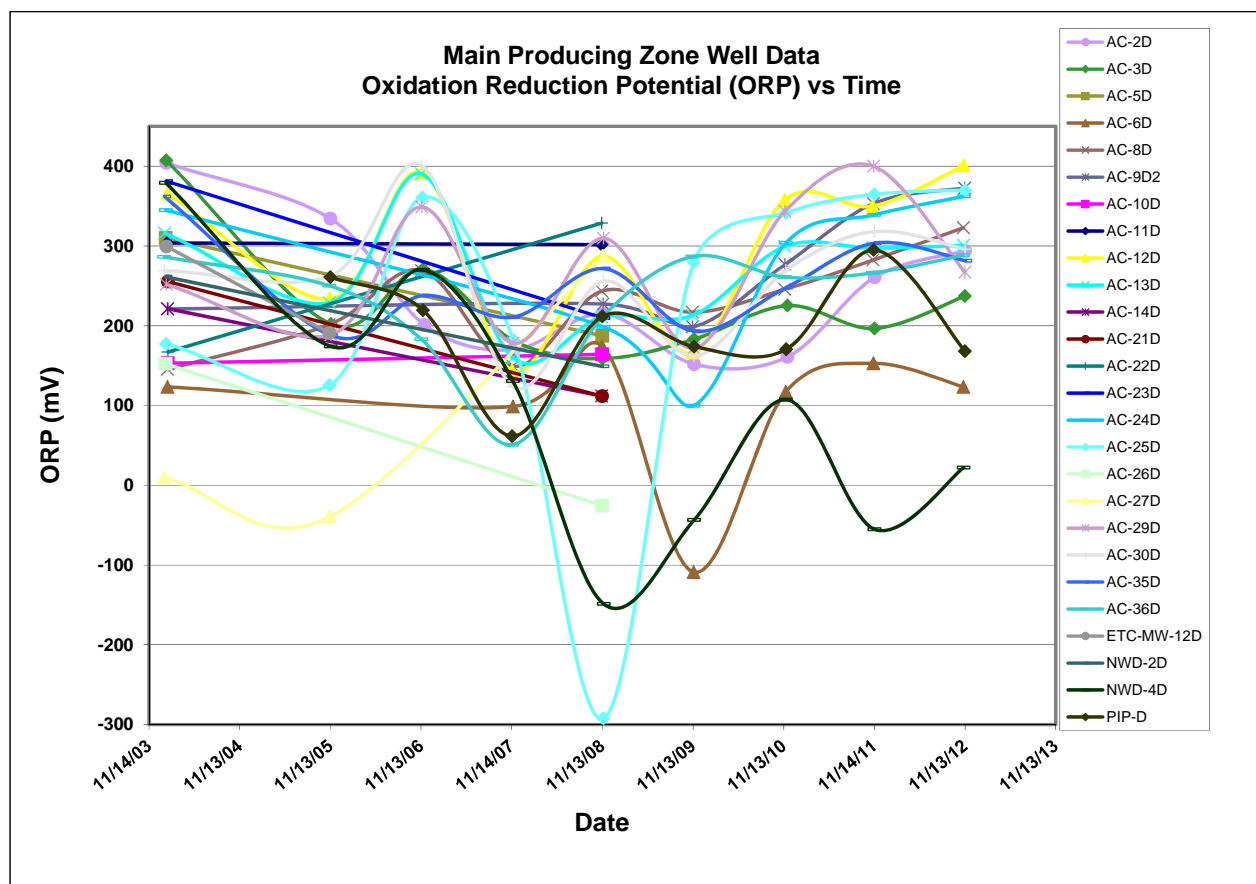
Surficial Zone Groundwater:

The shallow groundwater ORP vs. time chart is shown below.



Main Producing Zone Groundwater:

The deep groundwater ORP vs. time chart is shown below.



8.3 BAYOU TEXAR SAMPLING RESULTS

The long-term surface water monitoring network is composed of five sampling locations within Bayou Texar. Freshwater from Carpenter's Creek flows into the saline estuary, Bayou Texar. **Figure 1** shows the locations of the surface water sampling sites. Sampling for the standard annual list of COCs corresponding to those analyzed for groundwater was performed for surface water samples ACSW 1 and ACSW 2 during November 2012. Beginning in 2010, three new surface water stations were located in close proximity to ACSW-1 and were analyzed for fluoride only. These additional stations include BT-02, BT-107, and BT-127. These latter stations and ACSW-1 are located within the Agrico primary groundwater discharge reach of the bayou. ACSW-2 is located downstream of the primary discharge area and is considered a background station with regard to the Agrico constituents.

The surface water sampling results for Agrico COCs at the five stations are shown in **Table 5** (field parameters) and **Table 9** (sampling results), and on **Figure 32**. The COC results did not vary significantly from the previous four years of data. No COCs in surface water exceeded the surface water criteria. Laboratory analytical reports are contained in **Appendix A**.

8.4 QA/QC REVIEW

TestAmerica job numbers for this annual report include the following:

640-41122-1, 640-41147-1, 640-41173-1, 640-41179-1, 640-41191-1, 640-41202-1, 640-41231-1, and 640-41247-1. The following laboratory narratives describe the sample conditions and associated analytical QA/QC issues.

640-41122-1: All samples were received in good condition within temperature requirements. No issues regarding general chemistry or radiological analyses. No other analytical or quality issues noted.

640-41147-1: All samples were received in good condition within temperature requirements. No issues regarding general chemistry or radiological analyses. No other analytical or quality issues noted.

640-41173-1: All samples were received in good condition within temperature requirements. Method 300.0 – due to the high concentration of chloride, the matrix spike/matrix spike duplicate (MS/MSD) for batch 257615 could not be evaluated for accuracy and precision. The associated laboratory control sample and laboratory control sample duplicate (LCS/LCSD) met acceptance criteria. No issues regarding radiological analyses. No other analytical or quality issues noted.

640-41179-1: All samples were received in good condition within temperature requirements. No issues regarding general chemistry or radiological analyses. No other analytical or quality issues noted.

640-41191-1: All samples were received in good condition within temperature requirements. Sample AC28D was received at the laboratory without a sample collection time documented on the chain of custody. Method 353.2 – due to the high concentration of nitrate, the matrix spike/matrix spike duplicate (MS/MSD) for batch 256564 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria. No issues regarding radiological analyses. No other analytical or quality issues noted.

640-41202-1: All samples were received in good condition within temperature requirements. No issues regarding general chemistry or radiological analyses. No other analytical or quality issues noted.

640-41231-1: All samples were received in good condition within temperature requirements. Method 353.2 – the matrix spike/matrix spike duplicate (MS/MSD) recoveries for batch 257284 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. No issues regarding radiological analyses. No other analytical or quality issues noted.

640-41247-1: All samples were received in good condition within temperature requirements. No issues regarding general chemistry or radiological analyses. No other analytical or quality issues noted.

Four QA/QC samples (two duplicates, two equipment blanks) were collected during the November 2012 sampling event. Field duplicate 1 (DUP-1) had sulfate and chloride concentrations higher than their associated collection location. However, the DUP-1 sample was prepped or analyzed beyond the specified holding time. Field duplicate 2 (DUP-2) showed acceptable agreement with its respective result, indicating adequate field and laboratory

precision. Target analytes were reported below laboratory detection limits in equipment blank samples.

The locations where QA/QC samples were collected are listed below. Results of the QA/QC samples are included with the laboratory reports in **Appendix A**.

QA/QC Sample	Collection Location
DUP-1	AC-34S
DUP-2	AC-2S
EQ BLNK1	AC-24D
EQ BLNK-2	AC-35D

8.5 GROUNDWATER SAMPLING RESULTS

The 2012 annual results continue to support that source control actions at the former Agrico site were effective and the MNA remedy is functioning as expected with Agrico COCs attenuating in groundwater under the former site and down gradient of the site. Source control was completed as of April 1997. Long-term groundwater monitoring for the natural attenuation groundwater remedy was initiated in May 1997 for the OU-1 monitoring network and in November 1999 for the OU-2 network. In 2007, both the OU-1 and OU-2 networks were combined to form the site-wide network.

Within the surficial zone, the overall trend is downward and there is an overall shrinking of the area of impacts for this zone. The downward trend in concentrations is the direct result of effective source control. The surficial zone plume is captured by the vertical hydraulic component of the contaminant transport within less than one-half mile downgradient of the former site. Due to these conditions, the areal extent of impacts in the surficial zone is limited.

Within the main producing zone, the overall flattening of the trends is what was predicted in the Evaluation of Monitored Natural Attenuation by William Huber, Ph.D. (URS, 2009). This flattening should be expected to continue for some time and eventually evolve into a slowly decreasing trend, accelerating as time goes on. Slight upward or downward ticks in the trend for individual monitoring well results are to be expected. It is the long-term trend for each COC that is important.

In order to evaluate concentration trends, a regression analysis was performed for the Agrico monitoring well data. This analysis assesses trends in the data and estimates future concentrations. The analysis was conducted in accordance with EPA guidance (EPA, 2011, An Approach for Evaluating the Progress of Natural Attenuation in Groundwater and the presentation by John T. Wilson-EPA, July 9, 2008, An Approach for Five Year Review to see if MNA is on track for the clean-up goal).

First of all, the monitoring well locations for the long-term monitoring network were subdivided into 4 groupings.

Group 1 represents the surficial zone results in the area of the former site, OU-1 (**Figure 8**)

Group 2 represents the main producing zone results in the upgradient area (**Figure 14**)

Group 3 represents the main producing zone results inside of the plume area (**Figure 20**)

Group 4 represents the main producing zone results south of the OU-2 area (**Figure 26**)

The regression for each compound for each well within each group was calculated on the all of the data starting after the source removal was complete. EPA certified the OU-1 Remedial Actions complete in April 1997. This time period is noted on all of the plots. Since the purpose of the analyses is to assess the progress of MNA since the source was removed, only the data results after April 1997 are included in the trend analysis plots. The first sampling event after the source was controlled was May 1997. The analysis provides a best-fit curve for all data results from 1997 to present. In order to assess progress for the past 5 years, a secondary curve matching is superimposed on the plots. All trend results are compared to the performance standard specified on the plots for each COC. For the compounds fluoride, chloride, sulfate, nitrate-N and combined radium 226+228, the regression is based on the equation:

$$C = Ae^{-\lambda t}$$

where C is the compound concentration, t is time in years, A is the initial concentration at time zero (initial year of data) and λ is the rate coefficient. The regression is applied to the natural logarithm of the data:

$$\ln C = \ln A - \lambda t$$

where the coefficients $\ln A$ and λ are determined from the linear regression. For calculation purposes, the regression line is extended approximately 20 years into the future to estimate the future concentrations. It should be noted that future estimates calculated as of present, will change over time as the number of data results are added to the record. Therefore, the regression line is depicted on the plots shown on **Figure 9 -13, 15-19, 21-25, and 27-31** for only a period of 5 years into the future. To access uncertainty, the 90% confidence interval is also calculated. Both the upper and lower limits are depicted on the plots. The equation for the confidence interval is:

$$\hat{C} = C + t_{\alpha/2} s \sqrt{\frac{1}{n} + \frac{(t - \hat{t})^2}{S_{xx}}}$$

where \hat{C} is the y-ordinate of the confidence interval, \hat{t} is the average time of all the measured data, n is the total number of measured data, $t_{\alpha/2}$ is the value of the t-distribution with n-2 degrees of freedom, s is the mean squared error of the regression, and S_{xx} is

$$S_{xx} = \sum_{i=1}^n (t_i - \hat{t})^2$$

where t_i is the time of the i^{th} measured data.

The wider the space is between the regression (curve fit) and the confidence interval, results in a future forecast of the concentration that is less certain. The closer these two matches are the future forecast is more certain.

The results of the regression analysis are discussed in the following sections.

Surficial Zone Results in the OU-1 Area

- Groundwater sampling results for 2012 are consistent with previous results, which indicates that the source area (OU-1) is and remains controlled. Decreasing trends in COCs in the surficial zone are a result of the OU-1 source control measures. The source area remedy remains an effective remedy in eliminating migration of COCs from the former Site area to the groundwater. The locations of the monitoring wells used for this area are shown on **Figure 8**.
- Trend plots for five of the Agrico COCs (fluoride, chloride, sulfate, nitrate, and combined radium 226+228) are presented as **Figures 9 through 13**, respectively. The results presented for each figure represent surficial zone monitoring wells located within OU-1, the former source area, or wells that are located immediately downgradient of the former source area. Detailed concentration information for each monitoring well is presented in **Table 8**.
- The fluoride trend plots (**Figure 9**) show that all results for all well locations meet the remedial performance goal of being less than 4 mg/L. The exception is location AC-2S that is immediate downgradient of the former source area. Fluoride concentrations have peaked at this location and there has been a steady decline in concentrations since 2003. Monitoring well AC-3S is downgradient from the AC-2S location and fluoride concentrations are less than 4 mg/L. As described in Section 3, the hydraulic gradient between the surficial zone and the main producing zone causes the impacted surficial zone ground water to move vertically into the main producing zone before the surficial zone flow reaches the AC-3S location. Due to the conditions described herein, the surficial zone plume does not extend more than 0.25 miles from the Site.
- The surficial zone plume is very limited in extent caused by the significant downward vertical component to contaminant transport and confined to an area that includes a portion of the former Site and the area immediately downgradient of the Site. The AC-2S fluoride concentrations are trending downward from a historical high of 210 mg/L to a current value of 43 mg/L. This value represents a decrease from the 2011 results.
- The surficial zone trend plots for chloride, sulfate, nitrate, and combined radium 226+228 (**Figures 10 through 13**) show decreasing trends for all the monitoring well locations for the data results since 1997. However, recent results at AC-33S, AC-2S, and AC-3S indicate increasing trends for sulfate. The upward tick in sulfate may be an example of where the data might be exhibiting random variations of concentrations. Additionally, recent data at AC-2S and AC-3S shows increasing trends for nitrate. Currently, all concentrations for these COCs are below the respective performance standard except for the recent combined radium concentration in AC-33S. The value for November 2012 was 5.61 pCi/L. This value represents an increase from the 2011 results.

Main Producing Zone Results in the Upgradient Area

- The upgradient area of the main producing zone is being monitored by monitoring wells, PIP-D, AC-2D, and NWD-4D. These locations are upgradient of the current Agrico plume area (**Figure 14**). Although monitoring well NWD-4D is actually side-gradient on the north side of the plume area, the well functions as a sentry point for monitoring any changes in flow direction or concentrations to the north. Fluoride, chloride, sulfate, nitrate, and combined radium 226+228 trend plots (**Figures 15 through 19**) indicate all concentrations are less than the respective COC performance standards and trends are all within background concentration ranges. Detailed concentration for each monitoring well is presented in **Table 8**.
- The exception occurs at monitoring well location, NWD-4D. The combined radium 226+228 trend (**Figure 19**) for NWD-4D shows an upward trending plot. However, the concentrations appear to have peaked in the 2002 to 2005 time period. For the past 7 years, the trend has been relatively flat and holding near the 5.0 pCi/L performance standard. The November 2012 value was 6.00 pCi/L.
- The exceedance of the performance standard for combined radium at NWD-4D is considered a non-Agrico impact of the groundwater. Monitoring well NWD-4D is within the ETC plume that has affected the pH balance in the groundwater downgradient of the ETC Site. The acidic impacts caused by the ETC plume are the source of the release of predominately radium 228 to groundwater (the process is described in Section 8.2.2). Fluoride concentrations are within background range for the NWD-D location indicating that the Agrico does not extend this far north.

Main Producing Zone Results Inside Agrico Plume Area

- Monitoring wells within the Agrico plume are shown on **Figure 20**. The concentrations for the main producing zone within the interior of the plume have not risen significantly above historical concentrations for all COCs. The main producing zone plume does not appear to be growing in extent, and the area of occurrence is adequately defined and surrounded by concentrations representing the range of background for Agrico-related COCs. The main portion of the plume is detached from the former source area. Normally, the concentrations are highest nearest the source area especially if the source has not been remediated. Because the concentrations near the former source are less than downgradient, this is another indication that the remediation of the former source is effective and controlled. The concentrations for each COC within the plume vary in concentration, but are generally lower on the upgradient and side-gradient areas of the plume. The highest concentrations are centered on the groundwater discharge boundary where concentrations appear to have reached equilibrium. All of these plume factors are characteristic of a controlled source and natural attenuation progressing as expected.
- Radium 228 remains the dominant radium isotope. The radium 228 concentrations are significantly greater than the radium 226 concentrations. This continued finding supports the case that the former Agrico waste stream is not the principal source of the observed radium. Data indicate that the radium is naturally occurring. If the phosphate ore was the source, radium 226 would be the dominant isotope. According to the website, <http://www.tenorm.com/>, phosphate fertilizer contains on average 8.3 pico Curies per gram (pCi/g) of radium 226 and 1 pCi/g of radium 228. Likewise, phosphate fertilizer waste

contains on average 33 pCi/g of radium 226 and 0.27 pCi/g of radium 228. This website is primarily composed of information compiled from EPA publications.

- The highest COC concentrations in the Agrico plume for November 2012 remain downgradient near or approaching the western edge of Bayou Texar. At monitoring well AC-35D, fluoride is the highest concentration in the plume at 130 mg/L. At monitoring well AC-25D, chloride is the highest concentration in the plume at 370 mg/L. At monitoring well AC-13D, sulfate is the highest concentration in the plume at 290 mg/L. At monitoring well AC-9D2 nitrate is the highest concentration in the plume at 13 mg/L. The highest concentration of combined radium 226+228 in the plume was found at AC-29D (16.98 pCi/L).
- The wells listed above are the same locations that have had similar elevated concentrations over the past 5 years. However, the concentrations at each of these locations have stabilized and trends are relatively flat for the past five years. Trend plots for monitoring well locations considered to be inside the Agrico plume are presented as **Figures 21 through 25**. The results for this group are arranged on each of the selected COC figures by location from upgradient to downgradient locations in the plume. Detailed concentration information is presented in **Table 8**.
- **Figure 21** shows the trend plots for fluoride concentrations inside the Agrico plume area. Fluoride concentrations remain above the performance standard of 4 mg/L at all locations within the Agrico plume. The upgradient results (AC-3D, AC-29D and AC-30D) are showing decreasing trends in fluoride concentrations. For these three wells, results show that the peak appears to have move through the locations of these wells in the 2002 – 2004 time frame. For the remaining well locations, if the entire record is considered, the trends appear to be increasing. However, an alternative curve fitting of the data for the past 5 years indicates that overall trends are flattening. Also, the past 5 years of record indicate more steady state conditions are present and plume conditions are stable.
- **Figure 22** shows the trend plots for chloride concentrations inside the Agrico plume area. Again, the upgradient side of the plume shows results (AC-3D, AC-29D and AC-30D) that are indicating decreasing trends in chloride and for these three locations concentrations are below performance standards. For the remaining well locations, again if the entire record is considered, the trends appear to be increasing for chloride for these downgradient locations in the plume. Again, if the alternative curve fitting of data for the past years is applied, the trends are relatively flat or decreasing. This also indicates that chloride concentrations may have attained peak concentrations. Chloride concentrations are less than the performance standard of 250 mg/L inside the plume except at locations, AC-25D and AC-35D. Both of these locations are at the far downgradient extent of the plume near the discharge boundary.
- **Figure 23** shows the trend plots for sulfate concentrations inside the Agrico plume area. The upgradient side of the plume shows results below the performance standard of 250 mg/L for the past 5 years of record including the 2012 sampling results. It appears that the upgradient area of the plume reached peak concentrations during the similar timeframe as fluoride concentrations, 2002-2004. For the remaining locations inside the plume, sulfate concentrations for the past 5 years have a relatively flat trend. As of November 2012, all locations within the plume area had sulfate concentrations less than the performance standard except at locations, AC-12D, AC-9D2, and AC-13D.

- **Figure 24** shows the trend plots for nitrate concentrations inside the Agrico plume area. The upgradient side of the plume shows results that are declining in concentrations over time and as of November 2012 the concentrations in this upgradient area were less than or at the performance standard of 10 mg/L. For the remainder of the area, nitrate concentrations are also below or near the 10 mg/L. Again, the trend for the past 5 years in most of the downgradient portion of the plume area is flat and as of November 2012, the concentration is less than the peak concentration found at each respective location.
- **Figure 25** shows the trend plots for combined radium concentrations inside the Agrico plume area. The trend plots throughout the area are fairly similar. At all locations, the combined radium concentration is above the performance standard of 5 pCi/L. At all locations, it appears that the combined radium concentration peaked in the early 2000s except at location, AC-28D. This, however, could be an artifact of the number of sampling events. This location was sampled less in the early 2000s so perhaps the peak was missed. If nearby well, AC-30D, is considered, it is evident that concentrations peaked around 2003 and like AC-28D slight increases have occurred from 2007 through 2012. Based on this, it is presumed that missing values in the historical record for AC-28D would have shown a similar peak. For all locations if the entire record is considered, the trends appears to be increasing. However, if just the past 5 years of record is considered, the trends flatten overall and indicate more steady state conditions are being attained. This indicates that the plume conditions are currently stable. As with historical record for radium 228, the November 2012 results continue to show that radium 228 is the dominant isotope found in the groundwater at all monitoring locations.

Main Producing Zone South of the OU-2 Area

- The Agrico plume remains adequately defined, and has limited areal extent. It is surrounded by groundwater considered representative of background conditions for the Agrico COCs. Groundwater south of the Agrico plume is monitored by three monitoring wells (AC-6D, AC-8D, and AC-36D) as shown on **Figure 26**. All locations show the Agrico COCs are less than the established drinking water criteria. The exception is at location AC-6D where combined radium remains about the drinking water criteria of 5 pCi/L. This location is immediately downgradient of the Kaiser Site (Site 348) where known radium impacts to the groundwater are documented (Mactec, 2010). The AC-6D combined radium exceedances are not related to the Agrico plume. It should be noted that low pH (less than 4.5 su) is also associated with the data collected for Site 348.

Primary Discharge Area – Bayou Texar

- Due to Bayou Texar natural groundwater discharge divide (groundwater discharges into the bayou from the west and east, it is a gaining vs. losing stream), the Agrico groundwater plume does not pass through to the east side of the Bayou. The 2004 assessment by the University of West Florida of the bayou (Mohrher, et al 2005) indicated the impacted groundwater discharge from the Agrico plume is not causing the bayou surface water to exceed State standards. This finding corresponds with results of historical sampling conducted for the Agrico Site and the August 2008 and May 2009 Bayou Texar assessments (URS, September 2009) which indicate that all surface water samples collected within in the primary Agrico discharge area were less than the 5 mg/L surface water standard for fluoride. Fluoride results for surface water samples collected for 2012 were all less than 1.3 mg/L.

Areas in Close Proximity to Non-Agrico Impacted Groundwater

- Other contaminant sources in close proximity continue to impinge on the Agrico plume. The ETC plume to the north and Site 348 (Kaiser Site) to the south have impacted the Agrico plume area as well as areas outside of the Agrico plume area. Monitoring well locations NWD-4D and AC-6D are examples of impacts. Site 348 displays similar COCs to the Agrico Site, with radium 228 being a dominant isotope from Site 348. Agrico wells AC-6S and AC-6D appear to be impacted by Site 348 (Mactec, 2010). The downgradient impacts (ammonia concentrations and other Site 348 COCs) to other Agrico monitoring wells is unknown at this time because the assessment for Site 348 is on-going.

Documentation (USEPA, 2008) from groundwater sampling results for the former Escambia Treating Company Site show that the ETC plume is interspersed with the Agrico plume especially near the discharge area of Bayou Texar. Acidic conditions found for the ETC plume also contribute to the release of radium to the groundwater. This is evident at location NWD-4D that lies north of the Agrico plume but within the ETC plume. Combined radium concentrations exceed the combined radium performance standard of 5 pCi/L at this location most likely due to the acidic conditions associated with the ETC plume. Additionally, elevated naphthalene concentrations are present at this location as well as inside the Agrico plume area. This constituent is unique to the ETC plume. It should be noted that remedial actions regarding the ETC groundwater plume is currently on hold due to the lack of federal funding.

9.1 OU-1 REMEDY

The source area remedy was completed in 1997. Since that time, the property has remained secured; the integrity of the constructed cap has not been compromised by erosion or settlement; the grass cover on the cap has stabilized the soils; and the storm water controls remain intact, preventing storm water runoff from leaving the Site except through infiltration to groundwater in the North and South Ponds. Results of the water and sediment sampling in the infiltration ponds during January 2004 indicated that soils on-site are not affecting the quality of water infiltrating these ponds. Concentrations of fluoride in groundwater of the surficial zone immediately downgradient of the cap have decreased significantly since the remedial actions were completed. Based on all of the groundwater sampling results, the source area is controlled, and the remaining COC impacts are from residual impacts caused prior to the remedial action. Results from the 2012 sampling of monitoring wells downgradient of the cap area indicate that the OU-1 remedy remains effective.

9.2 OU-2 REMEDY

Annual groundwater and surface water monitoring has been performed at established long-term monitoring locations since 1999. The groundwater monitoring continues to be an effective means of evaluating the natural attenuation remedy. The evaluation of the long-term groundwater monitoring network (URS, 2006d), approved by EPA on September 11, 2007, provides further information regarding the defined plume area and downgradient progression. The recent evaluation of monitored natural attenuation associated with the Agrico plume (URS, August 2009) further supports that the mechanisms for attenuation are in place throughout the area and the effects of the source remedy are evident in the surficial zone of the former source area (OU-1) and are also being observed downgradient (OU-2), as expected. Decreases in concentrations have now been observed in the most upgradient groundwater and are imminent in the further downgradient wells. Trend plots presented in this Annual Report show that the Agrico plume is stable and well defined.

9.2.1 Advisory Notice

A standard notice (see **Section 5**) was distributed to contractors (see **Table 6**) who potentially might be performing work related to new well installations in the area of OU-2. This notice informs the contractor of the boundaries of the existing moratorium on well construction. It also directs them to the NFWMD, FDEP, or the Escambia County Health Department for more information.

9.2.2 IRRIGATION WELL PROGRAM

According to NFWMD permit records, no new irrigation wells were installed within the monitoring area during 2012 (**Table 7** and **Figure 3**). To date, 59 irrigation wells have been identified within the OU-2 area. To date, 21 of the 59 wells have been sampled, and 6 of those 21 wells have contained Agrico site-related constituents above performance standards. One of the 59 wells identified was reported as being used to fill a swimming pool. No Agrico COCs were found in this irrigation well. Two well owners have volunteered to have their wells

plugged and abandoned. No requests were received in 2012 to sample or abandon any existing irrigation well within the OU-2 area.

9.2.3 INSTITUTIONAL CONTROLS COORDINATION

On February 22, 2001, the NFWFMD Board passed a moratorium (**Appendix D**) on drilling wells, including irrigation wells, in the Agrico OU-2 and the ETC groundwater plume areas. The moratorium remains in effect and provides the most stringent institutional controls for the area impacted by the plume. The moratorium has no termination date and is part of the Prohibitions in Rule 40A-3.

Past sampling results conducted by ECUA for supply wells south of the Agrico area have indicated impacts to ECUA supply wells, which initiated an assessment by FDEP in the late 1990s. This assessment identified two areas, collectively referred to as Site 348. Both areas are located less than 0.5 miles south of the Agrico Site. One is the former fertilizer manufacturing operations known as Kaiser Fertilizer plant. The second is known as the former Southern Cotton Oil Company. This site was a fertilizer mixing and storage facility.

Reportedly, the sources which may have contributed to impacted groundwater affecting the F & Scott Streets Well, the East Plant Well, Well No. 6, Well No. 8, and Well No. 9 are still under investigation by FDEP. Three of these ECUA wells have been shut down and pumping discontinued (East Plant, Well No. 8, and Well No. 9) due to groundwater impacts. The COCs identified by FDEP at Site 348 are similar to the Agrico COCs, including radium 228 and ammonia. The Agrico plume was not implicated as a source or a factor in the impacts to these wells (Mactec, 2010). Additionally, the former Agrico plant was not associated with the either operations identified by FDEP that are related to Site 348.

No pumping effects are occurring within the current Agrico plume boundary. This is verified by the past 16 years of water level measurements and potentiometric surfaces that show groundwater flow direction remains consistently to the east, toward Bayou Texar. Consistency of groundwater flow patterns is also demonstrated by the individual water level trend data (**Appendix B**). The discontinued municipal pumping in the downtown area due to impacts from non-Agrico sources, also significantly decreases the potential of the Agrico plume to migrate from its current plume boundary. These conditions and other groundwater flow conditions negate the potential for future Agrico plume migration that could affect any public water supply well.

Water level measurements collected during the past 16 years indicate that the remaining irrigation pumpage occurring within the OU-2 area is not significantly affecting the direction of groundwater flow. The primary groundwater flow controls are natural, including Bayou Texar, which functions as the eastern discharge boundary for the Agrico plume.

9.2.4 GROUNDWATER

The natural attenuation remedy is proceeding as anticipated, with 16 of the estimated 70 years elapsed (remediation of OU-1 was certified complete in April 1997). Conclusions from the monitored natural attenuation evaluation (URS, August 2009) indicate that much of the groundwater is expected to reach the target concentrations within two to three decades. Within the area of the Bayou Texar discharge boundary, the time to reach the targets may be longer.

Fluoride results continue to exemplify cleanup progress for the Agrico Site. Additionally, it appears that the plume discharge area remains well defined and limited in areal extent. Groundwater results for November 2012 closely compared to historical results for both aquifer zones. Although slight increases in concentrations were detected at some monitoring well locations for some COCs, the increases are within the range of expected concentrations for a natural attenuation remedy where source control has been implemented.

Surficial Zone

The surficial zone plume does not migrate to Bayou Texar. The plume in this zone infiltrates to the main producing zone within less than 0.4 mile downgradient of the Site (**Figure 4**). Monitoring of the groundwater within the surficial zone is limited to the OU-1 area and the vicinity of the vertical diversion area between AC-2S and AC-3S. The highest concentrations remaining for the surficial zone plume are in close proximity of monitoring well AC-2S. Within the surficial zone, the overall trend in COC concentrations is downward and the overall area of impacts is shrinking. Due to the existing hydrogeologic/hydraulic conditions the zone has limited areal impacts. For most of the OU-2 area, background conditions exist for the Agrico COCs within the surficial zone since the potential for downgradient impacts beyond the surficial zone diversion area are absent. Any exceptions to background concentrations in these downgradient surficial zone wells are due to non-Agrico sources.

Main Producing Zone

Arsenic and lead plumes do not exist for the Agrico Site. The primary indicator of the Agrico plume continues to be fluoride where concentrations exceed the performance standard of 4 mg/L. Also, elevated chloride, sulfate, and radium 228 concentrations coexist with elevated fluoride concentrations. The main producing zone plume remains well defined, as the detailed evaluation (URS, 2006d and URS, August 2009) confirmed, and exceedances of contaminant-specific performance standards cover limited areal extents. Within the main producing zone, the overall flattening of trends is what has been predicted. The flattening is expected to continue for some time. This trend will eventually evolve into a slowly decreasing trend, accelerating with time. Slight upward or downward ticks in trend for individual monitoring well results are to be expected. It is the long-term trends for each COC for the impacted area that is important.

9.2.5 Bayou Texar

The 1993 Bayou Texar Assessment (Entrix, 1993a, 1993b, and 1993c) presented fluoride data that indicated groundwater originating from the Agrico Site was discharging to the bayou. The data also indicated that the discharge zone appeared to be well defined and limited in areal extent. EPA's review of the data concluded that fluoride would have to be discharging at a concentration of 4,050 mg/L or greater in order to exceed the surface water standard of 5 mg/L in the bayou. Furthermore, in the OU-2 ROD, EPA (1994) concluded that it is unlikely that the discharge of the groundwater plume into Bayou Texar would result in impacts to fish or wildlife.

There are more than 60 storm water outfalls into Bayou Texar. Several studies have identified impacts caused by storm water from other locations contributing contaminants to the bayou. Mohrherr, et al. (2005) concluded that Bayou Texar is an urban water body that is impacted by a variety of pollutants and pollution sources. Mohrherr, et al. (2005) further concluded that their

results corroborate the studies conducted for the Agrico Site indicating that fluoride levels are highest and increase with depth in the northern portion of the bayou where the Agrico plume discharges to the bayou. Mohrherr, et al. (2005) also concluded, as the long-term monitoring data for the bayou confirm, that the fluoride concentrations in the waters of Bayou Texar are below the Chapter 62-302, Class III Marine standard of 5 mg/L.

Surface Water

Surface water concentrations remain less than Chapter 62-302, Class III Marine Surface Water Standards for Agrico COCs, indicating that sufficient precipitation for the case of fluoride concentrations exists within the bayou. For other Agrico constituents, advection-dispersion is significantly affecting the COCs before and/or after it is discharged to the bayou so that the Agrico plume potential impacts are minimized with no significant risk to the bayou.

Summary of Ecological Impact Evaluation of Bayou Texar Downgradient of Agrico's Groundwater Fluoride Plume

On September 4, 2009, the results of the Phase I and Phase II Bayou Texar sampling for August 2008 and May 2009 were submitted to EPA. The results of the investigations indicated the following:

- Fluoride in the top 10 cm of sediment (the bioactive zone) within the groundwater plume discharge zone ranged from about 32 to 339 micrograms per gram (ug/g).
- Fluoride in the near-bottom surface water (the primary exposure regime for demersal fish) within the groundwater plume discharge zone was consistently less than the Florida Surface Water Quality Criterion for Class II Marine waters for fluoride, 5 mg/L. The concentration of fluoride in the majority of surface water samples was less than 1 mg/L.
- Fluoride in the sediment pore water in the bioactive zone (the primary exposure regime for benthic macro-invertebrates) within the groundwater plume discharge zone was less than 3 mg/L in 30 of the 40 stations sampled. Fluoride in pore water exceeded the 5 mg/L standard at only 3 of 40 stations. Spatial analysis determined that the surface area weighted average concentration of fluoride in the bioactive zone pore water was less than the 5 mg/L standard.

The conclusions of this assessment indicated that there is no significant risk to populations of demersal fish or to benthic macro-invertebrate communities that inhabit the reach of Bayou Texar where the Agrico groundwater discharges. Furthermore, the fluoride solubility in the majority of surface sediments and in all pore waters within the primary groundwater plume discharge reach is controlled by mineral precipitation reactions. These reactions are likely responsible for buffering dissolved concentrations of fluoride in near surface sediment pore water and the surface water in this reach of the bayou.

EPA has approved the ecological impact evaluation that was conducted for Bayou Texar (URS, 2009C). As part of the Third Five-Year review, EPA included four recommendations in the June 2010 Five-Year Report. These recommendations were as follows:

1. Continue annual groundwater monitoring.
2. Continue annual near-bottom Bayou Texar surface water monitoring at multiple stations including the 3 locations with pore water greater than 5 milligrams per liter as reported in the

September 4, 2009 “Conceptual Site Model Ecological Impact Evaluation of Bayou Texar Downgradient of Agrico’s Groundwater Fluoride Plume” (Phase II results).

3. If the levels of fluoride in near-bottom surface water or in adjacent Bayou Texar groundwater monitoring well, AC-35D, increase to levels significantly greater than that measured historically, submit a work plan to evaluate the increase.
4. Conduct further risk evaluation studies will be conducted if the surface area weighted average for pore water is predicted to be greater than 5 milligrams per liter.

These first two recommendations are continuing tasks of the on-going long-term monitoring program for the Site. As of the November 2010 sampling event, the three locations where pore water results were greater than 5 mg/L were added to the long-term monitoring.

The last two recommendations will be acted upon only if significant concentrations of fluoride are detected as part of the near-bottom surface water sampling. For 2012, the fluoride concentrations ranged from 0.59 mg/L to 0.82 mg/L indicating no significant change and thus not requiring any work plans be developed or studies conducted.

9.3 RECOMMENDATIONS

- Continue annual groundwater monitoring of Agrico COCs (fluoride, chloride, sulfate, nitrate, and combined radium 226+228) at the current designated long-term groundwater monitoring wells (seven surficial and 16 main producing zone wells). Should future MNA evaluations indicate modifications to the monitoring, such recommendations will be submitted for review. Groundwater monitoring is an effective means of evaluating the Agrico natural attenuation remedy and should continue as designed.
- Continue annual issuance of Contractor Advisory Notice.
- Continue annual issuance of Institutional Controls Memorandum and distribution of approved reports to identified agencies.
- Continue annual checking for new well construction permits issued for the OU-2 area.
- Continue cooperation at owners request, the abandoning or sampling of irrigation wells within OU-2 area.
- Continue annual surface water monitoring at designated surface water monitoring locations in Bayou Texar as modified and approved in 2010.
- Continue operations and maintenance related to OU-1 in accordance with the OU-1 O&M Plan as amended November 18, 2009 and approved by EPA on January 25, 2010.
- Continue to work with EPA regarding the groundwater remediation for the ETC Site.

Continue to work to understand the impacts associated with Site 348 (a FDEP site) and work with EPA on gathering information pertaining to Site 348.

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TABLES

TABLE 1
GROUNDWATER MONITORING WELL NETWORK
LONG-TERM AND PERIODIC MONITORING WELLS

Agrico Site
Pensacola, Florida

Well I.D.	Network Component	Description	Aquifer Zone
AC-2D	OU-2 LTGWMW	Downgradient Site, Below PS Concentration	MPZ
AC-2S	OU-2 LTGWMW	Elevated Concentration Area Well	SZ
AC-3S	OU-2 LTGWMW	Flow Path Well, Below PS Concentration	SZ
AC-3D	OU-2 LTGWMW	Elevated Concentrations, Flow Path Well	MPZ
AC-5D	PERIODIC	Outside of Plume	MPZ
AC-5S	PERIODIC	Outside of Plume, Background	SZ
AC-6D	OU-2 LTGWMW	Outside of Plume; Potentially Impacted by Site 348 (Kaiser)	MPZ
AC-6S	PERIODIC	Outside of Plume; Potentially Impacted by Site 348 (Kaiser)	SZ
AC-7SR	OU-1 LTGWMW	In Residual Plume Area	SZ
AC-8D	OU-2 LTGWMW	Outside Plume, Sentry Well	MPZ
AC-9D2 ⁽¹⁾	OU-2 LTGWMW	In Plume	MPZ
AC-10D	PERIODIC	Outside of Plume, Effects by Site 348 (Kaiser) Possible	MPZ
AC-11D	PERIODIC	Outside of Plume	MPZ
AC-12D	OU-2 LTGWMW	Flow Path Well Inside Plume	MPZ
AC-13D	OU-2 LTGWMW	Leading Edge of Plume	MPZ
AC-14D	PERIODIC	Outside of Plume	MPZ
AC-21-D	PERIODIC	Outside of Plume, Potential Effects by Site 348 (Kaiser)	MPZ
AC-22D	PERIODIC	Outside of Plume, Effects by Site 348 (Kaiser) Possible	MPZ
AC-23D	PERIODIC	Sidegradient Fringe of Plume	MPZ
AC-24D	OU-2 LTGWMW	Flow Path Well Inside Plume	MPZ
AC-24S	PERIODIC	Outside of Plume, Downgradient of Diversion Area	SZ
AC-25D	OU-2 LTGWMW	Flow Path Well Inside Plume	MPZ
AC-26D	PERIODIC	Near Bayou Texar Outside of Plume	MPZ
AC-26S	PERIODIC	Outside of Plume, Downgradient of Diversion Area	SZ
AC-27D	PERIODIC	Located on East Side of Groundwater Divide	MPZ
AC-27S	PERIODIC	Located on East Side of Groundwater Divide	SZ
AC-28D	OU-2 LTGWMW	Flow Path Well Inside Plume	MPZ
AC-29D	OU-2 LTGWMW	Elevated Concentrations, Flow Path	MPZ
AC-30D	OU-2 LTGWMW	Flow Path, Inside Plume	MPZ
ACB-31S	OU-1 LTGWMW	Upgradient but not necessarily Background	SZ
ACB-32S	OU-1 LTGWMW	Upgradient but not necessarily Background	SZ
AC-33S	OU-1 LTGWMW	Downgradient Cap Area	SZ
AC-34S	OU-1 LTGWMW	Downgradient Cap Area	SZ
AC-35D	OU-2 LTGWMW	Elevated Concentration, Flow Path	MPZ
AC-36D	OU-2 LTGWMW	Adjacent Bayou, Outside Plume, Potential Discharge Area	MPZ
NWD-2D	PERIODIC	Outside of Plume, Effects by Site 348 (Kaiser) Possible	MPZ
NWD-2S	PERIODIC	Downgradient of Diversion Area, Outside of Plume	SZ
NWD-4D	OU-2 LTGWMW	Outside of Plume, Sentry Location	MPZ
NWD-4S	PERIODIC	Outside of Plume, Sentry Location	SZ
PIP-D	OU-2 LTGWMW	Upgradient but not necessarily Background	MPZ

NOTES:

MPZ = Main Producing Zone

SZ = Surficial Zone

PS = Performance Standard

Other wells associated with site were not located as of September 1997 and are assumed destroyed. Wells include AC-3D2, AC-21S, AC-23S, AC-25S, NWD-D, NWD-I

Well plugged with cement and abandoned according to NFWMD regulations include AC-1S, AC-1D, AC-4S, AC-4D, AC-7S, AC-7D, AC-9D.

Former Periodic Well NWD-3S destroyed between November 2005 and November 2006; New construction location covers the former monitoring well location.

LTGWMW = Long-Term Groundwater Monitoring Well

Periodic = Annual water levels and sampling during Five-Year Reviews.

Annual = Beginning Nov. 2009; sampling will be conducted annually to assist in MNA evaluation; once MNA determinations made, these wells will revert to periodic.

⁽¹⁾ AC-9D2 is replacement well for AC-9D. AC-9D was plugged and abandoned on October 21, 1993.

TABLE 2
MONITORING WELL CONSTRUCTION DETAILS

Agrico Site
Pensacola, Florida

Well I.D.	Elevation Measuring Point (ft NGVD) ⁵	Well Depth (ft bls) ⁶	Screen Interval (ft bls) ²	Diameter (inches) ²	Aquifer Zone
AC-2D ⁽⁴⁾	92.74	149	147.2-149	4	MPZ
AC-2S	88.65	70	50 - 70	4	SZ
AC-3S	88.06	79	59 - 79	4	SZ
AC-3D	88.07	170	150 - 170	4	MPZ
AC-5D	82.4	171	151 - 171	4	MPZ
AC-5S	82.34	69	49 - 69	4	SZ
AC-6D	69.19	170	150 - 170	4	MPZ
AC-6S	69.32	70	50 - 70	4	SZ
AC-7SR	90.59	70	50 - 70	2	SZ
AC-8D	76.44	220	190 - 222	4	MPZ
AC-9D2 ⁽¹⁾	64.13	198	179 - 198	4	MPZ
AC-10D	79.48	224	190 - 224	4	MPZ
AC-11D	73.17	200	200 - 220	4	MPZ
AC-12D	79.23	211	191 - 211	4	MPZ
AC-13D	74.65	223	203 - 223	4	MPZ
AC-14D	49.79	199	179 - 199	4	MPZ
AC-21D ⁽⁷⁾	75.47	170	160 - 169.5	4	MPZ
AC-22D	76.58	170	160 - 169.5	4	MPZ
AC-23D	79.51	170	160 - 169.5	4	MPZ
AC-24D	79.60	215	205 - 215	4	MPZ
AC-24S	79.50	80	70 - 80	4	SZ
AC-25D	39.75	180	170 - 180	4	MPZ
AC-26D	26.70	165	155 - 165	4	MPZ
AC-26S	26.75	35	25 - 35	4	SZ
AC-27D	18.55	150	140 - 150	4	MPZ
AC-27S	18.50	35	25 - 35	4	SZ
AC-28D	74.89	201	181 - 201	4	MPZ
AC-29D	82.26	211	191 - 211	4	MPZ
AC-30D	85.73	211	191 - 211	4	MPZ
ACB-31S	91.92	70	50 - 70	2	SZ
ACB-32S	88.16	69.5	49.5 - 69.5	2	SZ
AC-33S	89.18	69.5	49.5 - 69.5	2	SZ
AC-34S	89.09	70	50 - 70	2	SZ
AC-35D	10.49	145	125 - 145	4	MPZ
AC-36D	5.26	152	132 - 152	4	MPZ
NWD-2D ⁽³⁾	76.80	180	160 - 180	4	MPZ
NWD-2S ⁽³⁾	77.53	75	55 - 75	4	SZ
NWD-3S ⁽⁷⁾	80.40	75	55 - 75	4	SZ
NWD-4D	34.70	120	100 - 120	4	MPZ
NWD-4S	34.70	45	35 - 45	4	SZ
PIP-D	39.10	180	160 - 180	4	MPZ

NOTES:

ROW = Road Right-of-Way

MPZ = Main Producing Zone

SZ = Surficial Zone

⁽¹⁾ AC-9D2 is replacement well for AC-9D. AC-9D plugged and abandoned on October 21, 1993.

⁽²⁾ All wells are constructed of PVC casing and screen materials.

ft bls = feet below land surface

⁽³⁾ Elevations for NWD-2D and NWD-2S were corrected in this Annual Report based on information from the NFWFMD database.

⁽⁴⁾ Downhole Video Survey conducted in March 2004. Results indicate well filled in and only about 1 ft of screen remains.

⁽⁵⁾ ft NGVD = feet above National Geodetic Vertical Datum of 1988.

⁽⁶⁾ ft = feet

⁽⁷⁾ NWD-3S destroyed as of 2006; AC-21D damaged as of 2007 (measured depth 163 ft bls; only 3 ft of screen remains).

**TABLE 3
GROUNDWATER FIELD PARAMETER RESULTS**

**Agrico Site
Pensacola, Florida**

Well I.D.	Date	pH (su)	Conductivity (µs/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
AC-2D	11/14/2012	4.45	96	23.59	2.00	293.8	2.15
AC-2S	11/14/2012	5.55	335	23.71	2.38	148.6	0.56
AC-3D	11/13/2012	4.24	462	23.63	0.07	237.2	0.79
AC-3S	11/13/2012	5.80	139	26.23	6.62	146.8	0.60
AC-6D	11/7/2012	5.07	187	23.07	0.24	123.3	15.40
AC-7SR	11/6/2012	5.09	163	23.39	3.92	156.0	1.06
AC-8D	11/7/2012	4.54	119	23.25	7.13	322.8	1.05
AC-9D2	11/12/2012	4.05	737	23.36	1.01	372.6	0.32
AC-12D	11/8/2012	3.70	649	23.77	0.87	401.0	0.32
AC-13D	11/7/2012	3.87	787	23.45	0.46	300.7	0.15
AC-24D	11/9/2012	3.95	848	22.53	0.10	362.1	1.17
AC-25D	11/14/2012	4.00	1371	23.07	0.09	369.8	0.40
AC-28D	11/12/2012	4.24	334	23.40	3.57	382.6	0.24
AC-29D	11/13/2012	4.04	762	23.74	0.11	267.0	0.30
AC-30D	11/14/2012	4.11	268	23.75	1.25	295.8	0.12
ACB-31S	11/6/2012	5.59	178	23.73	8.69	153.6	0.42
ACB-32S	11/6/2012	6.18	100	24.00	7.65	111.7	1.86
AC-33S	11/6/2012	5.14	304	23.21	2.65	182.0	0.36
AC-34S	11/7/2012	5.21	202	23.22	5.40	200.7	1.01
AC-35D	11/15/2012	3.91	1545	22.93	0.06	281.4	0.28
AC-36D	11/6/2012	4.68	139	22.76	6.78	288.3	3.24
NWD-4D	11/8/2012	5.54	188	22.75	0.15	22.1	0.18
PIP-D	11/13/2012	4.68	80	21.20	6.31	168.1	6.72

NOTES:

su = Standard Units
µs/cm=microsiemens per centimeter
°C = Degrees Celsius
mg/L = milligrams per Liter
mV = millivolt
NTU = Nephelometric Turbidity Units

TABLE 4
GROUNDWATER ELEVATIONS
November 5, 2012

Agrico Site
Pensacola, Florida

Well I.D.	Aquifer Zone	Elevation TOC (ft NGVD)	Water Level (ft bl TOC)	Water Level Elevation (ft NGVD)
ACB-31S	SZ	91.92	47.70	44.22
ACB-32S	SZ	88.16	45.18	42.98
AC-33S	SZ	89.18	47.70	41.48
AC-7SR	SZ	90.59	49.71	40.88
AC-34S	SZ	89.09	48.44	40.65
AC-2D	MPZ	92.74	53.03	39.71
AC-2S	SZ	88.65	48.74	39.91
AC-3D	MPZ	88.07	58.33	29.74
AC-3S	SZ	88.06	52.24	35.82
AC-5D	MPZ	82.40	47.24	35.16
AC-5S	SZ	82.34	40.62	41.72
AC-6D	MPZ	69.19	43.92	25.27
AC-6S	SZ	69.32	38.10	31.22
AC-8D	MPZ	76.44	59.26	17.18
AC-9D2	MPZ	64.13	52.88	11.25
AC-10D	MPZ	79.48	65.55	13.93
AC-11D	MPZ	73.17	64.01	9.16
AC-12D	MPZ	79.23	62.62	16.61
AC-13D	MPZ	74.65	64.57	10.08
AC-14D	MPZ	49.79	43.93	5.86
AC-21D	MPZ	75.47	43.52	31.95
AC-22D	MPZ	76.58	54.33	22.25
AC-23D	MPZ	79.51	56.11	23.40
AC-24D	MPZ	79.60	62.86	16.74
AC-24S	SZ	79.50	54.74	24.76
AC-25D	MPZ	39.75	32.42	7.33
AC-26D	MPZ	26.70	18.53	8.17
AC-26S	SZ	26.75	19.12	7.63
AC-27D	MPZ	18.55	13.43	5.12
AC-27S	SZ	18.50	13.63	4.87
AC-28D	MPZ	74.89	63.20	11.69
AC-29D	MPZ	82.26	58.44	23.82
AC-30D	MPZ	85.73	68.92	16.81
AC-35D	MPZ	10.49	4.13	6.36
AC-36D	MPZ	5.26	1.55	3.71
NWD-2D	MPZ	76.80	48.02	28.78
NWD-2S	SZ	77.53	41.24	36.29
NWD-4D	MPZ	34.70	18.21	16.49
NWD-4S	SZ	34.70	17.96	16.74
PIP-D	MPZ	86.05	43.24	42.81

NOTES:

SZ = surficial zone of Sand-and-Gravel aquifer

MPZ = main producing zone of Sand-and-Gravel aquifer

ft NGVD = feet above National Geodetic Vertical Datum of 1988.

ft bl TOC = feet below top of casing.

TABLE 5
SURFACE WATER FIELD PARAMETER RESULTS

Agrico Site
Pensacola, Florida

Surface Water Location	Date	pH (su)	Conductivity (µs/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Salinity (ppT)
ACSW-1 Bayou Texar (Brackish Water)	11/24/1999	6.30	35,000	22.00	NM	NM	0	22.00
	11/30/2000	7.20	30,000	19.00	NM	NM	0	19.00
	11/7/2001	7.10	34,300	24.50	NM	NM	21.1	20.60
	12/3/2002	6.95	22,388	16.90	NM	NM	5.3	13.51
	1/29/2004	6.88	21,805	14.60	7.71	225	3.97	NM
	11/18/2004	5.54	6,575	20.40	NM	NM	NM	3.55
	11/21/2005	6.92	18,575	17.55	7.9	93.8	12.9	NM
	11/27/2006	6.72	17,348	19.80	6.69	141.6	7.71	11.54
	11/20/2007	7.00	29,785	22.40	6.46	141.3	4.4	18.52
	11/20/2008	7.71	37,362	18.40	7.87	185	8.51	23.61
	11/13/2009	6.91	19,505	20.45	6.93	177.3	6.78	11.67
	11/17/2010	7.33	28,783	21.26	5.89	251.6	17.1	17.8
	11/17/2011	7.62	34,043	21.70	7.79	14.1	13.2	21.25
	11/8/2012	7.03	32,649	23.43	5.93	73.8	12.3	20.75
ACSW-2 Bayou Texar (Brackish Water)	11/24/1999	7.10	38,000	21.00	NM	NM	0	24.00
	11/30/2000	7.90	32,000	18.00	NM	NM	0	20.00
	11/7/2001	8.43	43,000	22.50	NM	NM	3.3	27.80
	12/3/2002	7.06	27,167	15.80	NM	NM	4.7	16.73
	1/29/2004	7.68	23,182	13.60	7.83	161.1	6.4	NM
	11/18/2004	4.90	9,788	21.17	NM	NM	NM	5.73
	11/21/2005	7.67	30,500	17.07	7.96	115.6	10.4	NM
	11/27/2006	7.40	28,104	19.03	7.9	157.6	8.17	17.3
	11/20/2007	7.66	35,752	21.57	7.12	73.6	5.4	22.57
	11/20/2008	7.64	35,968	19.05	7.6	173.9	10	22.73
	11/13/2009	7.30	30,925	20.97	3.87	-121.8	8.64	19.2
	11/17/2010	7.71	30,305	20.85	5.87	292.4	8.36	19.0
	11/17/2011	7.90	36,363	21.28	8.52	41.5	5.36	23.02
	11/8/2012	7.83	37,364	20.58	7.59	66.7	10.5	23.74
BT-02 Bayou Texar (Brackish Water)	11/17/2010	7.44	28,836	21.43	6.07	180.4	7.98	17.74
	11/17/2011	7.63	33,288	21.92	8.15	-9.5	11.30	20.84
	11/8/2012	7.58	36,769	22.35	7.39	70.8	12.10	23.24
BT-107 Bayou Texar (Brackish Water)	11/17/2010	7.39	29,165	21.45	6.14	193.5	5.30	18.05
	11/17/2011	7.51	32,523	21.61	7.96	9.9	9.80	20.48
	11/8/2012	7.23	36,230	22.27	7.01	73.6	10.80	22.94
BT-127 Bayou Texar (Brackish Water)	11/17/2010	7.33	28,735	21.31	5.87	240.7	6.21	17.64
	11/17/2011	7.69	35,000	21.73	7.94	-1.8	10.40	22.07
	11/8/2012	7.37	36,564	22.60	7.44	67.5	10.30	22.95

TABLE 5
SURFACE WATER FIELD PARAMETER RESULTS

Agrico Site
Pensacola, Florida

Surface Water Location	Date	pH (su)	Conductivity (µs/cm)	Temperature (°C)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Salinity (ppT)
ACSW-BL Carpenter's Creek (Freshwater)	11/24/1999	7.20	360	22.00	NM	NM	0.00	0.00
	11/29/2000	7.10	380	19.00	NM	NM	0.00	0.00
	11/7/2001	6.11	69	18.70	NM	NM	0.00	0.00
	11/26/2002	5.67	80	20.40	NM	NM	1.70	NM
	1/29/2004	6.56	68	15.88	7.34	126.1	5.49	NM
	11/12/2004	5.86	92	20.12	NM	NM	NM	0.04
	11/22/2005	6.47	87	16.03	9.38	61.4	7.78	0.04
	11/21/2006	5.95	88	17.13	7.9	130.5	1.35	NM
	11/20/2007	6.51	90	20.31	7.59	73.6	1.80	0.04
	11/20/2008	6.14	104	17.13	8.32	125	3.97	0.05
	11/12/2009	6.08	45	18.87	8.71	187.8	3.00	NM
	11/17/2010	Discontinued						

NOTES:

SU = Standard Units

µs/cm= microsiemens per centimeter

°C = Degrees Celsius

mg/L = milligram per Liter

mV = milliVolt

NTU = Nephelometric Turbidity Units

ppT=parts per thousand

NM = not measured

TABLE 6

**ADVISORY NOTICE DISTRIBUTION LIST
WATER WELL, IRRIGATION/PLUMBING, AND POOL CONTRACTORS**

**Agrico Site
Pensacola, Florida**

NAME	COMPANY NAME	ADDRESS	CITY	STATE	POSTAL CODE
	FLORIDA IRRIGATION SUPPLY INC	2810 COPTER ROAD	PENSACOLA	FL	32514
	SMITH'S OUTDOOR SERVICES	1998 GREEN HERON CT	GULF BREEZE	FL	32563-7021
BRET & MATTHEW B. LACKEY	SOUTHEAST LANDSCAPE SPECIALISTS	2141 DOG TRACK RD	PENSACOLA	FL	32506-9558
	STOVALL & COMPANY	3901 N. PACE BLVD.	PENSACOLA	FL	32505-4340
	WALLACE SPRINKLER INC	3607 ANDREW AVE	PENSACOLA	FL	32505-4108
	D & L LAWN SERVICES	207 CAROLYN WAY	PENSACOLA	FL	32505-2823
	ALL SEASONS POOL SERVICE	29 ADKINSON DR	PENSACOLA	FL	32506
	ALL SERVICES POOL SPA	5585 WINDHAM RD	MILTON	FL	32507
	AMERICAN LIFESTYLE POOL, INC	5053 RING ROSE CT	GULF BREEZE	FL	32563-8935
	AVALON POOLS	4230 TANFIELD RD	MILTON	FL	32583
	COASTAL POOLS	6031 CHAPMAN CIR	PENSACOLA	FL	32504-7950
	PACE POOL & SPA SERVICES, INC.	4873 WEST SPENCER FIELD RD.	PACE	FL	32571-1232
	DOLPHIN POOLS	3210 GULF BREEZE PKWY	GULF BREEZE	FL	32563-2730
	FAMILY POOL AND SPA & BILLIARD CENT	3920 N. DAVIS HIGHWAY	PENSACOLA	FL	32503
	JOHNSON POOLS, INC	401 MASSACHUSETTS AVE	PENSACOLA	FL	32505-4207
	PARKER POOLS	PO BOX 11769	PENSACOLA	FL	32524-1769
	WHOLESALE SPA & POOL OUTLETS	2323 COPTER RD.	PENSACOLA	FL	32514-5802
	PENSACOLA FUNROOMS	2155 W. NINE MILE RD.	PENSACOLA	FL	32534-9414
	PENSACOLA POOLS INC	4412 HIGHWAY 90	PACE	FL	32571
	PENSACOLA POOLS INC	3480 GULF BREEZE PKWY	GULF BREEZE	FL	32563-3406
	PENSACOLA POOLS INC	501 E. HOLLYWOOD BLVD.	MARY ESTHER	FL	32569-2078
	PINCH A PENNY POOL PATIO SPA	7859 PINE FOREST RD.	PENSACOLA	FL	32526-8701
	PINCH A PENNY POOL PATIO SPA	3307 GULF BREEZE PKWY	GULF BREEZE	FL	32563
	SHORELINE POOLS & SPAS	1357 TIGER LAKE DR.	GULF BREEZE	FL	32563
	SUNSET POOLS SPAS & WHIRLPOOL BAT	4382 HIGHWAY 90	PACE	FL	32571
	BEDROCK WELLS - AAA SPRINKLERS & L	6201 N. BLUE ANGEL PKWY	PENSACOLA	FL	32526-8006
	MCGOWAN WATER WORKS INC	3041 E. KINGSFIELD RD.	PENSACOLA	FL	32514-9753
	COFFEY S G WELL SVCE	331 BURNT PINE RD	BREWTON	AL	36426-5817
	COFFEY'S GEORGE WELL SERVICE	680 TRAVIS RD	BREWTON	AL	36426-5120
	J & S SPRINKLERS & WELL DRILLING	7251 E BAY BLVD.	NAVARRE	FL	32566-9015
	RUSSELLS WELL AND PUMP SERVICES	4053 KENTWOOD ST.	MILTON	FL	32571-2432
	WINDHAM & SON PUMPING SUPPLY	5800 MULDOON RD.	PENSACOLA	FL	32526-1699
ALAN ARD	ARD'S CLOSED LOOP	1931 TILLIMAN LN	PENSACOLA	FL	32506
GLENN ASHLEY	ASHLEY WELL DRILLING	8056 WAKULLA SPGS RD	TALLAHASSEE	FL	32305
GREG BAILEY	GREG'S IRRIGATION	4264 BARLOW RD	CRESTVIEW	FL	32536
RONNIE BARLOW		4575 J BARLOW ROAD	JAY	FL	32565
BOBBY BARLOW	BARLOW WATER SERVICES	P O BOX 539	WEWAHITCHKA	FL	32465
FREDERICK BASFORD	BASFORD WELL DRILLING	4513 LAFAYETTE ST	MARIANNA	FL	32446
CHARLES BASFORD	BASFORD WELL DRILLING	4513 LAFAYETTE ST	MARIANNA	FL	32446
LESTER BASFORD	BASFORD WELL DRILLING	4513 LAFAYETTE ST	MARIANNA	FL	32446
MACK H BEASLEY	MACK H BEASLEY WATER WELL SERVICE	4940 BECK AVE	JAY	FL	32565
TERRY BERRY	BERRY'S WELL SERVICE	225 SPENCER DR	FT WALTON BEACH	FL	32547
DAVIS L BOOTH		903 W TENNESSEE ST	TALLAHASSEE	FL	32304
PAUL BRANSON	COFFEY'S WELL SERVICE	P O BOX 564	JAY	FL	32565
TERRY BRANTON	BRANTON BROTHERS WELL DRILLING	755 MALVERN RD	DOTHAN	AL	36301
NEAL BRICKENER		9393 EAST RIVER DR	NAVARRE	FL	32566
MORGAN BROWN		28 MOONEY ROAD NE	FT WALTON BEACH	FL	32547
JOHN R BROWN	BROWN WELL COMPANY INC	P O BOX 309	CHIPLEY	FL	32428
DOCK L BRYANT JR	B & B WELL DRILLING	108 FETTING AVE	FT WALTON BEACH	FL	32547
BYRON BUTLER		P O BOX 2820	HAINES CITY	FL	33845
TROY E BYRD		P O BOX 371	ATMORE	AL	36504
JOHN G CATON	UNIVERSAL SPRINKLER & LANDSCAPING	5344 SOUNDSIDE DRIVE	GULF BREEZE	FL	32563
HERBERT CHRISTIAN	CHRISTIAN TESTING LABS INC	P O BOX 3218	MONTGOMERY	AL	36109
JL CLANTON	CLANTON'S WELL DRILLING	6512 LOIS ST	PANAMA CITY	FL	32404
MARK COBB	C & S WELL SERVICE	2712 TWILIGHT AVE	PANAMA CITY	FL	32405
SANDRA COFFEY	S G COFFEY WELL SERVICE	PO BOX 2317	BREWTON	AL	36427-2317
JIMMY H COFIELD	JIM'S WELL DRILLING	P O BOX 93	FLOMATON	AL	36441
TE COLLEY		5558 ORIOLE ST	MILTON	FL	32570
ARTHUR COLLINGSWORTH		6806 KEITHLEY RD	PANAMA CITY	FL	32404
JAMES R CONNER	JAMIE CONNER WELL DRILLING SERVICE	1278 LEAVINS RD	WESTVILLE	FL	32464
JOHN COOKE	COOKE'S WELL DRILLING SERVICE	4924 SATIN DR	BASCOM	FL	32423
VERNON CREAMER	COASTAL WELL DRILLING	11939 RACCOON RD	SOUTHPORT	FL	32409
DON CRUTCHFIELD	PENSACOLA TESTING LAB	217 E BRENT LN	PENSACOLA	FL	32503
WILLIAM DAVIS	BILL DAVIS DRILLING SERVICES	32 SHORELINE DRIVE	PANACEA	FL	32346
ROBERT DE VALCOURT	PERDIDO HEATING & AIR	5555 BAUER RD	PENSACOLA	FL	32507
ROBIN DEAN	ROBIN DEAN WELL DRILLING	1904 WAX MYRTLE RD	TALLAHASSEE	FL	32310
WESLEY DEAN	DEAN'S WELL DRILLING	PO BOX 1469	WOODVILLE	FL	32362-1469

TABLE 6

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WATER WELL, IRRIGATION/PLUMBING, AND POOL CONTRACTORS**

**Agrico Site
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NAME	COMPANY NAME	ADDRESS	CITY	STATE	POSTAL CODE
RANDALL DEAN		PO BOX 448	WOODVILLE	FL	32362
ZACHARY DIXON	DIXON WELL DRILLING	P O BOX 111	VERNON	FL	32462
WESLEY DONALDSON	DONALDSON WELL DRILLING	1321 BLUE ANGEL PKY	PENSACOLA	FL	32506
ROBERT M DORRIETY		5251 COY BURGESS RD	DEFUNIAK SPRINGS	FL	32435
CURT DOYLE	GEOTECHNICAL SERVICES INC	904 BUTLER DR	MOBILE	AL	36693
HARRY DYE	HARRY'S WELL SERVICE	400 KELSON RD	PENSACOLA	FL	32514
BOB ECHOLD	NORTHWEST FLORIDA WATER MANGEM	2261 WEST NINE MILE RD	PENSACOLA	FL	32534
MATT GARCIA		1426 LOLA DR	TALLAHASSEE	FL	32301
DAN GARY	DAN GARY WELL DRILLING	RTE 1 BOX 164	GENEVA	AL	36340
DONALD GELDBAUGH	SOUTHERN COMPANY SERVICES INC	ONE ENERGY PLACE	PENSACOLA	FL	32520
ALPHA GIPSON	ALPHA GIPSON	6131 AGELINA RD	PENSACOLA	FL	32504
TOMMIE GLASS		3804 W BLOUNT ST	PENSACOLA	FL	32505
EM GLOVER	E. M. GLOVER DRILLING	243 GLOVER LN	CRAWFORDVILLE	FL	32327
WENDELL HALL		6620 CHIPEWA ST	PANAMA CITY	FL	32404
JOSEPH HARRELL JR	GEO ENERGY DRILLING INC	P O BOX 1454	CRAWFORDVILLE	FL	32326
HOWARD HAYES		20181 SE CL CAPPS RD	BLOUNTSTOWN	FL	32424
JAMES W HOELSCHER		968 VESTAVIA WAY	GULF BREEZE	FL	32561
STEVE HOLT	HOLT WELL SERVICE	8331 HWY 189 N	BAKER	FL	32531
EDGAR HUGHES		6302 CR 636	CHANCELLOR	AL	36316
RONNIE HUGHES	HUGHES WELL DRILLING	P O BOX 294	FREEPORT	FL	32439
LEWIS C JOHNSON		4537 JAY BARLOW RD	JAY	FL	32565
LEWIS G JOHNSON	AMERICAN WELL DRILLING	7116 NELSON ST	NAVARRE	FL	32566
DAVID L JOHNSON	JOHNSON WELL DRILLING	5056 OAK DR	BASCOM	FL	32423
SAMUEL JOHNSON	JOHNSON WELL DRILLING	P O BOX 93	BASCOM	FL	32423
JAMES JOHNSON		7716 SUNSHINE HILL RD	MOLINO	FL	32577
DON JONES	LARRY JACOBS & ASSOCIATES	328 E GADSDEN ST	PENSACOLA	FL	32501
BILL KIGHT		3511 N CENTRY BLVD	MCDavid	FL	32568
EDDIE LAWRENCE	TOWN & COUNTRY WELL DRILLING	19512 RIDGE RD	FOUNTAIN	FL	32438
EVERETTE LEAVINS	EVERETTE B LEAVINS WELL DRILLING	1239 LEAVINS RD	WESTVILLE	FL	32464
JAMES T LEWIS	ADVANCED BORING INC	4931 WOOD CLIFF DR	PENSACOLA	FL	32504
ROBERT LIVINGSTON		4909 PARK ST	PANAMA CITY	FL	32404
JOHN MARTIN		P O BOX 623	DEFUNIAK SPRINGS	FL	32435
SAM MARTIN	SAM MARTIN WELL DRILLING	P O BOX 623	DEFUNIAK SPRINGS	FL	32435
BILLY MCCLAIN	FLORIDA DEPARTMENT OF ENVIRONMEN	2600 BLAIR STONE ROAD	TALLAHASSEE	FL	32399
GENE MCGOWAN		3041 E KINGSFIELD RD	PENSACOLA	FL	32526
MICHAEL MCGUYRE	MCGUYRE'S WELL DRILLING	4090 BUFORD LN	MILTON	FL	32583
CRAIG MCLEAN		P O BOX 700	FREEPORT	FL	32439
WILLIAM MCLEAN	CRAIG'S WELL SERVICE	P O BOX 700	FREEPORT	FL	32439
TE MILLS	MILLS WELL DRILLING & PUMPS	5355 TOWER RD	TALLAHASSEE	FL	32303
BRICE MOODY	BRICEY MOODY WELL DRILLING	160 SAN MARCOS DR	CRAWFORDVILLE	FL	32327
MAJOR MOORE	MOORE ELECTRIC COMPANY	1110 W WASHINGTON ST	QUINCY	FL	32351
JOHN A MORRILL		3805 A SPRINGHILL RD	TALLAHASSEE	FL	32310
FRANK J MOSLEY	MOSLEY WELL & PUMP	7685 FAIRBANKS FERRY RD	HAVANA	FL	32333
CLYFTON MYERS	MYERS PUMP & INSTALLATION	1391 ACORN LN	PENSACOLA	FL	32514
JAMES PEEL	SOUTHERN TESTING & DRILLING INC	1419 ORANGE HILL RD	CHIPLEY	FL	32428
TONY POWELL		P O BOX 116	URIAH	AL	36480
DOUGLAS RAY	FREETIME IRRIGATION	107 22ND STREET	NICEVILLE	FL	32578
HARVEY REAVES		P O BOX 426	WOODVILLE	FL	32362
CARL REVELL JR	REVELL WELL DRILLING	P O BOX 123	SOPCHOPPY	FL	32358
ROBERT ROACH	BOYLES BROTHERS DRILLING CO	P O BOX 1111	NORTHPORT	AL	35476
RICHARD ROBERTS		P O BOX 1022	NICEVILLE	FL	32588
RICHARD ROWE		P O DRAWER 1389	TALLAHASSEE	FL	32302
LAMAR ROWE	ROWE DRILLING COMPANY INC	P O DRAWER 1389	TALLAHASSEE	FL	32302
ROBERT SCRIBNER	KCW ELECTRIC CO INC	4765 SHELFER RD	TALLAHASSEE	FL	32310
STEPHEN SHANLEY		4770 B WOODLANE CR	TALLAHASSEE	FL	32303
WAYNE SIMMONS	SIMMONS WELL DRILLING	3152 BOB SIKES ROAD	DEFUNIAK SPRINGS	FL	32435
MILFORD SIMS		3606 S LAKEWOOD DR	TALLAHASSEE	FL	32310
STEVE SMALLEY	NORTH FLORIDA WELL DRILLING	24396 LONE STAR CT	TALLAHASSEE	FL	32310
DONALD SMITH	DONALD SMITH COMPANY INC	746 E MAIN	HEADLAND	FL	36345
FILBERT SMITH	ARDAMAN AND ASSOCIATES	3175 W THARPE ST	TALLAHASSEE	FL	32303
MIKE SPIVA	MIKE'S WATER WORKS	25 CARROLL CR	BRUCE	FL	32455
MICHAEL SUGGS		936 PIONEER RD	CHIPLEY	FL	32428
CLIFFORD TAYLOR	POLLOCK WELL DRILLING INC	7307 EVEREST ST	PANAMA CITY	FL	32404
JAMES THOMASON		328 SEMINOLE ST	FT WALTON BEACH	FL	32547
VJ THOMPSON III	THOMASON DEEP WELL DRILLING	P O DRAWER 91537	MOBILE	AL	36691
VONNIE TOLBERT	VONNIE'S WELLS	7621 SAMANTHA CIRCLE	NAVARRE	FL	32566
JAMES TRINDELL		6 THREE SISTERS ROAD	CRAWFORDVILLE	FL	32327

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NAME	COMPANY NAME	ADDRESS	CITY	STATE	POSTAL CODE
DEN A TRUMBULL JR	CULLIGAN WATER SERVICES INC	315 E 15TH ST	PANAMA CITY	FL	32405
VICTOR C WALLACE	WALLACE SPRINKLER & SUPPLY INC	P O BOX 1313	GULF BREEZE	FL	32562
ALEX WALTERS		10704 ALEX DRIVE	FOUNTAIN	FL	32438
CHALES M WARD	CLYDE'S WELL SERVICE INC	4537 J BARLOW ROAD	JAY	FL	32565
JAMES W WESTBROOK	J & W WELL DRILLING	P O BOX 135	BASCOM	FL	32423
JOHN WHITE	BROWN WELL DRILLING	P O BOX 309	CHIPLEY	FL	32428
CHARLES WINDHAM	WILLIAMSON WELL DRILLING INC	5800 MULDOON RD	PENSACOLA	FL	32506
TERRY WOODWARD	TERRY'S WELL SERVICE	5001 CHIMES WAY	PENSACOLA	FL	32507
PAUL WRIGHT		6245 HOWELL'S FERRY RD	MOBILE	AL	36618
CHARLES WYCKOFF		12751 SMITH YOUNG RD	MOBILE	AL	36695
CHRISTOPHER YELLE	EPT	3210 BARRANCAS AVE	PENSACOLA	FL	32507
ACE PLUMBING & DRAIN		8861 GULF BEACH HWY	PENSACOLA	FL	32507
AGGRESSIVE PLUMBING BY R BROADLEY		1015 E LAKEVIEW AVE	PENSACOLA	FL	32503
ARNO'S PLUMBING AND HEATING		6917 SEA CRAB CIRCLE	NAVARRE	FL	32566
ARTO'S SEWER AND DRAIN PLUMBING CO INC		P O BOX 18116	PENSACOLA	FL	32523
BARBERI PLUMBING		1022 UNDERWOOD AVE	PENSACOLA	FL	32504
BELLVIEW PLUMBING CO INC		3101 MULDOON RD	PENSACOLA	FL	32526
BOYD PLUMBING		2464 S HWY 29	CANTONMENT	FL	32533
BRADLEY PLUMBING AND HEATING		2709 GRAINGER AVENUE	PENSACOLA	FL	32507
CLYDE'S SERVICES		815 N 77TH AVE	PENSACOLA	FL	32506
COKER PLUMBING CO		521 MILLS AVE	PENSACOLA	FL	32507
COOPER GARY PLUMBING		5676 COUNTRY SQUIRE DR	MILTON	FL	32570
DAVIDSON PLUMBING		8830 UNTREINER AVE	PENSACOLA	FL	32534
EAST BAY PLUMBING CO		6255 EAST BAY BLVD	GULF BREEZE	FL	32561
ELECTRIC ROTO		2376 W NINE MILE RD	PENSACOLA	FL	32534
ESCAMBIA PLUMBING AND HEATING CO		1860 ATWOOD DR	PENSACOLA	FL	32514
FAVORITE PLUMBING CO		2828 N T STREET	PENSACOLA	FL	32505
JIM'S PLUMBING OF NAVARRE INC		1888 COMMODORE ST	NAVARRE	FL	32566
JOHNSON LEON PLUMBING CO		7108 WHIRLEYBIRD AVE	PENSACOLA	FL	32504
M & D MECHANICAL CONTRACTORS INC		2219 W JORDAN ST	PENSACOLA	FL	32505
MMI MECHANICAL CONTRACTOR		4904 W SPENCER FIELD	PACE	FL	32571
MCCLUSKEY PLUMBING CO		808 W ZARRAGOSSA STREET	PENSACOLA	FL	32501
PAYNE & SON PLUMBING, HEATING, AIR CONDITIONING		P O BOX 2575	PENSACOLA	FL	32513
PENSACOLA PLUMBING CONTRACTORS		2313 BROOKWOOD PLACE	PENSACOLA	FL	32533
QUALITY ONE PLUMBING CO		5724 PALMETTO PL	MILTON	FL	32570
ROOT-A-SEWER INC		2701 LONG LEAF DR	PENSACOLA	FL	32526
S & S PLUMBING AND MECHANICAL INC		7845 PINE FOREST RD	PENSACOLA	FL	32526
SANTA ROSA PLUMBING		5510 TOM SAWYER RD	MILTON	FL	32583
SMITH PLUMBING & HEATING CO INC		2510 N PACE BLVD	PENSACOLA	FL	32505
SPIVEY & SON PLUMBING INC		9820 VONNA JO DR	PENSACOLA	FL	32506
VAN PLUMBING		3248 CLEMSON RD	GULF BREEZE	FL	32561
WARRINGTON PLUMBING INC		910 W MAIN	PENSACOLA	FL	32501
BRAUN'S SPRINKLER SERVICE		10852 BERRYHILL RD	PENSACOLA	FL	32506
GORMAN CO INC		4149 WAREHOUSE LANE	PENSACOLA	FL	32505
PHOENIX LANDSCAPE & IRRIGATION INC		P O BOX 924	GULF BREEZE	FL	32562
RAINFALL LANDSCAPE & SPRINKLER		9850 NORTH LOOP RD	PENSACOLA	FL	32507
TIECO GULF COAST INC		540 W MICHIGAN AVE	PENSACOLA	FL	32505
DOUG MERRITT IRRIGATION		2600 W MICHIGAN AVE, LOT 35E	PENSACOLA	FL	32526
FOXWORTH & MOORE IRRIGATION		1011 N DAVIS HWY	PENSACOLA	FL	32501
SHERMAN SPRINKLER & IRRIGATION		18 NOTTINGHAM WAY	PENSACOLA	FL	32506
TRIM A LAWN LAWN & GARDEN CENTER		1405 GULF BEACH HIGHWAY	PENSACOLA	FL	32507
MCGOWAN IRRIGATION		3041 E KINGSFIELD RD	PENSACOLA	FL	32526
GARVEY IRRIGATION		PO BOX 250	MOLINO	FL	32577-0250
KEN GRIFFIN LANDSCAPE CONTRACTORS INC		3004 WESTFIELD RD	GULF BREEZE	FL	32563
PENSACOLA LANDSCAPING & LAWN CARE		7795 GROW DR	PENSACOLA	FL	32514

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WATER WORKS SPRINKLER SYSTEMS & PONDS		4669 ANNA SIMPSON RD	MILTON	FL	32583
C & H PLUMBING		5239 OLD BERRYHILL RD	MILTON	FL	32570
DEALE PLUMBING		7019 WOODLEY DR	PENSACOLA	FL	32503
DOWNES PLUMBING & GAS	LARRY DOWNES	5840 MULDOON RD	PENSACOLA	FL	32526
ELECTRIC ROTO ROOTER SEWER & DRAIN CLEANING		2376 W NINE MILE ROAD	PENSACOLA	FL	32534
FLORIDA AIR CONDITIONING & PLUMBING		9310 BRIDLEWOOD RD	PENSACOLA	FL	32526
THE FRIENDLY PLUMBER OF FLORIDA INC		4300 HOLLYWOOD AVENUE	PENSACOLA	FL	32505
HIGH TECH PLUMBING & HEATING		8375 RALEIGH CIRCLE	PENSACOLA	FL	32534
HOMEOWNERS' ASSURANCE INC		4382 HIGHWAY 90	PACE	FL	32571
PACE PLUMBING		4274 BELL LANE	PACE	FL	32571
PETTRY PLUMBING & GAS SERVICE		P.O. BOX 3422	PENSACOLA	FL	32516
ROTO-ROOTER SERVICE & DRAIN CLEANING		2376 W NINE MILE RD	PENSACOLA	FL	32534
SILCOX PLUMBING		1092 TROUBLE LANE	CANTONMENT	FL	32533
TERRY SMITH PLUMBING INC		22 W NINE & ONE HALF MILE RD	PENSACOLA	FL	32534
ENSLEY SEPTIC TANK SERVICE		10491 BETMARK RD	PENSACOLA	FL	32534
AFFORDABLE SPRINKLERS		4155 KINGBERRY ROAD	PENSACOLA	FL	32504
ALTERNATE RAIN SYSTEMS		5353 N BLUE ANGEL PARKWAY	PENSACOLA	FL	32526
AMORE SPRINKLER CO		3652 GARDENVIEW RD	PACE	FL	32571
IRRIGATION ENGINEERING		920 E LLOYD ST	PENSACOLA	FL	32503
KILLER WELLS, INC.		2600 W. MICHIGAN AVE, LOT 35E	PENSACOLA	FL	32525-2282
PERDIDO IRRIGATION SYSTEMS		5555 BAUER ROAD	PENSACOLA	FL	32507
RIKER IRRIGATION		1144 W NINE MILE RD	PENSACOLA	FL	32534
A1 LAWN SPRINKLER CO		15 REDWOOD CIRCLE	PENSACOLA	FL	32506
M7N VENDING SERVICE		440 W. HANNAH STREET	PENSACOLA	FL	32534
AQUA POOL & PATIO		3407 OLD FAIRFIELD DRIVE	PENSACOLA	FL	32505
GLASS COAT INC		3180 HOWELL RD	PENSACOLA	FL	32568
GULF COAST POOL & SPA INC		2461 LANGLEY AVE	PENSACOLA	FL	32504
JERRY LEE CHEMICAL COMPANY		3407 OLD FAIRFIELD DR	PENSACOLA	FL	32505
MANNING BROS POOL INC		9465 PENSACOLA BLVD	PENSACOLA	FL	32534
PANAMA POOLS OF NORTHWEST FLORIDA		291 POWELL ADAMS RD	PENSACOLA	FL	32413
PENSACOLA POOLS INC		8514 PENSACOLA BLVD	PENSACOLA	FL	32534
VAUGHN'S INC OF PENSACOLA		1290 NINE MILE ROAD	PENSACOLA	FL	32534
ALLPOOLS		8062 BRIOR OAK DRIVE	PENSACOLA	FL	32514
ABSOLUTE POOLS		P.O. BOX 1632	SANTA ROSA BEACH	FL	32459
AVALON POOLS		4230 TANFIELD ROAD	MILTON	FL	32583
COX POOLS		22656 F CANAL ROAD	ORANGE BEACH	AL	36561
D K POOLS INC		4111 LILLIAN HWY	PENSACOLA	FL	32505-2202
L W POOLS		11600 MOBILE HIGHWAY	PENSACOLA	FL	32526
PINCH A PENNY POOL PATIO SPA		8090 N 9th AVE	PENSACOLA	FL	32514
SOUTHLAND POOLS		4333 BARCLAY PLACE	PACE	FL	32571
SUNSET POOLS SPAS & WHIRLPOOL BATHS		4382 HIGHWAY 90	PACE	FL	32571
TAMTECH		8783 NAVARRE PARKWAY	NAVARRE	FL	32566
SOUTH CENTRAL POOL SUPPLY		8808 Grow Dr	PENSACOLA	FL	32514
FANTASY POOLS & SPA		1350 S Blue Angel Pkwy	PENSACOLA	FL	32506
JOHNSON POOLS INC.		401 Massachusetts Ave	PENSACOLA	FL	32505
FAGANS CUSTOM POOLS INC.		13440 Serenity Cir	PENSACOLA	FL	32506
ATLANTIS POOL & SPA		2075 Elaine Cir	PENSACOLA	FL	32504
SUPERIOR POOLS PRODUCTS		3338 Mclemore Dr	PENSACOLA	FL	32514
WHOLESALE SPA & POOL OUTLETS		2323 Copter Rd	PENSACOLA	FL	32514
AFFORDABLE TREE LAWN & POOL		2011 W. Garden Street	PENSACOLA	FL	32502
EMERALD COAST IRRIGATION LLC		3041 Kingsfield Road	PENSACOLA	FL	32514
JERRY PATE TURF & IRRIGATION INC.		301 Schubert Drive	PENSACOLA	FL	32504
GULFSIDE LANDSCAPING INC		8221 Kipling Street	PENSACOLA	FL	32514
GONZALEZ PLUMBING & SPRINKLER		1801 Government Street	PENSACOLA	FL	32502
AIR DESIGN SYSTEMS INC.		400 Lurton St	PENSACOLA	FL	32505
ALL PRO PLUMBING & DRAIN		1765 E Nine Mile Rd Ste 1	PENSACOLA	FL	32514
ARTO'S SEWER & DRAIN SERVICE INC		2923 Rhythm St	PENSACOLA	FL	32505
CERTIFIED PLUMBING SEWER & GAS		7075 N Blue Angel Pkwy	PENSACOLA	FL	32526
PRICHARDS PLUMBING		40 Olive Rd	PENSACOLA	FL	32514
AGGRESSIVE PLUMBING		1220 Maura St	PENSACOLA	FL	32503
Terry Lambert Plumbing & Gas Service Inc		8145 Whitmire Dr	PENSACOLA	FL	32514
BATTLES PLUMBING LLC		2083 Downing Dr	PENSACOLA	FL	32505
KIMMON PLUMBING INC.		2560 Gulf Breeze Ave	PENSACOLA	FL	32507
NELSON PLUMBING CONTRACTORS		211 Brent Ln	PENSACOLA	FL	32503

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GMC PLUMBING CONTRACTOR		664 Whitney Dr	PENSACOLA	FL	32503
CASEY HYMAN PLUMBING INC		5650 Dixie Dr	PENSACOLA	FL	32503
BALDWIN PLUMBING WORKS INC		3521 Bauer Rd	PENSACOLA	FL	32506
COASTAL PLUMBING & SEWER INC.		3010 Keats Dr	PENSACOLA	FL	32503
LARRY DOWNS JR PLUMBING CO		1949 Athens Ave	PENSACOLA	FL	32507
PLUMBERSMITH		9312 Bridlewood Rd	PENSACOLA	FL	32526
AQUA PRODUCTS INC.		3983 N.W. Street	Pensacola	FL	32505
VIP POOLS		3303 N. Davis Hwy.	Pensacola	FL	32503
AFFORDABLE POOL & SPA REPAIR INC.		7208 W. Fairfield Drive	Pensacola	FL	32506
POOL CARE		600 Careondelay Drive	Pensacola	FL	32506
LESLIE'S SWIMMING POOL SUPPLIES		9251 University Pkwy	Pensacola	FL	32514
KENNY SMITHS POOL CARE		7134 Inniswold Drive	Pensacola	FL	32526
WATERHEAD IRRIGATION		707 E Cervantes	Pensacola	FL	32501
LORING IRRIGATION		2406 Escambia Avenue	Pensacola	FL	32503
AA IRRIGATION REPAIR		4301 N. Davis Hwy	Pensacola	FL	32503
THE FINISH LINE COMPANIES		3370 Pursell Lane	Pensacola	FL	32526
VEREN IRRIGATION PUMP SERVICE		10160 Candlestick Lane	Pensacola	FL	32514
PROFESSIONAL SPRINKLER SYSTEMS INC		1125 Corsa Terrace	Pensacola	FL	32514
GULF STREAM LANDSCAPING & IRRIGATION		8449 Old Palafox Street	Pensacola	FL	32504
KEN GRIFFIN LANDSCAPE CONTRACTORS		3004 Westfield Road	Gulf Breeze	FL	32563
LAYNE CHRISTENSEN CO		3720 N. Palafox Street	Pensacola	FL	32505
CLARK DRILLING		1040 Aquamarine Drive	Gulf Breeze	FL	32563
PRO POOLS INC.		1752 Old Bainbridge Road	Tallahassee	FL	32303
BRYANT CHEMICAL COMPANY		6206 Vicksburg Drive	Pensacola	FL	32503
BASFORD WELL DRILLING		6431 Americus Road	Marianna	FL	32446
K C W WATER WELL SERVICE		4765 Sheller Road	Tallahassee	FL	32305
DRILLING SOLUTIONS IINC.		5624 Pasture Lane	Jay	FL	32565
AQUA POOL & PATIO		5904 N. Palafox St	Pensacola	FL	32503
SURFSIDE POOLS		6677 Old Bagdad Hwy.	Milton	FL	32583

**TABLE 7
IRRIGATION WELL INFORMATION**

**Agrico Site
Pensacola, Florida**

ID	PERMIT	NAME	STREET	DIAMETER (INCHES)	DEPTH FT. BLS	CASING FT. BLS	AQUIFER	ABANDONMENT OFFER LETTER SENT	IRRIGATION WELL SAMPLED	DATE SAMPLED	WELL ABANDONED	REMARKS
1		C.E. Anderson	905 TEXAR DRIVE	2	85	75	SZ	NO	NO			Outside of area of expected impacts for SZ
2	41(HC-1)	Holy Cross Cemetery Diocese of Pensacola	1300 E. HAYES	4	160	140	MPZ	YES	YES	11/28/2000		Two wells exist for cemetery, for sampling purposes labeled HC-1 and HC-2
	41(HC-2)	Holy Cross Cemetery Diocese of Pensacola	1300 E. HAYES	4	160	140	MPZ	YES	YES	11/28/2000		Two wells exist for cemetery, for sampling purposes labeled HC-1 and HC-2
3	81	C. Hass	349 SILVER ROAD	4	82	82	SZ	NO	NO			Outside of area of expected impacts for SZ
4	82	W.S. VanMetre	1221 TEXAR	4	95	95	SZ	NO	NO			Outside of area of expected impacts for SZ
5	97	O. English	3803 N. 10TH AVE.	4	71	130	120	yes	YES	3/13/01		
6	103	Dr. D. McGraw	1680 TEXAR	4	71	61	SZ	NO	NO			Outside of area of expected impacts for SZ
7	109	K. Wolfersterger	2700 MAGNOLIA AVE.	4	115	100	MPZ	YES	NO			
8	110	F & Kathleen Edsel, Jr	2721 BLACKSHEAR	4	UNK	UNK	UNK	RETURNED	NO			
9	111	J. Colley	1750 E. TEXAR DR.	2	85	80	SZ	NO	NO			Outside of area of expected impacts for SZ
10		Curry	2701 N. 16TH AVE.	4	158	143	MPZ	YES	YES	3/15/2001		
11	123	D. Lavin	3632 MENENDEZ DR.	4	73	63	SZ	NO	NO			Outside of area of expected impacts for SZ
12	124	Dr. B. Beidleman	2909 BLACKSHEAR	4	87	77	SZ	NO	NO			Outside of area of expected impacts for SZ
13	127	F. McCallister	2706 BLACKSHEAR	4	85	75	SZ	NO	NO			Outside of area of expected impacts for SZ
14	135	J. Klocke	2914 BLACKSHEAR	2	50	45	SZ	NO	NO			Outside of area of expected impacts for SZ
15	139	R. Moulton	3970 MENENDEZ DR.	4	110	100	MPZ	YES	NO			Well capped under land surface. Not Used
16	140	M. Johnson	1650 E. HAYES ST.	4	120	110	MPZ	YES	YES	11/28/2000		
17	142	L. Fishman	3003 MAGNOLIA AVE	NA	NA	NA	NA	YES	NA	NA		No well found at location
18	143	F. Clayborn	1640 E. HAYES ST.	4	125	110	MPZ	YES	NO		2/27/2001	Well exists. Irrigation System Not Used.
19	144	Dr. Willis (Family Practice)	915 E. FAIRFIELD DR	4	120	110	MPZ	YES	YES	5/10/2001		
20	160	B. Hodnelle, Jr.	3966 MENENDEZ	4	117	107	MPZ	YES	NO			
21		E. Davis	4130 MENENDEZ	2	45	40	SZ	NO	NO			Outside of area of expected impacts for SZ
22	194	D. Conkle	3080 BLACKSHEAR AVE	2	68	63	SZ	NO	NO			Outside of area of expected impacts for SZ
23	P9407748	Henry Langhorn	1725 EAST MAURA ST	4	140	120	MPZ	YES	NO			
24	P9503948	Floral Tree Gardens	3601 NORTH DAVIS HWY.	4	115	100	MPZ	YES	NO			
25	T8301727	Fred Levin	3600 MENENDEZ	2	35	30	SZ	NO	NO			Outside of area of expected impacts for SZ
26	T8402575	W.L. Glaze	2675 N. 17TH AVENUE	4	140	120	MPZ	RETURNED	NO			
27	T8403811	Mrs. Dorothy Bearman	1501 GAMARA ROAD	4	110	100	MPZ	YES	NO			
28	T8707396	Richard and Sarah Sanchez	1221 DURNFORD PLACE	4	140	130	MPZ	YES	YES	3/1/2001		
29	T8800778	William C. Baker	1250 DRIFTWOOD DRIVE	4	110	90	MPZ	YES	NO			

**TABLE 7
IRRIGATION WELL INFORMATION**

**Agrico Site
Pensacola, Florida**

ID	PERMIT	NAME	STREET	DIAMETER (INCHES)	DEPTH FT. BLS	CASING FT. BLS	AQUIFER	ABANDONMENT OFFER LETTER SENT	IRRIGATION WELL SAMPLED	DATE SAMPLED	WELL ABANDONED	REMARKS
30	T8905178	Leroy Gamlin	1005 TUNIS STREET	4	116	106	MPZ	YES	NO			
31	T9005951	Joseph Bores	4100 MENENDEZ DRIVE	4	130	120	MPZ	YES	YES	11/28/2000		
32	T9103343	Charles R. Earnest	1900 EAST LEONARD ST.	4	151	121	MPZ	YES	YES	11/28/2000		Well Resampled 5-10-01 to confirm PCE detection
33	T9104961	Dr. Peter C. Delevett	1660 TEXAR DRIVE	2	84	74	SZ	NO	NO			
34	T9104962	Paul Williams	800 E. BAARS ST	4	120	60	MPZ	YES	NO			808 E. Baars sharing well at 800 E. Baars
35	T9206908	John C. Sowers	3090 BLACKSHEAR AVE	2	90	80	SZ	NO	NO			Outside of area of expected impacts for SZ
36	T9304906	J.E. Boatwright Jr.	2575 PARADISE POINT DR	4	120	100	MPZ	YES	YES	3/1/2001		
37	T9701332	Elisabeth Holmes	1781 E. LEONARD ST.	2	UNK	UNK	UNK	YES	NO			
38	T9800088	James T. Baer	1775 EAST TEXAR DR	4	UNK	UNK	UNK	YES	YES	11/29/2000		
39	P9405922	Randy Head	2015 E. Maura St	NA			NA	YES	NA			No well found at location
40	158	N. Kinder	1227 BARCIA DR.	UNK	UNK	UNK	UNK	YES	NO			
41	162	W. Veasie	1271 DRIFTWOOD DR.	4	96	73	SZ	NO	no			Outside of area of expected impacts for SZ
42	171	D. Tringas	2621 PARADISE POINT	UNK	UNK	UNK	UNK	YES	YES	3/1/2001		
43	172	B. Samples	1009 EAST TUNIS	UNK	UNK	UNK	UNK	YES	YES	11/28/2000		
44	178	C. Davis	1555 EAST CROSS ST.	2	UNK	UNK	UNK	YES	NO			
45		Moss & Bessie Wilson	3510 N. 9TH AVE	NA	NA	NA	NA	NO	NA			No well found at location
46		John & Priscilla Snyder	2912 BLACKSHEAR AVE	UNK	UNK	UNK	UNK	YES	NO			
47		David & Jean Mayo	3030 BLACKSHEAR AVE	UNK	UNK	UNK	UNK	YES	YES	3/1/2001		
48		Neroy & Lois Anderson	1301 E FISHER ST	UNK	UNK	UNK	UNK	YES	NO			
49		Jude & Nancy White	1710 E CROSS ST	4	140		UNK	YES	YES	8/25/1999		Results in the First annual report OU-2 (2/2000)
50		Mr. Glen McDonald	2860 BLACKSHEAR AVE	UNK	UNK	UNK	UNK	RETURNED	NO			
51		John & Sue Woodward	2710 BLACKSHEAR AVE	4	100	90	MPZ	YES	YES	3/1/2001		
52	159	Amos & Clementine Prevatt	2712 BLACKSHEAR AVE	2	55	45	SZ	NO	NO			Outside of area of expected impacts for SZ
53	80	Howard & Joyce Rein	2101 E CROSS ST	4	130	120	MPZ	YES	YES	11/28/2001		
54		Diocese of Pensacola	1231 DURNFORD PL	UNK	UNK	UNK	UNK	YES	YES	11/28/2001		Bishop's Residence
55		Larry & Catherine Parks	1210 DURNFORD PL	4	145	130	MPZ	YES	NO		2/27/2001	

**TABLE 7
IRRIGATION WELL INFORMATION**

**Agrico Site
Pensacola, Florida**

ID	PERMIT	NAME	STREET	DIAMETER (INCHES)	DEPTH FT. BLS	CASING FT. BLS	AQUIFER	ABANDONMENT OFFER LETTER SENT	IRRIGATION WELL SAMPLED	DATE SAMPLED	WELL ABANDONED	REMARKS
56		Dennis & Betty Peters	3990 MENENDEZ DR	4	78	65	SZ	NO	NO			Outside of area of expected impacts for SZ
57		Jack & Carolyn Fleming	4010 MENENDEZ DR	UNK	UNK	UNK	UNK	YES	YES	11/28/2000		
58		Richard & Page Ciordia	4020 MENENDEZ DR	4	92	82	SZ	NO	NO			Outside of area of expected impacts for SZ
59		Garrett & Joyce Boyd	1261 STOW AVE	UNK	UNK	UNK	UNK	YES	NO			
60		Gene Schmidt	4141 MENENDEZ DR	4	115	100	MPZ	YES	YES	11/29/2000		
62		C.E. Davis	808 BAARS ST.	UNK	UNK	UNK	UNK	YES	YES	3/13/2001		
63	P200104-707	Escambia County Park Service	CARRIE MILLER PARK	4	90	70	SZ	NO	NO			Downgradient of FDEP Kaiser Site; drilled after moratory initiated.

- (1) ID = Map ID number for Figure 2
(2) Permit = Northwest Florida Water Management District Permit Number
(3) Aquifer = SZ = Surficial zone of Sand-and-Gravel Aquifer; MPZ = Main producing zone of Sand-and-Gravel Aquifer;
(4) Unknown = No well construction information available ; UNK= Data Unknown
*(5) NA = Not Applicable
*(6) ft. bls = feet below land surface

SUMMARY

TOTAL

1. NUMBER OF NOTIFICATIONS OF VOLUNTARY ABANDONMENT OFFER	41
2. NUMBER OF LOCATION WHERE SURFICIAL ZONE IRRIGATION WELLS EXIST BUT NO POTENTIAL FOR IMPACTS BY AGRICO-RELATED CONSTITUENTS	8
3. WRONG INFORMATION - NO WELL PRESENT AT LOCATION	1
4. NUMBER OF ADDITIONAL IRRIGATION WELLS IDENTIFIED (1 additional well identified at Holy Cross Cemetery)	1
5. TOTAL NUMBER OF IRRIGATION WELLS IDENTIFIED	60
6. TOTAL NUMBER OF WELLS ABANDONED THROUGH FEBRUARY 2001.	0
7. NUMBER OF WELLS SAMPLED THROUGH FEBRUARY 2001.	12

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
ACB-31S	5/9/1997	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/10/1997	<0.2	<0.010	<0.0050	NA	NA	NA	NA	NA	NA
	5/4/1998	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/23/1998	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/25/1999	<0.2	<0.01	<0.005	NA	NA	NA	NA	NA	NA
	11/17/1999	<0.2	<0.010	<0.0050	NA	NA	NA	NA	NA	NA
	5/15/2000	<0.2	<0.010	<0.0050	NA	NA	NA	NA	NA	NA
	11/14/2000	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/9/2001	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/15/2001	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/15/2002	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/19/2002	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/7/2003	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	1/13/2004	< 0.2 U	< 0.01 U	< 0.005 U	4.9	50	3.4 J	0.67 J+/- 0.21	5.08 +/- 0.92	5.75
	5/11/2004	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/9/2004	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/10/2005	0.2	0.01	0.005	NA	NA	NA	NA	NA	NA
	11/8/2005	< 0.2 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/15/2006	<0.2 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/14/2006	< 0.2 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/16/2007	< 0.1 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/15/2007	< 0.2 U	< 0.01 U	< 0.005 U	7.9	50	4.8	0.829 +/- 0.16	5.25 +/- 0.61	6.079
	5/15/2008	< 0.2 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/13/2008	< 0.2 U	< 0.01 U	< 0.005 U	5.1	51	6.5	0.68 +/- 0.16	6.59 +/- 0.63	7.27
	11/19/2009	< 0.1 U	< 0.01 U	NA	5.3	44	4.9	0.708 +/- 0.18	5.58 +/- 0.55	6.288
	11/16/2010	<0.10	NA	NA	3.2	43	6.8	0.611 +/- 0.21	4.35 +/- 0.71	4.961
	11/8/2011	<0.10	NA	NA	5.5	52	3.4	0.498 +/- 0.18	4.49 +/- 0.93	4.988
	11/6/2012	<0.10	NA	NA	3.5	39	1.9	0.474 +/- 0.19	4.99 +/- 0.81	5.464

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
ACB-32S	5/9/1997	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/10/1997	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/4/1998	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/23/1998	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/15/1999	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/17/1999	< 0.2	< 0.010	< 0.0050	NA	NA	NA	NA	NA	NA
	5/15/2000	< 0.2	< 0.010	< 0.0050	NA	NA	NA	NA	NA	NA
	11/14/2000	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/9/2001	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/1/2001	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/15/2002	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/19/2002	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/7/2003	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	1/13/2004	< 0.2 U	0.011	< 0.005 U	7.2	55	8.3 J	0.62 J+/- 0.21	3.89 +/- 0.88	4.51
	5/11/2004	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/9/2004	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/10/2005	< 0.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/8/2005	< 0.2 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/15/2006	< 0.2 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/14/2006	< 0.2 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/16/2007	< 0.1 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/15/2007	< 0.2 U	< 0.01 U	< 0.005 U	3.7	16	1.7	0.195 +/- 0.0690	1.11 +/- 0.34	1.305
	5/15/2008	< 0.2 U	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/13/2008	< 0.2 U	< 0.01 U	< 0.005 U	3.1	18	2.2	0.104 +/- 0.0870	1.1 +/- 0.30	1.204
	11/19/2009	< 0.1 U	< 0.01 U	NA	2	10	1.3	0.164 +/- 0.12	0.796 +/- 0.37	0.96
	11/16/2010	0.11	NA	NA	1.6	14	0.78	0.199 +/- 0.12	0.619 +/- 0.48	0.818
	11/8/2011	0.1	NA	NA	1.5	8.3	0.85	-0.0461 +/- 0.11	1.28 +/- 0.39	1.2339
	11/6/2012	0.11	NA	NA	1	4.5	0.93	0.206 +/- 0.13	0.580 +/- 0.40	0.786

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
AC-33S	5/9/1997	0.81	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/10/1997	0.82	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/4/1998	1.7	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/23/1998	0.47	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/15/1999	0.29	0.017	0.0063	NA	NA	NA	NA	NA	NA
	11/17/1999	0.26	<0.010	<0.0050	NA	NA	NA	NA	NA	NA
	5/16/2000	0.25	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/14/2000	0.22	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/9/2001	0.32	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/15/2001	0.4	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/15/2002	0.33	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/19/2002	0.5	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/7/2003	0.63	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	1/14/2004	0.71	< 0.01 U	< 0.005 U	26	94	1.7	3.27 +/- 0.54	11.9 +/- 1.50	15.17
	5/11/2004	1.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/9/2004	2.7	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/10/2005	0.6	0.01	0.005	NA	NA	NA	NA	NA	NA
	11/8/2005	0.75	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/15/2006	0.27	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/14/2006	1.4	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/16/2007	1.4	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/15/2007	0.64	< 0.01 U	< 0.005 U	7.5	26	1.5	0.437 +/- 0.14	1.38 +/- 0.34	1.817
	5/15/2008	0.94	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/14/2008	0.94	< 0.01 U	< 0.005 U	7.7	27	1.6	0.673 +/- 0.15	1.92 +/- 0.39	2.593
	11/19/2009	1.6	< 0.01 U	NA	6.5	23	1	0.475 +/- 0.13	2.73 +/- 0.41	3.205
	11/16/2010	0.77	NA	NA	8.5	25	0.59	0.522 +/- 0.19	1.99 +/- 0.50	2.512
	11/8/2011	0.61	NA	NA	1.9	20	0.45	0.391 +/- 0.15	2.00 +/- 0.44	2.391
	11/6/2012	0.67	NA	NA	6.6	90	0.36	0.930 +/- 0.28	4.68 +/- 0.78	5.61

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
AC-34S	5/9/1997	16	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/10/1997	9.5	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/4/1998	6.3	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/23/1998	3.8	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/15/1999	3.5	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/17/1999	2.5	<0.010	<0.0050	NA	NA	NA	NA	NA	NA
	5/16/2000	2.6	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/14/2000	1.6	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/9/2001	1.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/15/2001	1.6	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/15/2002	1.4	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/19/2002	1.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/7/2003	1.9	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	1/14/2004	2	< 0.01 U	< 0.005 U	9.3	80	6.5	0.38 J+/- 0.18	2.04 +/- 0.58	2.42
	5/11/2004	9.7	0.011	< 0.005	NA	NA	NA	NA	NA	NA
	11/9/2004	9.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/10/2005	8	<0.01	<0.005	NA	NA	NA	NA	NA	NA
	11/8/2005	7.3	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/15/2006	6.4	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/14/2006	5.6	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/16/2007	4.6	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/15/2007	4.2	< 0.01 U	< 0.005 U	8.6	74	2.4	0.261 +/- 0.12	2.06 +/- 0.43	2.321
	5/15/2008	3.1	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/14/2008	2.4	< 0.01 U	< 0.005 U	7.2	68	2.8	0.159 +/- 0.0990	2.04 +/- 0.38	2.199
	11/19/2009	1.6	< 0.01 U	NA	5.9	60	2.3	0.152 +/- 0.12	2.54 +/- 0.42	2.692
	11/17/2010	1.9	NA	NA	5.1	68	6.6	0.149 +/- 0.085	1.14 +/- 0.34	1.289
	11/9/2011	1	NA	NA	3.3	67	2.9	0.296 +/- 0.15	0.984 +/- 0.31	1.28
	11/7/2012	0.97	NA	NA	2.1	37	2.8	0.152 +/- 0.12	0.785 +/- 0.29	0.937

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
AC-7SR	5/9/1997	19	0.014	0.012	NA	NA	NA	NA	NA	NA
	11/10/1997	9.1	0.012	0.011	NA	NA	NA	NA	NA	NA
	5/4/1998	10	0.017	0.028	NA	NA	NA	NA	NA	NA
	11/23/1998	6.7	< 0.01	0.011	NA	NA	NA	NA	NA	NA
	5/15/1999	7.4	0.02	0.022	NA	NA	NA	NA	NA	NA
	11/17/1999	6.4	<0.010	<0.0050	NA	NA	NA	NA	NA	NA
	5/16/2000	5.6	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/14/2000	5.1	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/9/2001	5.8	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/15/2001	5.6	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/15/2002	6.5	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/19/2002	4.8	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/7/2003	6.1	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	1/14/2004	6.4	< 0.01 U	< 0.005 U	6.4	38	2.8	0.58 J+/- 0.21	1.62 +/- 0.52	2.2
	5/11/2004	9.4	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	11/9/2004	9.2	< 0.01	< 0.005	NA	NA	NA	NA	NA	NA
	5/10/2005	5.4	0.01	0.005	NA	NA	NA	NA	NA	NA
	11/8/2005	5.3	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/15/2006	4.4	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/14/2006	5.7	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	5/16/2007	4.1	< 0.01 U	< 0.005 U	NA	NA	NA	NA	NA	NA
	11/15/2007	3.6	< 0.01 U	< 0.005 U	6.9	35	2.3	0.339 +/- 0.12	0.974 +/- 0.34	1.313
	5/15/2008	6	< 0.01 U	0.0056	NA	NA	NA	NA	NA	NA
	11/14/2008	3.3	< 0.01 U	< 0.005 U	6.8	46	2.1	0.188 +/- 0.10	1.24 +/- 0.39	1.428
	11/19/2009	3.1	< 0.01 U	NA	7	32	2.1	0.239 +/- 0.10	1.11 +/- 0.31	1.349
	11/17/2010	3.7	NA	NA	5.1	27	1.7	0.240 +/- 0.11	0.820 +/- 0.30	1.06
	11/8/2011	2.9	NA	NA	3.8	30	1.8	0.322 +/- 0.14	1.05 +/- 0.30	1.372
	11/6/2012	0.94	NA	NA	5.8	34	1.9	0.272 +/- 0.16	1.45 +/- 0.44	1.722

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
AC-2S	4/15/1987	16	0.010	NA	7.4	143		NA	NA	NA
	10/1/1990	63	0.74	<0.005	18	260	12	NA	NA	NA
	2/4/1992	94	0.164	< 0.005	20	290	15	0.4 +/- 0.10	1.2 +/- 1	1.6
	9/28/1997	130	0.058	NA	10	150	9	< 0.6 +/- 0.03	1.7 +/- 0.48	2.3
	11/17/1999	98	0.029	NA	7	57	5	< 1. +/- 0.94	< 1.5 +/- 0.90	2.5
	11/21/2000	150	0.048	NA	6.8	48	5.6	0.5 +/- 0.20	1.9 +/- 1.50	2.4
	11/15/2001	190	0.036	NA	6	23	3.8	0.1 +/- 0.07	2.8 +/- 1	2.9
	11/26/2002	210	0.042	NA	5.7	22	3.6	0.1 +/- 0.07	0. +/- 0.60	0.1
	1/23/2004	170	0.046	< 0.005 U	5.7	15	3.5	< 0.25 U +/- 0.17	< 1.1 U +/- 0.66	0.79
	11/17/2004	100	0.027	NA	7.1	< 5.0	3	0.134 +/- 0.08	0.286 +/- 0.31	0.42
	11/15/2005	73	0.021	NA	8.8	59	3.9	0.103 J +/- 0.0690	0.649 J +/- 0.34	0.752
	11/28/2006	85	0.029	NA	9.1	69	4	0.032 +/- 0.0750	-0.382 +/- 0.19	-0.35
	11/21/2007	50	0.016	NA	5.3	< 5.0 U	1.9	0.041 +/- 0.0790	0.0402 +/- 0.13	0.0812
	11/19/2008	54	0.02	< 0.005 U	7.6	< 5.0 U	3.2	0.0442 +/- 0.0860	-0.0882 +/- 0.21	-0.044
	11/18/2009	44	0.017	NA	4.9	31	2.7	0.191 +/- 0.11	0.0314 +/- 0.19	0.2224
	11/29/2010	48	0.024	NA	6.1	44	3.4	0.0772 +/- 0.082	0.449 +/- 0.26	0.5262
	11/16/2011	68	0.024	NA	7.5	54	6.2	0.168 +/- 0.13	0.0656 +/- 0.27	0.2336
	11/14/2012	43	0.016	NA	4.3	62	4.6	0.0957 +/- 0.16	0.118 +/- 0.24	0.2137

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
AC-3S	4/15/1987	0.65	<0.004	NA	4.1	59	1.9	NA	NA	NA
	10/1/1990	0.21	<0.01	<0.005	15	22	4	NA	NA	NA
	2/5/1992	< 0.2	< 0.01	0.0081	5.5	27	2.9	1.4 +/- 0.10	0.8 +/- 0.90	2.2
	9/28/1997	1.4	< 0.01	NA	3.8	24	0.92	< 0.6 +/- 0.05	< 1. +/- 0.46	1.6
	11/17/1999	< 0.2	< 0.01	NA	5.7	14	1.1	< 1. +/- 0.79	< 1.5 +/- 0.60	2.5
	11/21/2000	< 0.2	< 0.01	NA	11	16	2.7	0.3 +/- 0.10	1.1 +/- 1.20	1.4
	11/14/2001	< 0.2	< 0.01	NA	7.7	17	2.3	0.1 +/- 0.09	0. +/- 0.70	0.1
	11/26/2002	< 0.2	< 0.01	NA	3.4	13	1.1	0.4 +/- 0.07	0.6 +/- 0.70	1
	1/22/2004	< 0.2 U	< 0.01 U	< 0.005 U	2.9	7.9	1. J	< 0.34 U +/- 0.18	< 1.4 U +/- 0.86	1.22
	11/17/2004	< 0.2	< 0.01	NA	4.2	13	2.1	0.25 +/- 0.0820	0.285 +/- 0.30	0.535
	11/15/2005	< 0.2 U	< 0.01 U	NA	12	15	2.8	0.0862 U +/- 0.10	1.44 +/- 0.40	1.5262
	11/22/2006	< 0.2 U	< 0.01 U	NA	8.9	16	2.8	0.243 +/- 0.15	0.81 +/- 0.29	1.053
	11/21/2007	< 0.2 U	< 0.01 U	NA	5.5	20	2	0.191 +/- 0.11	0.687 +/- 0.25	0.878
	11/13/2008	< 0.2 U	< 0.01 U	< 0.005 U	3.6	11	1.1	0.204 +/- 0.10	0.226 +/- 0.27	0.43
	11/18/2009	< 0.1 U	< 0.01 U	NA	3.7	11	1.8	0.14 +/- 0.0790	0.634 +/- 0.38	0.774
	11/29/2010	< 0.1	< 0.01	NA	6.7	17	7.3	0.248 +/- 0.10	0.453 +/- 0.26	0.701
	11/15/2011	< 0.1	< 0.01	NA	3.8	30	3.9	0.147 +/- 0.11	0.888 +/- 0.35	1.035
	11/13/2012	<0.1	<0.010	NA	2.9	21	1.7	0.266 +/- 0.18	0.798 +/- 0.37	1.064

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
AC-5S	4/15/1987	0.26	NA	NA	7	90		NA	NA	NA
	10/1/1990	<0.2	<0.01	<0.005	12	25	12	NA	NA	NA
	1/31/1992	< 0.2	< 0.01	< 0.005	9.3	27	6.4	NA	NA	NA
	9/26/1997	< 0.2	< 0.01	NA	8.6	27	4.3	< 0.6 +/- 0.05	1.3 +/- 0.44	1.9
	11/17/1999	< 0.2	< 0.01	NA	19	29	5.9	< 1. +/- 0.66	1.9	2.9
	11/21/2000	< 0.2	< 0.01	NA	24	30	4.9	0.5 +/- 0.20	0.8 +/- 1	1.3
	11/13/2001	< 0.2	< 0.01	NA	35	31	1.5	0.7 +/- 0.10	1.8 +/- 0.90	2.5
	11/20/2002	< 0.2	< 0.01	NA	17	21	2.1	0.5 +/- 0.10	1. +/- 0.80	1.5
	1/20/2004	< 0.2 U	< 0.01 U	< 0.005 U	14	10	0.9	< 0.26 U +/- 0.18	< 0.66 U +/- 0.40	0.59
	11/10/2004	< 0.2	< 0.01	NA	46	13	1.2	0.481 +/- 0.11	1.58 +/- 0.30	2.061
	11/16/2005	< 0.2 U	< 0.01 U	NA	27	12	1.5	0.352 J +/- 0.13	1.42 +/- 0.43	1.772
	11/21/2006	< 0.2 U	< 0.01 U	NA	18	24	4.5	0.461 +/- 0.17	0.928 +/- 0.30	1.389
	11/13/2008	< 0.2 U	< 0.01 U	< 0.005 U	12	19	6.8	0.539 +/- 0.13	1.17 +/- 0.33	1.709
Surficial Zone										
AC-6S	4/15/1987	1.04	NA	NA	24.3	74	21.9	NA	NA	NA
	10/1/1990	1.9	<0.01	0.0072	24	32	24	NA	NA	NA
	2/2/1992	0.6	< 0.01	< 0.005	15	28	6.7	NA	NA	NA
	9/25/1997	0.75	< 0.01	NA	12	47	5.3	0.88 +/- 0.07	1.6 +/- 0.48	2.48
	1/27/2004	0.85	< 0.01 U	< 0.005 U	30	130	14	2.22 +/- 0.45	5.71 +/- 0.91	7.93
	11/12/2008	0.71	< 0.01 U	< 0.005 U	31	110	11	1.3 +/- 0.20	5.01 +/- 0.54	6.31

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
AC-24S	2/19/1992	< 0.2	< 0.01	< 0.005	8	7.4	1.6	NA	NA	NA
	9/27/1997	< 0.2	< 0.01	NA	8.4	9.7	1.4	< 0.6 +/- 0.03	< 1. +/- 0.45	1.6
	11/17/1999	< 0.2	< 0.01	NA	8	8.8	1.1	< 1. +/- 0.82	< 1.5 +/- 0.68	2.5
	11/21/2000	< 0.2	< 0.01	NA	8	6.7	1.7	0.4 +/- 0.10	5.1 +/- 1.10	5.5
	11/14/2001	< 0.2	< 0.01	NA	8.1	5.9	1.9	0.2 +/- 0.09	0. +/- 0.70	0.2
	11/20/2002	< 0.2	< 0.01	NA	9.2	4.3 J	1.8	0.3 +/- 0.10	0.3	0.6
	1/21/2004	< 0.2 U	< 0.01 U	< 0.005 U	9.9	< 5.0 U	1.8	< 0.29 U +/- 0.19	< 1.6 U +/- 0.9980	1.61
	11/16/2004	< 0.2	< 0.01	NA	8.9	< 5.0	2.5	0.207 +/- 0.0850	1.44 +/- 0.32	1.647
	11/17/2005	< 0.2 U	< 0.01 U	NA	11	7.2	3.6	0.596 J +/- 0.18	2.36 +/- 0.53	2.956
	11/21/2006	< 0.2 U	< 0.01 U	NA	17	5.2	6.8	0.595 +/- 0.18	2. +/- 0.40	2.595
	11/18/2008	< 0.2 U	< 0.01 U	< 0.005 U	20	11	1.9	0.33 +/- 0.0990	1.42 +/- 0.33	1.75
Surficial Zone										
AC-26S	2/11/1992	< 0.2	< 0.01	< 0.005	10	13	0.95	NA	NA	NA
	9/24/1997	< 0.2	< 0.01	NA	12	21	2.9	< 0.6 +/- 0.06	< 1. +/- 0.47	1.6
	11/17/1999	< 0.2	< 0.01	NA	20	17	2.1	1.8	3.1 +/- 0.76	4.9
	11/21/2000	< 0.2	< 0.01	NA	25	15	1.6	0.6 +/- 0.10	4.9 +/- 1.20	5.5
	11/14/2001	< 0.2	< 0.01	NA	23	23	2.3	0.6 +/- 0.10	2.5 +/- 0.90	3.1
	11/21/2002	< 0.2	< 0.01	NA	19	22	1.7	0.7 +/- 0.20	1.5 +/- 1	2.2
	1/20/2004	< 0.2 U	< 0.01 U	< 0.005 U	20	21	1.2	0.82 J +/- 0.25	1.83 +/- 0.42	2.65
	11/10/2004	< 0.2	< 0.01	NA	22	20	2.6	0.722 +/- 0.14	2.43 +/- 0.36	3.152
	11/9/2005	< 0.2 U	< 0.01 U	NA	18	20	1.7	0.444 J +/- 0.14	1.56 +/- 0.35	2.004
	11/20/2006	< 0.2 U	< 0.01 U	NA	26	19	2.9	0.512 +/- 0.19	1.85 +/- 0.39	2.362
	11/12/2008	< 0.2 U	< 0.01 U	< 0.005 U	11	19	0.74	0.424 +/- 0.12	1.62 +/- 0.43	2.044

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
AC-27S	4/8/1992	< 0.2	< 0.01	< 0.005	18	< 5.0	1.9	NA	NA	NA
	9/24/1997	< 0.2	< 0.01	NA	14	4.3	1.5	< 0.6 +/- 0.05	1.1 +/- 0.45	1.7
	1/13/2004	< 0.2 U	< 0.01 U	< 0.005 U	4.5	< 5.0 U	0.19	0.18 J+/- 0.12	< 0.88 U+/- 0.55	0.88
	11/11/2005	< 0.2 U	< 0.01 U	NA	47	< 5.0 U	6.4	1.71 +/- 0.38	0.418U+/- 0.29	2.128
	11/17/2008	< 0.2 U	< 0.01 U	< 0.005 U	4.7	8.6	0.089	0.167 +/- 0.09	0.157 +/- 0.23	0.324
Surficial Zone										
NWD-2S	10/1/1990	0.78	<0.01	<0.005	8.6	25	5.7	NA	NA	NA
	2/3/1992	4.2	< 0.01	< 0.005	8.2	19	4.6	NA	NA	NA
	9/25/1997	5.2	< 0.01	NA	4	25	3	< 0.6 +/- 0.07	1.2 +/- 0.42	1.8
	11/17/1999	4.5	< 0.01	NA	7.1	30	3.5	1.1 +/- 0.59	< 1.5 +/- 0.06	2.6
	11/21/2000	4.2	< 0.01	NA	4.3	32	3.4	1.56 +/- 0.30	2.6 +/- 0.90	4.16
	11/14/2001	3.7	< 0.01	NA	5.1	28	3.6	0.8 +/- 0.20	1.2 +/- 0.80	2
	11/20/2002	3.1	< 0.01	NA	4.4	28	2.8	0.7 +/- 0.10	1.1	1.8
	1/19/2004	3.2	< 0.01 U	< 0.005 U	12	26	5	0.66 J+/- 0.19	1.61 +/- 0.60	2.27
	11/10/2004	2.7	< 0.01	NA	14	28	5.1	0.628 +/- 0.15	1.67 +/- 0.32	2.298
	11/17/2005	2.2	< 0.01 U	NA	11	35	4	0.237 J+/- 0.11	1.86 +/- 0.46	2.097
	11/21/2006	2.1	< 0.01 U	NA	15	27	5.3	0.48 +/- 0.22	1.3 +/- 0.34	1.78
	11/12/2008	2	< 0.01 U	< 0.005 U	12	19	3.4	0.616 +/- 0.14	1.27 +/- 0.35	1.886

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Surficial Zone										
NWD-4S	2/7/1992	< 0.2	< 0.01	0.0054	6.1	< 5.0	1.3	0.7 +/- 0.20	1.5 +/- 0.80	2.2
	9/26/1997	< 0.2	< 0.01	NA	4.7	< 5.0	0.41	< 0.6 +/- 0.04	< 1. +/- 0.40	1.6
	11/17/1999	< 0.2	< 0.01	NA	7.2	< 5.0	0.31	1.4	< 1.5 +/- 0.81	2.9
	11/21/2000	< 0.2	< 0.01	NA	5.5	< 5.0	0.4	0.5 +/- 0.10	6.4 +/- 1.20	6.9
	11/13/2001	< 0.2	< 0.01	NA	5	< 5.0	0.44	0.5 +/- 0.10	1.8 +/- 0.80	2.3
	11/22/2002	< 0.2	< 0.01	NA	5.5	< 5.0	0.35	0.6 +/- 0.20	1.1 +/- 0.80	1.7
	1/21/2004	< 0.2 U	< 0.01 U	< 0.005 U	9.6	< 5.0 U	1.2	0.5 J+/- 0.22	2.17 +/- 0.95	2.67
	11/16/2004	< 0.2	< 0.01	NA	9.8	< 5.0	0.61	0.583 +/- 0.15	1.49 +/- 0.33	2.073
	11/15/2005	< 0.2 U	< 0.01 U	NA	15	< 5.0 U	0.28	0.741 J+/- 0.23	1.62 +/- 0.46	2.361
	11/21/2006	< 0.2 U	< 0.01 U	NA	17	< 5.0 U	1.2	0.79 +/- 0.19	0.973 +/- 0.34	1.763
	11/19/2008	< 0.2 U	< 0.01 U	< 0.005 U	9.4	< 5.0 U	2.6	0.951 +/- 0.15	1.08 +/- 0.31	2.031

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-2D	4/15/1987	5.1	<0.004	NA	14.7	22	3.37	NA	NA	NA
	10/1/1990	5.1	<0.01	<0.005	15	10	3.5	NA	NA	NA
	2/4/1992	5.2	< 0.01	0.0057	16	7.4	3.5	2.8 +/- 0.30	7. +/- 1.30	9.8
	9/30/1997	2.9	< 0.01	NA	12	26	5.6	0.6	< 1. +/- 0.45	1.6
	11/17/1999	3.5	< 0.01	NA	11	15	3.6	< 1. +/- 0.49	< 1.5 +/- 0.83	2.5
	11/21/2000	3	< 0.01	NA	9.8	19	4.4	1. +/- 0.20	2.7 +/- 0.90	3.7
	11/15/2001	3	< 0.01	NA	9.4	17	3.5	1. +/- 0.20	2.5 +/- 1	3.5
	11/26/2002	3.2	< 0.01	NA	9.1	18	2.5	1.1 +/- 0.20	2. +/- 0.80	3.1
	1/23/2004	2.9	< 0.01 U	< 0.005 U	9	13	2.5	1.05 +/- 0.25	1.54 +/- 0.71	2.59
	11/17/2004	2.7	< 0.01	NA	9.1	14	2.6	1.09 +/- 0.17	1.42 +/- 0.37	2.51
	11/14/2005	2.3	< 0.01 U	NA	9.2	16	2.8	0.983 J+/- 0.27	1.85 +/- 0.51	2.833
	11/28/2006	2.2	< 0.01 U	NA	8.2	15	2.5	0.896 +/- 0.14	1.16 +/- 0.28	2.056
	11/21/2007	2.5	< 0.01 U	NA	7.8	16	3.3	0.843 +/- 0.17	1.22 +/- 0.28	2.063
	11/19/2008	2	< 0.01 U	< 0.005 U	8.8	13	2.5	0.994 +/- 0.16	1.17 +/- 0.31	2.164
	11/18/2009	2	< 0.01 U	NA	8.4	15	2.3	1.2 +/- 0.18	1.7 +/- 0.34	2.9
	11/29/2010	2.3	NA	NA	8.3	16	2.6	1.31 +/- 0.39	1.59 +/- 0.39	2.9
	11/16/2011	2.3	NA	NA	7.6	17	2	1.06 +/- 0.22	1.71 +/- 0.42	2.77
	11/14/2012	2.2	NA	NA	6.9	17	2.1	0.744 +/- 0.27	1.94 +/- 0.54	2.684

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-3D	4/15/1987	105	0.041	NA	376	686	52.2	NA	NA	NA
	10/1/1990	75	<0.01	<0.005	150	680	47	NA	NA	NA
	2/5/1992	80	< 0.01	0.0059	270	500	42	8.4 +/- 0.40	12	20.4
	9/28/1997	46	< 0.01	NA	110	460	27	0.81 +/- 0.07	NA	0.81
	11/19/1999	14	< 0.01	NA	19	< 5.0	12	< 1. +/- 0.54	2.1	3.1
	11/21/2000	18	< 0.01	NA	32	240	15	1. +/- 0.20	6.5 +/- 1.20	7.5
	11/14/2001	13	< 0.01	NA	22	250	12	0.4 +/- 0.10	5.4 +/- 1.10	5.8
	11/26/2002	46	< 0.01	NA	64	380	16	1.3 +/- 0.20	17.8 +/- 2	19.1
	1/22/2004	34	< 0.01 U	< 0.005 U	48	300	13. J	5.04 +/- 0.77	20.6 +/- 2.50	25.64
	11/17/2004	36	< 0.01	NA	48	310	14	0.934 +/- 0.16	12.3 +/- 1.10	13.234
	11/15/2005	23	< 0.01 U	NA	36	300	12	0.994 J +/- 0.28	18. +/- 2.30	18.994
	11/22/2006	27	< 0.01 U	NA	39	330	12	0.939 +/- 0.27	13.2 +/- 0.89	14.139
	11/21/2007	22	< 0.01 U	NA	24	220	7.8	1.06 +/- 0.22	8.12 +/- 0.56	9.18
	11/13/2008	18	< 0.01 U	< 0.005 U	25	180	8.5	1.22 +/- 0.19	10.9 +/- 0.79	12.12
	11/18/2009	15	< 0.01 U	NA	20	160	6.9	0.951 +/- 0.18	9.9 +/- 0.69	10.141
	11/29/2010	16	NA	NA	22	160	7.8	1.74 +/- 0.44	12.9 +/- 1.8	14.64
	11/15/2011	17	NA	NA	20	130	7.8	1.59 +/- 0.26	12.5 +/- 0.90	14.09
	11/13/2012	16	NA	NA	20	140	7.2	1.38 +/- 0.39	12.7 +/- 1.7	14.08

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
NWD-4D	2/7/1992	< 0.2	< 0.01	< 0.005	13	14	7.6	4.5 +/- 0.30	5. +/- 0.70	9.5
	9/26/1997	< 0.2	< 0.01	NA	4	11	1.8	0.9 +/- 0.08	1.5 +/- 0.46	2.4
	11/18/1999	< 0.2	< 0.01	NA	6.2	< 5.0	0.27	< 1. +/- 0.52	< 1.5 +/- 0.32	2.5
	11/21/2000	< 0.2	< 0.01	NA	4.9	< 5.0	0.35	0.8 +/- 0.40	1.9 +/- 3	2.7
	11/13/2001	< 0.2	< 0.01	NA	8.3	< 5.0	0.53	0.9 +/- 0.20	0.5 +/- 0.70	1.4
	11/22/2002	< 0.2	< 0.01	NA	13	29	9.7	3.7 +/- 0.40	6.5 +/- 0.80	10.2
	1/21/2004	< 0.2 U	< 0.01 U	< 0.005 U	12	30	11	4.35 +/- 0.71	15.7 +/- 2.20	20.05
	11/16/2004	< 0.2	< 0.01	NA	7	32	10	3.78 +/- 0.28	8.62 +/- 0.62	12.4
	11/15/2005	< 0.2 U	< 0.01 U	NA	9.8	41	8.3	2.93 +/- 0.62	9.04 +/- 1.30	11.97
	11/21/2006	< 0.2 U	< 0.01 U	NA	8.2	52	5.8	1.75 +/- 0.28	4.7 +/- 0.52	6.45
	11/19/2007	< 0.2 U	< 0.01 U	NA	7.7	42	7	1.86 +/- 0.28	2.86 +/- 0.47	4.72
	11/19/2008	< 0.2 U	< 0.01 U	< 0.005 U	8.6	39	1.5	1.91 +/- 0.19	3.85 +/- 0.50	5.76
	11/18/2009	< 0.1 U	< 0.01 U	NA	8.6	39	0.96	1.85 +/- 0.24	3.89 +/- 0.51	5.74
	11/23/2010	< 0.1 U	NA	NA	8.1	40	0.21	1.96 +/- 0.49	3.81 +/- 0.69	5.77
	11/15/2011	< 0.1	NA	NA	7.9	35	0.13	1.45 +/- 0.23	3.43 +/- 0.47	4.88
	11/8/2012	<0.1	NA	NA	8	47	<0.010	1.91 +/- 0.44	4.09 +/- 0.07	6.00
Main Producing Zone										
AC-6D	10/1/1990	<0.2	<0.01	<0.005	13	75	8.6	NA	NA	NA
	2/2/1992	< 0.2	< 0.01	< 0.005	12	51	6.4	NA	NA	NA
	9/25/1997	< 0.2	< 0.01	NA	9.1	18	4.6	2.7 +/- 0.12	2.8 +/- 0.54	5.5
	1/27/2004	< 0.2 U	< 0.01 U	< 0.005 U	11	16	7.7	4.58 +/- 0.69	6.6 +/- 1.30	11.18
	11/19/2007	< 0.2 U	< 0.01 U	NA	12	36	6.6	3.07 +/- 0.34	1.67 +/- 0.39	4.74
	11/12/2008	< 0.2 U	< 0.01 U	< 0.005 U	13	42	5.9	3.79 +/- 0.32	3.45 +/- 0.48	7.24
	11/17/2009	< 0.1 U	< 0.01 U	NA	12	31	4	3.64 +/- 0.35	2.82 +/- 0.53	6.46
	11/22/2010	< 0.1 U	NA	NA	12	32	5	4.59 +/- 0.92	2.94 +/- 0.60	7.53
	11/10/2011	< 0.1 U	NA	NA	10	29	5	5.14 +/- 0.45	3.28 +/- 0.54	8.42
	11/7/2012	< 0.1 U	NA	NA	11	37	5.1	4.10 +/- 0.93	3.04 +/- 0.58	7.14

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-8D	4/15/1987	0.21	<0.002	NA	14	40	NA	NA	NA	NA
	10/1/1990	<0.2	<0.01	<0.005	4.9	4	<0.05	NA	NA	NA
	4/10/1992	< 0.2	< 0.01	< 0.005	14	5.7	7.1	NA	NA	NA
	9/25/1997	< 0.2	< 0.01	NA	14	< 5.0	6.7	< 0.6 +/- 0.07	< 1. +/- 0.44	1.6
	11/18/1999	< 0.2	< 0.01	NA	17	< 5.0	8.1	1.7	1.9	3.6
	11/17/2000	< 0.2	< 0.01	NA	16	< 5.0	9.1	0.9 +/- 0.20	2.7 +/- 0.90	3.6
	11/13/2001	< 0.2	< 0.01	NA	16	< 5.0	8.9	1. +/- 0.20	2.5 +/- 1	3.5
	11/25/2002	< 0.2	< 0.01	NA	17	< 5.0	9.1	1.5 +/- 0.20	2. +/- 0.90	3.5
	1/27/2004	< 0.2 U	< 0.01 U	< 0.005 U	18	< 5.0 U	9.3	1.28 +/- 0.28	1.94 +/- 0.54	3.22
	11/10/2004	< 0.2	< 0.01	NA	18	< 5.0	9.4	1.04 +/- 0.15	1.96 +/- 0.35	3
	11/9/2005	< 0.2 U	< 0.01 U	NA	16	< 5.0 U	8.1	0.837 J+/- 0.23	1.42 +/- 0.35	2.257
	11/16/2006	< 0.2 U	< 0.01 U	NA	15	< 5.0 U	8.9	0.805 +/- 0.15	1.5 +/- 0.40	2.305
	11/19/2007	< 0.2 U	< 0.01 U	NA	15	< 5.0 U	7.8	0.74 +/- 0.19	1.23 +/- 0.39	1.97
	11/11/2008	< 0.2 U	< 0.01 U	< 0.005 U	16	< 5.0 U	7.0	0.776 +/- 0.19	0.96 +/- 0.34	1.736
	11/11/2009	< 0.1 U	< 0.01 U	NA	15	3.3	7.4	0.933 +/- 0.17	1.16 +/- 0.40	2.093
	11/18/2010	< 0.1 U	NA	NA	14	3.5	6.1	0.668 +/- 0.18	1.71 +/- 0.44	2.378
	11/9/2011	< 0.1 U	NA	NA	13	3.7	6.5	0.863 +/- 0.22	1.45 +/- 0.36	2.313
	11/7/2012	< 0.1	NA	NA	12	4.2	6.3	0.918 +/- 0.28	1.65 +/- 0.43	2.568
Main Producing Zone										
AC-9D2	9/27/1997	1	< 0.01	NA	5.3	5.6	0.45	< 0.6 +/- 0.04	< 1. +/- 0.44	1.6
	1/28/2004	37	< 0.01 U	< 0.005 U	56	230	13	3.06 +/- 0.49	12.8 +/- 1.60	15.86
	11/17/2008	33	< 0.01 U	< 0.005 U	47	220	13	1.51 +/- 0.24	7.9 +/- 0.67	9.41
	11/12/2009	36	< 0.01 U	NA	50	250	14	2.03 +/- 0.27	8.87 +/- 0.70	10.9
	11/19/2010	40	NA	NA	47	250	13	2.06 +/- 0.47	7.81 +/- 1.1	9.87
	11/10/2011	42	NA	NA	44	230	13	1.52 +/- 0.26	8.56 +/- 0.67	10.08
	11/12/2012	36	NA	NA	43	260	13	1.34 +/- 0.097	8.28 +/- 1.1	9.90

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-12D	10/1/1990	24	<0.01	<0.005	28	290	13	NA	NA	NA
	4/9/1992	2.6	< 0.01	< 0.005	8.2	39	2.8	NA	NA	NA
	9/27/1997	8.8	0.012	NA	20	320	11	1.5 +/- 0.09	6.9 +/- 0.58	8.4
	11/19/1999	0.52	< 0.01	NA	6.4	7.8	2.4	< 1. +/- 0.09	< 1.5 +/- 0.68	2.5
	11/17/2000	6.7	< 0.01	NA	15	130	6.8	0.5 +/- 0.10	3.7 +/- 1	4.2
	11/8/2001	1.7	< 0.01	NA	7.3	30	3.7	0.4 +/- 0.20	4.5 +/- 1.10	4.9
	11/22/2002	11	0.011	NA	22	310	10	1.9 +/- 0.30	8.6 +/- 1	10.5
	1/28/2004	10	0.015	0.0052	20	280	11	4.13 +/- 0.61	14.2 +/- 1.80	18.33
	11/11/2004	11	< 0.01	NA	20	310	12	1.84 +/- 0.22	7.57 +/- 0.59	9.41
	11/10/2005	15	< 0.01 U	NA	23	290	12	1.65 +/- 0.40	7.59 +/- 1.10	9.24
	11/16/2006	13	< 0.01 U	NA	21	310	12	1.26 +/- 0.18	7.08 +/- 0.65	8.34
	11/16/2007	20	< 0.01 U	NA	22	300	12	1.62 +/- 0.21	7.76 +/- 0.60	9.38
	11/13/2008	17	< 0.01 U	< 0.005 U	23	310	12	1.73 +/- 0.21	6.75 +/- 0.59	8.48
	11/12/2009	15	< 0.01 U	NA	22	280	12	1.57 +/- 0.25	7.7 +/- 0.68	9.27
	11/18/2010	14	NA	NA	22	280	11	1.34 +/- 0.38	6.68 +/- 1.3	8.02
	11/9/2011	14	NA	NA	18	240	10	4.80 +/- 0.69	8.43 +/- 0.75	13.23
	11/8/2012	15	NA	NA	18	250	9.6	1.43 +/- 0.39	7.88 +/- 1.1	9.31

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-13D	10/1/1990	8.6	<0.01	<0.005	16	220	8.3	NA	NA	NA
	2/3/1992	5.3	< 0.01	< 0.005	16	150	8.9	4.7 +/- 0.30	3.6 +/- 1.10	8.3
	9/27/1997	4.9	< 0.01	NA	20	260	12	1.3 +/- 0.09	4.1 +/- 0.59	5.4
	11/16/2000	4.6	< 0.01	NA	19	220	11	2.8 +/- 0.30	5	7.8
	11/8/2001	4.7	< 0.01	NA	17	210	10	1.9 +/- 0.20	3.7 +/- 1.10	5.6
	11/21/2002	6.7	< 0.01	NA	20	250	11	1.3 +/- 0.20	5.7 +/- 0.80	7
	1/16/2004	6.3	< 0.01 U	< 0.005 U	22	230	12	1.67 +/- 0.36	11.1 +/- 1.70	12.77
	11/11/2004	7.8	< 0.01	NA	23	260	12	1.55 +/- 0.19	8.2 +/- 0.64	9.75
	11/10/2005	11	< 0.01 U	NA	25	260	12	2.18 +/- 0.53	8.68 +/- 1.20	10.86
	11/16/2006	14	< 0.01 U	NA	28	290	14	1.55 +/- 0.22	7.83 +/- 0.78	9.38
	11/19/2007	17	< 0.01 U	NA	27	300	18	1.64 +/- 0.23	7.41 +/- 0.67	9.05
	11/11/2008	15	< 0.01 U	< 0.005 U	28	360	13	1.32 +/- 0.21	5.95 +/- 0.59	7.27
	11/12/2009	15	0.011	NA	28	300	14	2.28 +/- 0.31	10.5 +/- 0.95	12.78
	11/18/2010	14	NA	NA	23	290	12	1.45 +/- 0.39	6.84 +/- 1.0	8.29
	11/9/2011	14	NA	NA	26	300	13	1.64 +/- 0.25	8.18 +/- 0.69	9.82
	11/7/2012	15	NA	NA	24	290	12	2.05 +/- 0.54	8.99 +/- 1.3	11.04
Main Producing Zone										
AC-24D	2/19/1992	36	< 0.01	0.005	200	50	1.9	NA	NA	NA
	9/27/1997	8.5	< 0.01	NA	31	8.8	1.3	0.63 +/- 0.06	< 1. +/- 0.42	1.63
	1/21/2004	57	< 0.01 U	< 0.005 U	180	37	3.7	2.32 +/- 0.47	15.3 +/- 2.20	17.62
	11/18/2008	56	< 0.01 U	< 0.005 U	200	65	6.8	2.98 +/- 0.28	7.41 +/- 0.62	10.39
	11/16/2009	59	< 0.01 U	NA	190	79	5.8	2.44 +/- 0.25	6.4 +/- 0.60	8.84
	11/23/2010	77	NA	NA	190	84	6.4	2.09 +/- 0.50	7.60 +/- 1.1	9.69
	11/14/2011	65	NA	NA	160	76	6.8	2.96 +/- 0.35	10.0 +/- 0.86	12.96
	11/9/2012	67	NA	NA	190	78	5.5	1.48 +/- 0.42	10.9 +/- 1.5	12.38

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-25D	2/15/1992	19	NA	<0.0050	120	7.1	11	NA	NA	7.9
	9/24/1997	20	< 0.01	NA	270	44	2.1	2. +/- 0.10	3.5 +/- 0.52	5.5
	11/19/1999	2.6	< 0.01	NA	45	< 5.0	1.9	< 1. +/- 0.62	< 1.5 +/- 0.75	2.5
	11/17/2000	3.3	< 0.01	NA	46	13	5.5	0.6 +/- 0.10	0.6 +/- 0.80	1.2
	11/13/2001	2.9	< 0.01	NA	32	9.4	2.3	0.4 +/- 0.10	1.1 +/- 0.80	1.5
	11/21/2002	48	< 0.01	NA	410	80	2	2.9 +/- 0.30	5.1 +/- 0.80	8
	1/22/2004	52	< 0.01 U	< 0.005 U	410	65	2.3 J	4.48 +/- 0.72	7.6 +/- 1.20	12.08
	11/15/2004	57	< 0.01	NA	440	83	2.2	2.46 +/- 0.23	5.6 +/- 0.54	8.06
	11/10/2005	59	< 0.01 U	NA	390	81	3.1	2.31 +/- 0.52	7.73 +/- 1.20	10.04
	11/20/2006	77	< 0.01 U	NA	430	80	3.1	2.5 +/- 0.35	4.53 +/- 0.55	7.03
	11/20/2007	90	< 0.01 U	NA	390	80	3.7	1.85 +/- 0.29	4.08 +/- 0.49	5.93
	11/18/2008	71	< 0.01 U	< 0.005 U	480	77	3.7	2.2 +/- 0.25	3.98 +/- 0.51	6.18
	11/17/2009	77	< 0.01 U	NA	420	88	3.5	1.84 +/- 0.24	5.33 +/- 0.55	7.17
	11/23/2010	110	NA	NA	440	89	4.3	2.29 +/- 0.62	4.47 +/- 0.73	6.76
	11/15/2011	100	NA	NA	390	78	4.7	2.31 +/- 0.29	5.0 +/- 0.56	7.31
	11/14/2012	100	NA	NA	370	94	4.2	2.38 +/- 0.55	5.50 +/- 0.85	7.88
Main Producing Zone										
AC-28D	10/14/1993	3.1	NA	NA	NA	13	NA	NA	NA	NA
	9/27/1997	0.42	< 0.01	NA	14	< 5.0	6.1	1. +/- 0.08	5.9 +/- 0.59	6.9
	1/21/2004	5.9	< 0.01 U	< 0.005 U	26	24	6	1.93 +/- 0.43	6.5 +/- 1.30	8.43
	11/17/2008	7.6	< 0.01 U	< 0.005 U	31	49	6.8	2.07 +/- 0.24	6.43 +/- 0.59	8.5
	11/12/2009	8.1	< 0.01 U	NA	31	55	6.7	2.29 +/- 0.26	6.97 +/- 0.64	9.26
	11/19/2010	9.5	NA	NA	30	67	6.7	2.70 +/- 0.56	8.60 +/- 0.56	11.3
	11/10/2011	9.3	NA	NA	23	56	6.8	3.27 +/- 0.35	10.4 +/- 0.81	13.67
	11/12/2012	9.5	NA	NA	30	74	6.4	3.48 +/- 0.99	10.3 +/- 1.4	13.78

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-29D	9/27/1997	65	< 0.01	NA	180	340	20	0.66 +/- 0.05	9.9 +/- 0.65	10.56
	11/19/1999	65	< 0.01	NA	110	< 5.0	14	2.3	8.1	10.4
	11/21/2000	45	< 0.01	NA	300	260	14	1.3 +/- 0.10	11.4 +/- 1.10	12.7
	11/13/2001	48	< 0.01	NA	100	280	13	1.4 +/- 0.20	14. +/- 1.60	15.4
	11/25/2002	59	< 0.01	NA	100	340	16	1.7 +/- 0.20	16.5 +/- 1.70	18.2
	1/23/2004	52	< 0.01 U	< 0.005 U	93	310	16	3.42 +/- 0.55	21.9 +/- 2.50	25.32
	11/12/2004	45	< 0.01 U	NA	84	290	14	1.52 +/- 0.19	17.7 +/- 0.96	19.22
	11/16/2005	30	< 0.01 U	NA	58	220	9.8	1.53 +/- 0.37	21. +/- 2.70	22.53
	11/17/2006	34	< 0.01 U	NA	67	200	12	1.48 +/- 0.18	11.9 +/- 0.90	13.38
	11/20/2007	42	< 0.01 U	NA	63	220	12	1.45 +/- 0.26	11.7 +/- 0.77	13.15
	11/18/2008	31	< 0.01 U	< 0.005 U	65	200	11	1.54 +/- 0.20	10.8 +/- 0.76	12.34
	11/17/2009	30	< 0.01 U	NA	61	220	9.5	1.54 +/- 0.21	13.8 +/- 0.83	15.34
	11/19/2010	39	NA	NA	62	240	11	1.64 +/- 0.37	14.9 +/- 1.9	16.54
	11/11/2011	41	NA	NA	54	220	12	1.76 +/- 0.27	13.6 +/- 0.81	15.36
	11/13/2012	35	NA	NA	52	230	10	1.08 +/- 0.30	15.9 +/- 2/1	16.98

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-30D	9/26/1997	15	< 0.01	NA	60	100	11	3. +/- 0.12	7.9 +/- 0.61	10.9
	11/22/1999	18	< 0.01	NA	70	130	12	2.5	9.5	12
	11/17/2000	11	< 0.01	NA	50	100	11	2.6 +/- 0.30	14.6 +/- 1.70	17.2
	11/13/2001	11	< 0.01	NA	44	92	9.8	3.4 +/- 0.30	9.3 +/- 1.40	12.7
	11/25/2002	61	< 0.01	NA	120	250	16	2.8 +/- 0.30	13.1 +/- 1.50	15.9
	1/15/2004	46	0.017	< 0.005 U	94	190	15	6.96 +/- 0.97	21.4 +/- 2.40	28.36
	11/16/2004	34	< 0.01	NA	56	180	15	1.98 +/- 0.21	12.5 +/- 0.78	14.48
	11/17/2005	16	< 0.01 U	NA	44	120	9.2	1.48 +/- 0.34	11.9 +/- 1.60	13.38
	11/17/2006	11	< 0.01 U	NA	29	91	7.9	1.27 +/- 0.17	8.37 +/- 0.73	9.64
	11/20/2007	12	< 0.01 U	NA	25	64	7.2	1.62 +/- 0.25	6.48 +/- 0.57	8.1
	11/18/2008	8	< 0.01 U	< 0.005 U	25	60	6	1.69 +/- 0.22	6.8 +/- 0.63	8.49
	11/17/2009	6.7	< 0.01 U	NA	20	55	5.1	1.71 +/- 0.25	7.51 +/- 0.66	9.22
	11/22/2010	7.2	NA	NA	19	51	4.7	1.81 +/- 0.41	7.13 +/- 1.1	8.94
	11/14/2011	7	NA	NA	11	27	5.7	2.05 +/- 0.34	9.32 +/- 0.93	11.37
	11/14/2012	8	NA	NA	18	64	5.5	2.00 +/- 0.55	8.21 +/- 1.2	10.21

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-35D	11/19/1999	23	< 0.01	NA	160	130	3.1	< 1. +/- 0.53	< 1.5 +/- 0.95	2.5
	11/16/2000	150	< 0.01	NA	120	220	12	1.5 +/- 0.20	5. +/- 1.20	6.5
	11/8/2001	160	0.012	NA	520	220	13	1.9 +/- 0.20	7.2 +/- 1.40	9.1
	11/21/2002	170	< 0.01	NA	550	230	11	2. +/- 0.30	8.5 +/- 1	10.5
	11/15/2004	160	0.015	< 0.005 U	530	210	13	4.58 +/- 0.69	12.9 +/- 1.60	17.48
	11/15/2004	170	< 0.01	NA	520	260	14	2.22 +/- 0.21	9.37 +/- 0.69	11.59
	11/16/2005	150	< 0.01 U	NA	430	260	12	2.01 +/- 0.50	14.4 +/- 1.90	16.41
	11/20/2006	160	< 0.01 U	NA	460	270	12	1.83 +/- 0.31	9.26 +/- 0.77	11.09
	11/20/2007	150	< 0.01 U	NA	420	190	12	2.01 +/- 0.29	5.8 +/- 0.53	7.81
	11/19/2008	120	0.01	< 0.005 U	460	190	11	1.78 +/- 0.20	5.29 +/- 0.57	7.07
	11/19/2009	120	< 0.01 U	NA	430	200	9.3	2.33 +/- 0.28	8.44 +/- 0.68	10.77
	11/23/2010	180	NA	NA	580	240	13	2.52 +/- 0.64	8.83 +/- 1.2	11.35
	11/16/2011	130	NA	NA	370	170	11	1.71 +/- 0.28	5.94 +/- 0.61	7.65
	11/15/2012	130	NA	NA	350	200	9.6	1.91 +/- 0.51	6.45 +/- 0.98	8.36
Main Producing Zone										
AC-36D	11/18/1999	0.79	< 0.01	NA	28	120	3.1	< 1. +/- 0.53	< 1.5 +/- 0.55	2.5
	11/16/2000	< 0.2	< 0.01	NA	10	14	4.6	0.6 +/- 0.09	4.4 +/- 0.70	5
	11/8/2001	< 0.2	< 0.01	NA	10	15	5.1	0.6 +/- 0.20	4.5 +/- 1.10	5.1
	11/15/2002	<0.20	<0.010	NA	11	17	5.9	1.0 +/- 0.1	1.9 +/- 0.6	2.9
	11/14/2004	< 0.2 U	< 0.01 U	< 0.005 U	11	12	5.9	1.46 +/- 0.30	2.76 +/- 0.58	4.22
	11/11/2004	< 0.2	< 0.01	NA	14	15	5.2	1.02 +/- 0.17	2.63 +/- 0.38	3.65
	11/9/2005	< 0.2 U	< 0.01 U	NA	11	19	5.9	1.07 +/- 0.27	2.34 +/- 0.52	3.41
	11/16/2006	< 0.2 U	< 0.01 U	NA	11	18	5.9	1.21 +/- 0.20	2.66 +/- 0.49	3.87
	11/16/2007	< 0.2 U	< 0.01 U	NA	11	15	5.7	1.08 +/- 0.21	1.99 +/- 0.35	3.07
	11/11/2008	< 0.2 U	< 0.01 U	< 0.005 U	12	19	5.2	1.19 +/- 0.22	2.63 +/- 0.41	3.82
	11/11/2009	< 0.1 U	< 0.01 U	NA	12	16	5.6	1.05 +/- 0.18	2.24 +/- 0.46	3.29
	11/18/2010	< 0.1 U	NA	NA	12	16	5.3	1.52 +/- 0.45	3.09 +/- 0.59	4.61
	11/9/2011	< 0.1 U	NA	NA	12	17	5.7	1.45 +/- 0.26	2.88 +/- 0.43	4.33
	11/6/2012	<0.10	NA	NA	11	16	5.2	1.28 +/- 0.37	3.30 +/- 0.65	4.58

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
PIP-D	11/14/2005	< 0.2 U	< 0.01 U	NA	7.8	< 5.0 U	3.4	0.835 +/- 0.336	2.23 +/- 0.57	2.831
	11/22/2006	< 0.2 U	< 0.01 U	NA	12	< 5.0 U	5.3	1.19 +/- 0.22	1.89 +/- 0.35	3.08
	11/16/2007	< 0.2 U	< 0.01 U	NA	7.6	5.3	3.8	0.85 +/- 0.20	1.64 +/- 0.32	2.49
	11/13/2008	< 0.2 U	< 0.01 U	< 0.005 U	10	8.2	4.1	1.32 +/- 0.21	2.41 +/- 0.45	3.73
	11/18/2009	< 0.1 U	< 0.01 U	NA	8.9	5	3.5	0.994 +/- 0.18	1.24 +/- 0.33	2.234
	11/24/2010	< 0.1 U	NA	NA	9.8	4.9	3.7	1.28 +/- 0.37	1.81 +/- 0.47	3.09
	11/11/2011	< 0.1 U	NA	NA	3.3	2.1	2.9	1.01 +/- 0.20	1.37 +/- 0.39	2.38
	11/13/2012	<0.1	NA	NA	9.1	4.4	3.5	0.957 +/- 0.31	2.07 +/- 0.48	3.027

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-10D	10/1/1990	<0.2	<0.01	0.013	9.7	140	5.2	NA	NA	NA
	4/9/1992	< 0.2	< 0.01	< 0.005	10	65	3.6	NA	NA	NA
	9/27/1997	< 0.2	< 0.01	NA	12	97	6.6	0.93 +/- 0.07	2.8 +/- 5.20	3.73
	1/28/2004	< 0.2 U	< 0.01 U	< 0.005 U	14	42	7.7	1.91 +/- 0.36	3.32 +/- 0.81	5.23
	11/12/2008	< 0.2 U	< 0.01 U	< 0.005 U	8	29	6.1	1.13 +/- 0.18	2.2 +/- 0.40	3.33
Main Producing Zone										
AC-11D	10/1/1990	<0.2	<0.01	0.0058	10	< 5.0	4.3	NA	NA	NA
	4/9/1992	< 0.2	< 0.01	< 0.005	9.5	< 5.0	3.5	NA	NA	NA
	9/24/1997	< 0.2	< 0.01	NA	11	< 5.0	3.8	0.66 +/- 0.06	1.2 +/- 0.45	1.86
	1/27/2004	< 0.2 U	< 0.01 U	< 0.005 U	11	< 5.0 U	4.9	1.28 +/- 0.29	3.04 +/- 0.75	4.32
	11/11/2008	< 0.2 U	< 0.01 U	< 0.005 U	10	< 5.0 U	3	0.828 +/- 0.19	1.93 +/- 0.41	2.758
Main Producing Zone										
AC-14D	10/1/1990	0.028	<0.01	<0.005	9	34	4.2	NA	NA	NA
	4/8/1992	< 0.2	< 0.01	0.0219	9.4	33	3.5	NA	NA	NA
	9/24/1997	< 0.2	< 0.01	NA	10	18	4.2	< 0.6 +/- 0.07	1.2 +/- 0.44	1.8
	1/28/2004	< 0.2 U	< 0.01 U	< 0.005 U	11	39	5.8	2.05 +/- 0.37	4.8 +/- 1	6.85
	11/11/2008	< 0.2 U	< 0.01 U	< 0.005 U	12	32	5.5	1.89 +/- 0.30	1.97 +/- 0.40	3.86

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-21D	10/1/1990	<0.2	<0.01	0.0053	15	9.8	6	NA	NA	NA
	2/2/1992	< 0.2	< 0.01	< 0.005	13	11	5.5	NA	NA	NA
	9/26/1997	< 0.2	< 0.01	NA	21	11	5.9	2.3 +/- 0.12	3.5 +/- 0.50	5.8
	1/29/2004	< 0.2 U	< 0.01 U	< 0.005 U	19	16	8.1	3.72 +/- 0.57	4.71 +/- 0.79	8.43
	11/12/2008	< 0.2 U	< 0.01 U	< 0.005 U	10	24	4	2.03 +/- 0.23	2.08 +/- 0.38	4.11
Main Producing Zone										
AC-22D	10/1/1990	2.2	<0.01	<0.005	15	17	8.6	NA	NA	NA
	9/25/1997	0.81	< 0.01	NA	14	6	7.7	0.65 +/- 0.06	1.1 +/- 0.47	1.75
	1/29/2004	1.2	< 0.01 U	< 0.005 U	8.9	10	5	1.55 +/- 0.33	4.01 +/- 0.68	5.56
	11/11/2008	3.1	< 0.01 U	< 0.005 U	9.4	15	3.9	1.34 +/- 0.23	2.65 +/- 0.42	3.99
Main Producing Zone										
AC-23D	10/1/1990	<0.2	<0.01	<0.005	24	28	4.5	NA	NA	NA
	2/6/1992	< 0.2	< 0.01	< 0.005	26	17	5.8	NA	NA	NA
	9/26/1997	< 0.2	< 0.01	NA	12	9.5	3.1	1. +/- 0.08	1.7 +/- 0.43	2.7
	1/22/2004	< 0.2 U	< 0.01 U	< 0.005 U	8.9	15	5.2J	3.74 +/- 0.63	4.81 +/- 0.9950	8.55
	11/18/2008	< 0.2 U	< 0.01 U	< 0.005 U	10	20	4.6	2.96 +/- 0.26	3.51 +/- 0.44	6.47

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meet Performance Standard
(see last page for footnotes)
Agrico Site, Pensacola, Florida

Well ID	Date	Fluoride (mg/L)	Arsenic (mg/L)	Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate-N (mg/L)	Radium 226 (pCi/L)	Radium 228 (pCi/L)	Combined Radium 226 + 228 (pCi/L)
PERFORMANCE STANDARD		4	0.05	0.015	250	250	10	--	--	5
Main Producing Zone										
AC-26D	2/11/1992	< 0.2	< 0.01	< 0.005	6.2	6.9	1.1	NA	NA	NA
	9/24/1997	< 0.2	< 0.01	NA	3.3	10	0.18	< 0.6 +/- 0.04	< 1. +/- 0.43	1.6
	1/20/2004	< 0.2 U	< 0.01 U	< 0.005 U	4.9	< 5.0 U	1.4	< 0.21 U +/- 0.15	< 0.55 U +/- 0.32	0.21
	11/12/2008	< 0.2 U	< 0.01 U	< 0.005 U	3.8	9.8	0.07	0.161 +/- 0.0760	0.0167 +/- 0.14	0.1777
Main Producing Zone										
AC-27D	4/8/1992	< 0.2	< 0.01	0.0272	6.7	11	0.3	NA	NA	NA
	9/24/1997	< 0.2	< 0.01	NA	4.7	14	< 0.05	< 0.6 +/- 0.06	< 1. +/- 0.41	1.6
	1/13/2004	< 0.2 U	< 0.01 U	< 0.005 U	16	5	3	1.09 +/- 0.26	4.83 +/- 0.92	5.92
	11/11/2005	< 0.2 U	< 0.01 U	NA	4.6	9.6	0.12	0.266 J +/- 0.11	6.75 +/- 1	7.016
	11/18/2008	< 0.2 U	< 0.01 U	< 0.005 U	29	< 5.0 U	2	1.12 +/- 0.18	2.43 +/- 0.40	3.55
Main Producing Zone										
AC-5D	10/1/1990	< 0.2	< 0.01	< 0.005	10	< 5	5.4	NA	NA	NA
	1/31/1992	< 0.2	< 0.01	< 0.005	13	6.4	5.1	NA	NA	NA
	9/26/1997	3.6	< 0.01	NA	9.7	< 5.0	3.8	< 0.6 +/- 0.04	1.4 +/- 0.44	2
	1/20/2004	< 0.2 U	< 0.01 U	< 0.005 U	10	< 5.0 U	4.5	1.15 +/- 0.28	1.7 +/- 0.46	2.85
	11/13/2008	< 0.2 U	< 0.01 U	< 0.005 U	7.9	< 5.0 U	3.6	0.922 +/- 0.17	1.3 +/- 0.38	2.222
Main Producing Zone										
NWD-2D	10/1/1990	< 0.2	< 0.01	< 0.005	11	5.8	4.9	NA	NA	NA
	2/3/1992	0.2	< 0.01	< 0.005	9.5	< 5.0	4.4	NA	NA	NA
	9/25/1997	< 0.2	< 0.01	NA	8.8	< 5.0	3.9	< 0.6 +/- 0.06	2. +/- 0.44	2.6
	1/19/2004	< 0.2 U	< 0.01 U	< 0.005 U	10	7.5	5.6	0.79 J +/- 0.21	2.19 +/- 0.60	2.98
	11/13/2008	< 0.2 U	< 0.01 U	< 0.005 U	11	13	5.2	0.901 +/- 0.17	1.71 +/- 0.44	2.611

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING
LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE

Agrico Site
Pensacola, Florida

Notes:

Monitoring wells ACB-31S, ACB-32S, AC-33S, AC-34S and AC-7SR sampled semiannually from May 1997 through May 2008 and samples analyzed for fluoride, arsenic, and lead only (OU-1 COCs); Beginning in November 2007, these wells incorporated into OU-2 network and samples analyzed for fluoride, arsenic, lead, chloride, sulfate, nitrate, radium 226 and radium 228.

* Radium samples analyzed by STL St Louis for January 2004 event were determined by STL to be biased high results

** Nitrite determined not be part of Agrico plume constituents; Analysis change to nitrate only as per 1/07 EPA approval

COC = constituent of concern

mg/L = milligrams per Liter

pCi/L = picocuries per Liter

BOLD = exceeds constituent performance standard

Highlight = Below performance standard.

Highlight = Long-term monitoring location sampled during November 2009

NA = Not Analyzed

NS = Not Sampled

I = The reported value is between the laboratory method detection limit and the practical quantitation limit.

J = Estimated Value

Q = Sample was analyzed outside recommended analytical holdtime criteria.

V = The analyte was detected in both the sample and the associated method blank.

<, U = Analyzed for but not detected above limiting criteria of 0.256

1 = First date for arsenic is 1990 data results

Radium 226 + 228 Analytical Laboratories:

1987 State of Florida Department of Environmental Regulation Laboratory

1992 Savannah Laboratories - Contract Lab Unknown

1997 Savannah Laboratories - Contract Lab Unknown

1999 General Engineering Laboratory - Charleston, SC

2000 KNL, Tampa, FL

2001 KNL, Tampa, FL

2002 KNL, Tampa, FL

1/2004 STL - St. Louis

11/2004 through 2010- STL/TA Richland

TABLE 9
COMPARISON OF COC RESULTS AT LONG-TERM MONITORING LOCATIONS FOR SURFACE WATER

Agrico Site
Pensacola, Florida

Sample Location ID	Date	Fluoride (mg/L)	Total Arsenic (mg/L)	Total Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate + Nitrite (before 2007) Nitrate (2007 and later) (mg/L)	Combined Radium 226 + 228 (pCi/L)
ACSW-1 Bayou Texar (Brachish Water)	11/1999	1.2	<0.010	NA	14000 ⁽¹⁾	2300 ⁽¹⁾	0.74	1.69
	11/2000	1	<0.010	NA	26000	1700	0.14	2.0
	11/2001	1.1	0.0065	NA	1000	1700	0.26	1.5
	11/2002	1.3	<0.010	NA	8400	1200	0.49	0.9
	1/2004	1.5	<0.010	<0.0050	8900	1300	0.45	<1.0
	11/2004	1.3	<0.010	NA	3900	900	0.43	1.44
	11/2005	1.1	<0.010	NA	8600	1200	0.52	1.18
	11/2006	1.3	<0.010	NA	4900	1100	0.63	1.45
	11/2007	1.1	<0.010	NA	10000	1500	0.74	1.33
	11/2008	0.89	<0.010	<0.0050	14000	2000	0.21	0.748
	11/2009	0.99	<0.010	NA	7500	890	0.46	0.989
	11/2010	0.94	NA	NA	27000	1600	0.27	1.376
	11/2011	0.78	NA	NA	12000	1700	0.23	0.58
	11/2012	1.3	NA	NA	13000	1700	0.31	1.075

TABLE 9
COMPARISON OF COC RESULTS AT LONG-TERM MONITORING LOCATIONS FOR SURFACE WATER

Agrico Site
Pensacola, Florida

Sample Location ID	Date	Fluoride (mg/L)	Total Arsenic (mg/L)	Total Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate + Nitrite (before 2007) Nitrate (2007 and later) (mg/L)	Combined Radium 226 + 228 (pCi/L)
ACSW-2 Bayou Texar (Brackish Water)	11/1999	0.82	<0.010	NA	15000	2300	0.15	<1.5
	11/2000	0.63	<0.010	NA	21000	1700	0.39	<1.8
	11/2001	0.74	<0.010	NA	14000	2200	<0.050	2.0
	11/2002	0.59	<0.010	NA	9300	1400	0.15	<1.0
	1/2004	0.66	<0.010	<0.0050	10000	1400	0.19	0.38
	11/2004	0.69	<0.010	NA	5900	1100	0.19	0.572
	11/2005	0.80	<0.010	NA	11000	1700	0.32	1.66
	11/2006	0.73	<0.010	NA	5200	1200	0.38	1.04
	11/2007	0.82	<0.010	NA	12000	1600	0.27	0.95
	11/2008	0.60	<0.010	<0.0050	15000	2200	0.68	0.641
	11/2009	0.59	<0.010	NA	12000	1500	0.13	0.712
	11/2010	0.65	NA	NA	28000	1800	0.082	0.894
	11/2011	0.73	NA	NA	13000	730	0.17	1.277
	11/2012	0.73	NA	NA	14000	1900	0.066	0.691

TABLE 9
COMPARISON OF COC RESULTS AT LONG-TERM MONITORING LOCATIONS FOR SURFACE WATER

Agrico Site
Pensacola, Florida

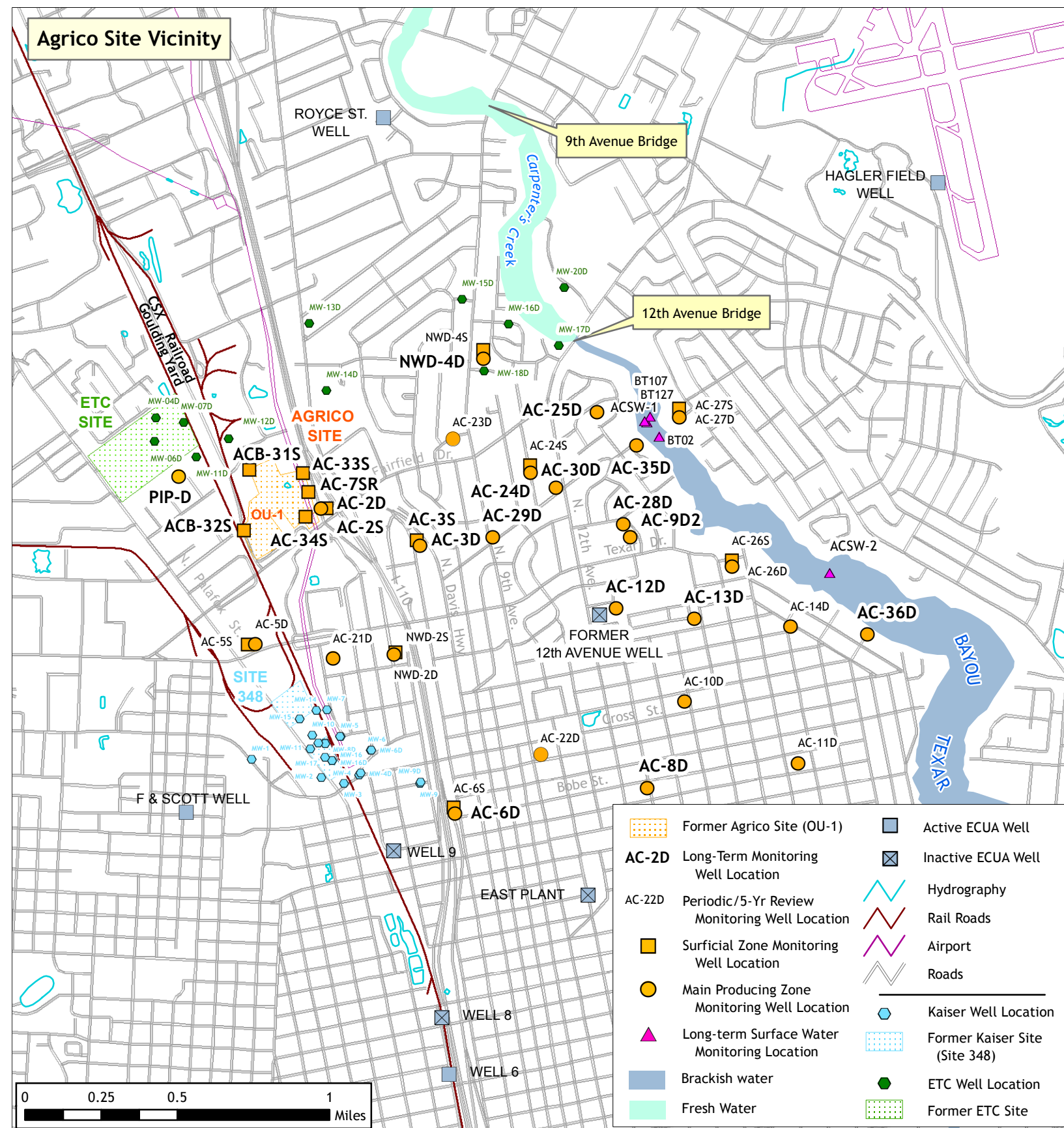
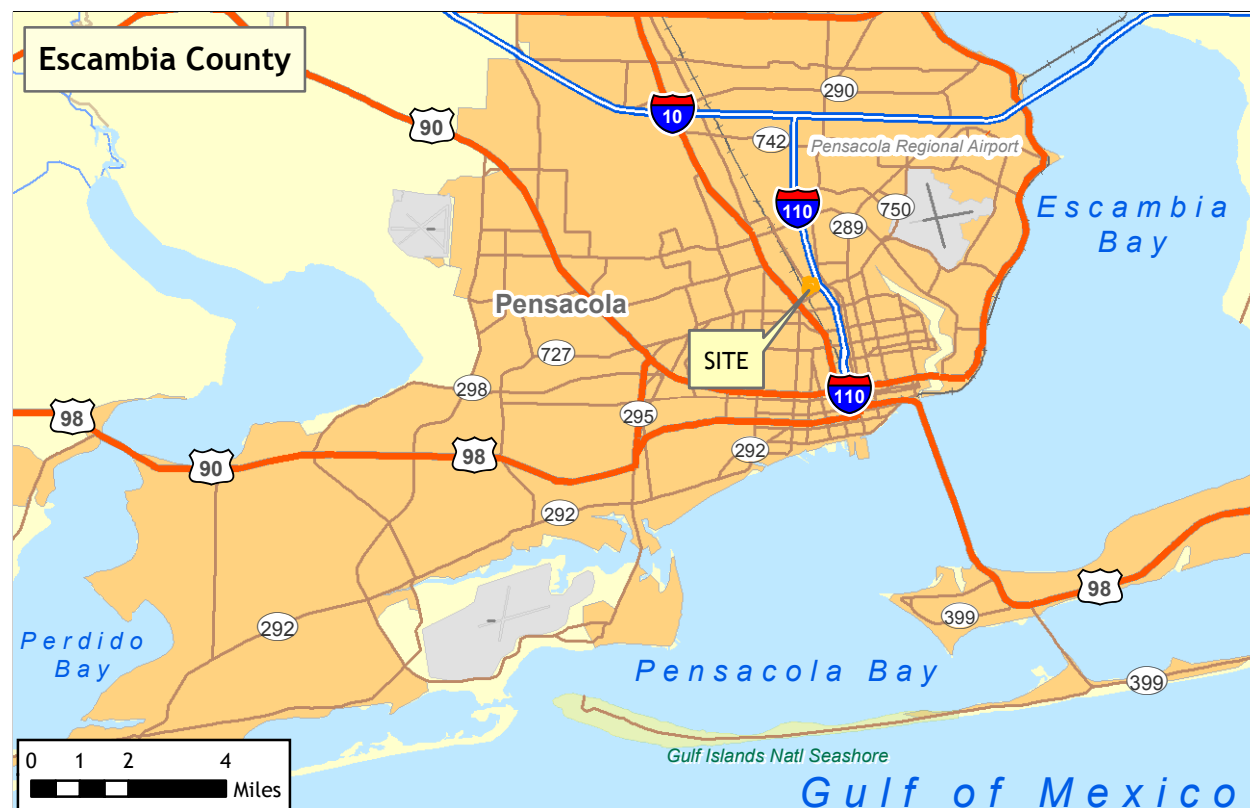
Sample Location ID	Date	Fluoride (mg/L)	Total Arsenic (mg/L)	Total Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate + Nitrite (before 2007) Nitrate (2007 and later) (mg/L)	Combined Radium 226 + 228 (pCi/L)
BT-02⁽³⁾ Bayou Texar (Brackish Water)	08/2008	0.56	NA	NA	NA	NA	NA	NA
	11/2010	0.83	NA	NA	NA	NA	NA	NA
	11/2011	0.77	NA	NA	NA	NA	NA	NA
	11/2012	0.89	NA	NA	NA	NA	NA	NA
BT-107⁽³⁾ Bayou Texar (Brackish Water)	05/2009	0.58	NA	NA	NA	NA	NA	NA
	11/2010	0.89	NA	NA	NA	NA	NA	NA
	11/2011	0.81	NA	NA	NA	NA	NA	NA
	11/2012	1.30	NA	NA	NA	NA	NA	NA
BT-127⁽³⁾ Bayou Texar (Brackish Water)	05/2009	0.60	NA	NA	NA	NA	NA	NA
	11/2010	1.00	NA	NA	NA	NA	NA	NA
	11/2011	0.81	NA	NA	NA	NA	NA	NA
	11/2012	1.20	NA	NA	NA	NA	NA	NA

TABLE 9
COMPARISON OF COC RESULTS AT LONG-TERM MONITORING LOCATIONS FOR SURFACE WATER

Agrico Site
Pensacola, Florida

Sample Location ID	Date	Fluoride (mg/L)	Total Arsenic (mg/L)	Total Lead (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate + Nitrite (before 2007) Nitrate (2007 and later) (mg/L)	Combined Radium 226 + 228 (pCi/L)
ACSW-BL ⁽²⁾ Carpenter Creek (Freshwater)	11/1999	<0.20	<0.010	NA	9.4	<5.0	2.1	<1.5
	11/2000	<0.20	<0.010	NA	9.4	8.8	1.4	2.5
	11/2001	<0.20	<0.010	NA	8.0	<5.0	1.8	2.4
	11/2002	<0.20	<0.010	NA	8.8	<5.0	1.2	2.4
	1/2004	<0.20	<0.010	<0.0050	8.5	5.1	1.4	1.53
	11/2004	<0.20	<0.010	NA	8.7	7.1	1.1	1.08
	11/2005	<0.20	<0.010	NA	10	5.1	1.2	2.08
	11/2006	<0.20	<0.010	NA	11	<5.0	1.1	1.55
	11/2007	<0.20	<0.010	NA	9.8	<5.0	1.4	1.67
	11/2008	<0.20	<0.010	<0.0050	9.2	5.9	1.1	1.926
	11/2009	<0.20	<0.010	NA	7.3	5.7	0.73	0.895
	11/2010	Discontinued Sampling						

FIGURES



**OU-1 and OU-2
AGRICO SITE
PENSACOLA, FLORIDA**

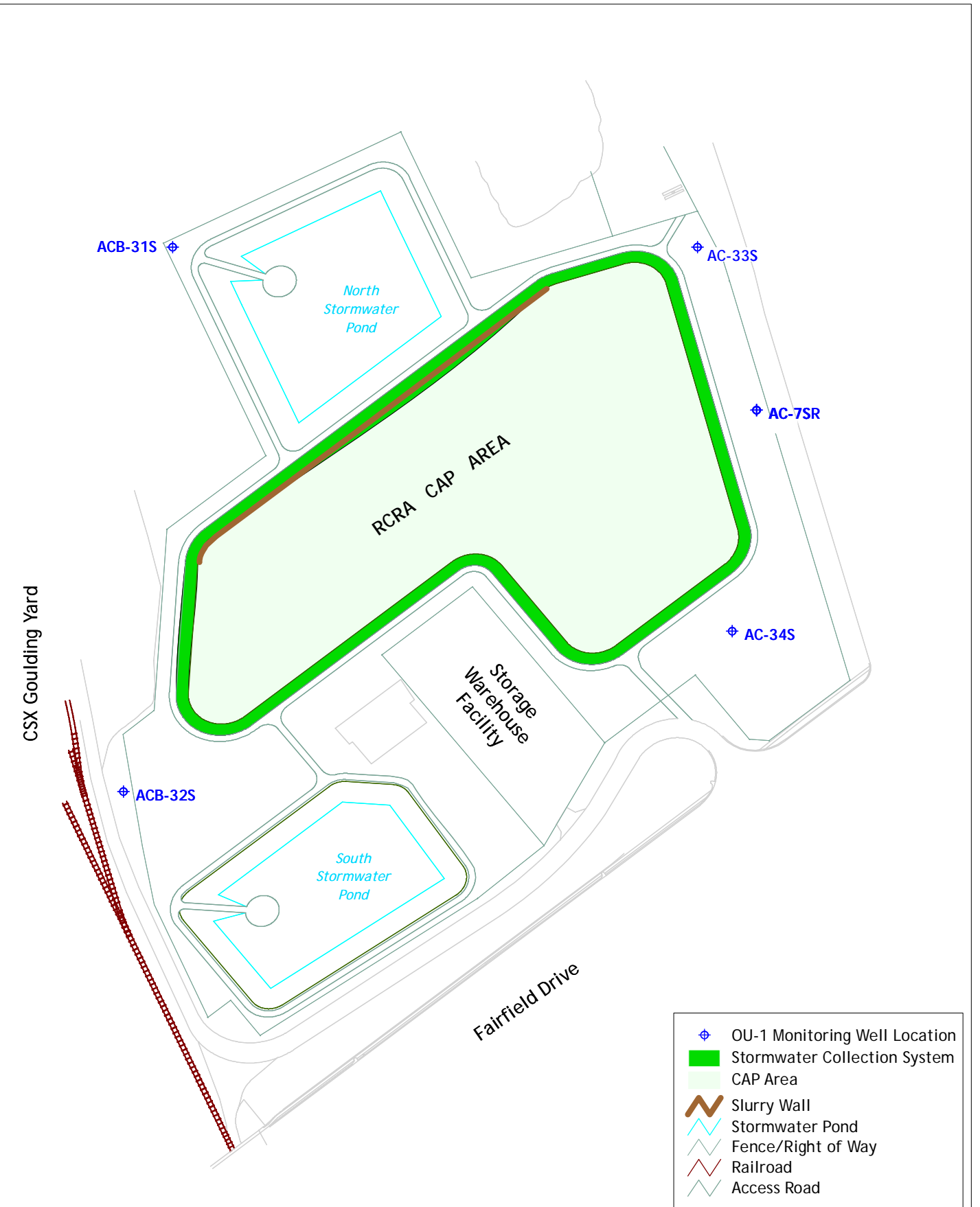


Base Map Data Provided By:
Florida Department of Environmental Protection
and Northwest Florida Water Management District
Aerial Source: Bing Image Server



SITE LOCATION AND SITE-WIDE MONITORING WELL LOCATIONS OU-1 AND OU-2

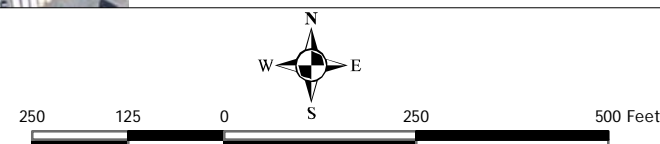
FIGURE
1



OU-1 and OU-2
AGRICO SITE
PENSACOLA, FLORIDA

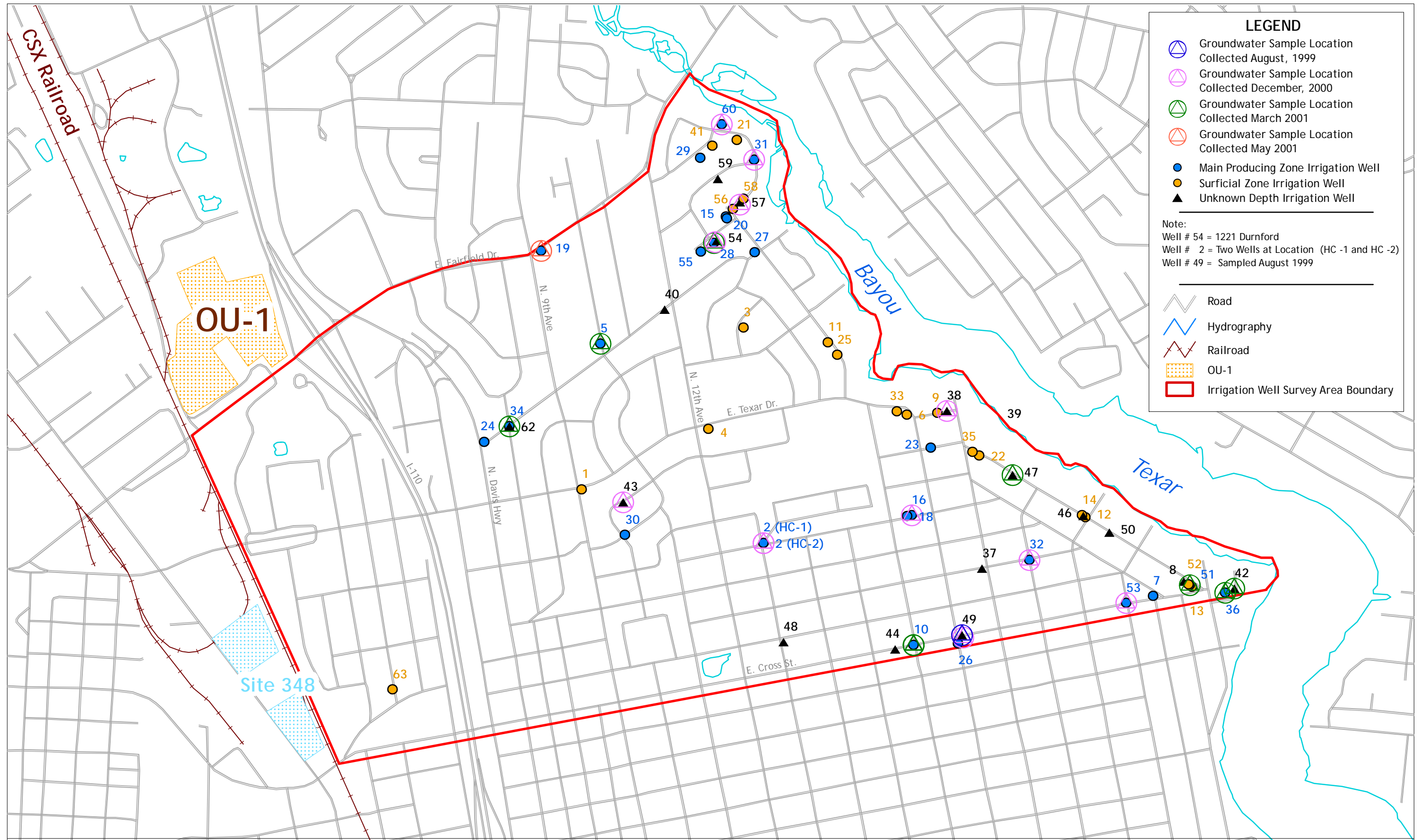


Base Map Data Provided By:
Florida Department of Environmental Protection
and Northwest Florida Water Management District
Aerial Source: Bing Image Server



FORMER SITE AREA AND
MONITORING WELL LOCATIONS
OU-1

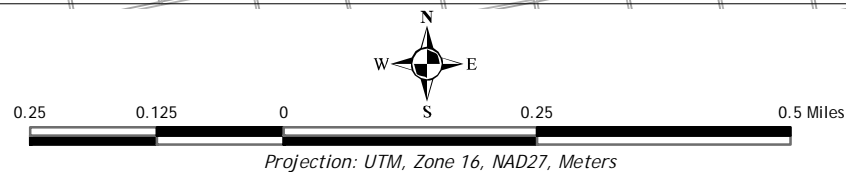
FIGURE
2



OU-1 and OU-2
 AGRICO SITE
 PENSACOLA, FLORIDA

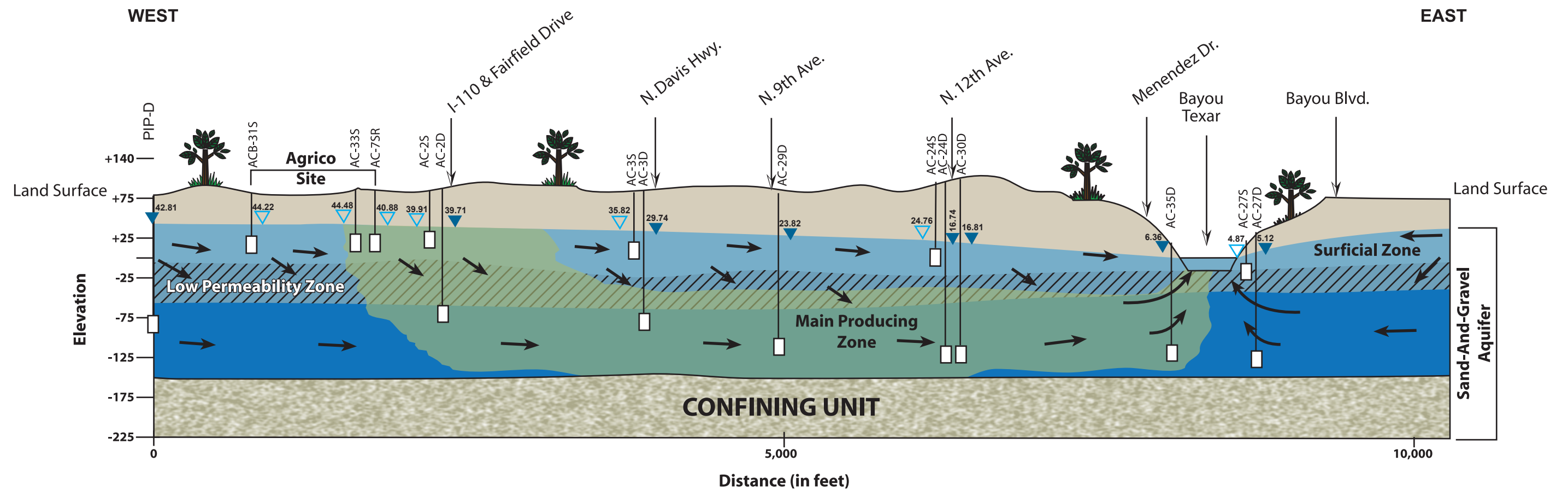


Base Map Data Provided By:
 Florida Department of Environmental Protection
 and Northwest Florida Water Management District



IRRIGATION WELL
 LOCATIONS

FIGURE
 3

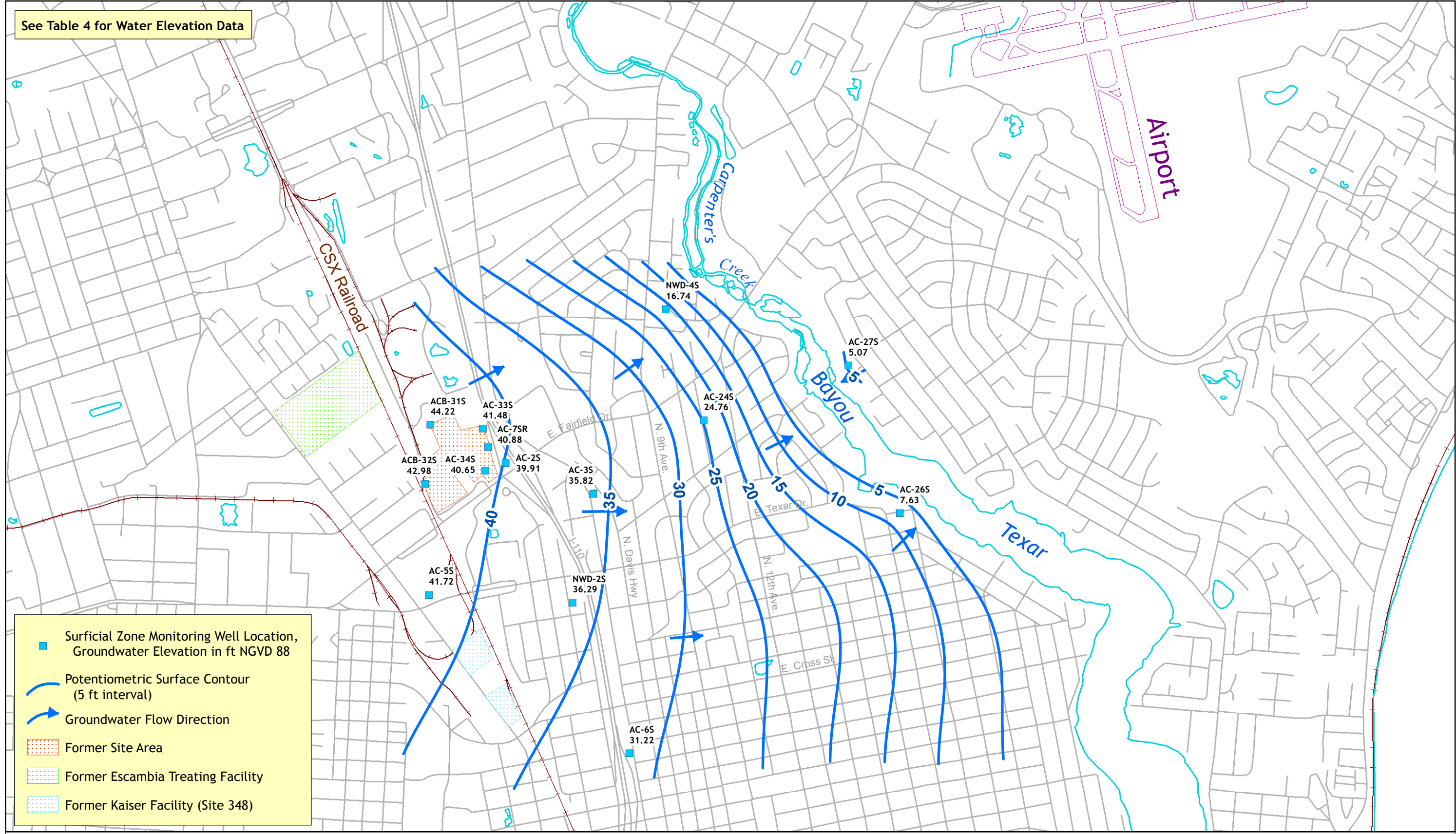


OU-1 and OU-2
AGRICO SITE
PENSACOLA, FLORIDA



HYDROGEOLOGIC CONCEPTUAL MODEL
FROM AGRICO SITE TO BAYOU TEXAR

FIGURE
4



**OU-1 and OU-2
AGRICOLA SITE
PENSACOLA, FLORIDA**

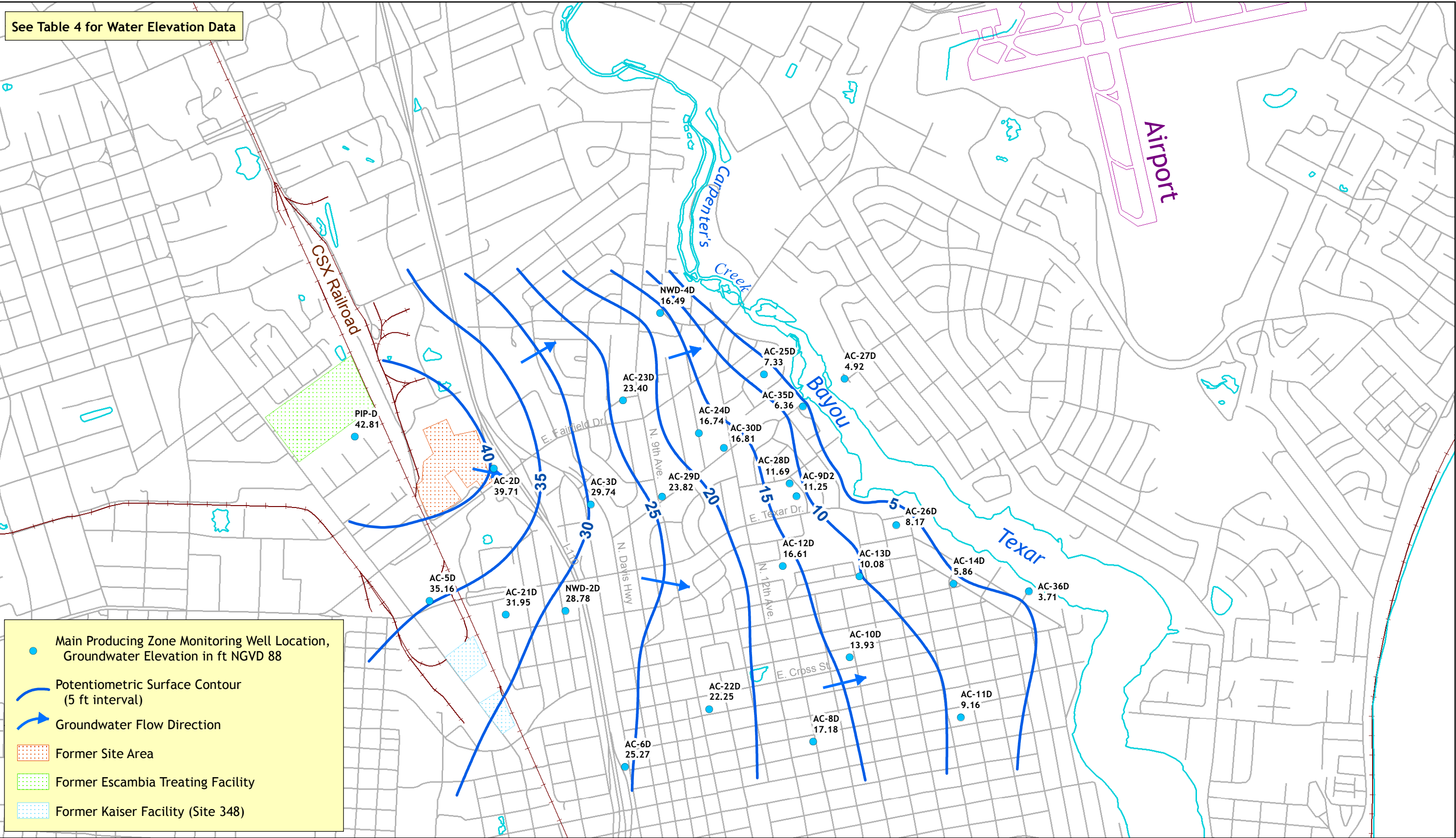


Base Map Data Sources:
Florida Department of Environmental Protection
Northwest Florida Water Management District

**POTENTIOMETRIC SURFACE
SURFICIAL ZONE
November 5, 2012**

**FIGURE
5**

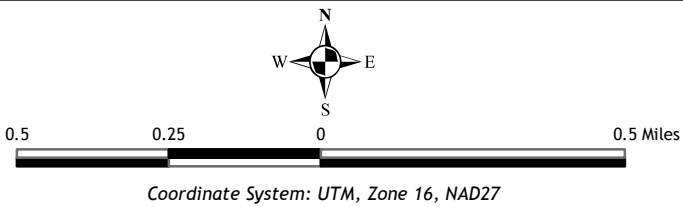
See Table 4 for Water Elevation Data



OU-1 and OU-2
AGRICOLA SITE
PENSACOLA, FLORIDA



Base Map Data Provided By:
Florida Department of Environmental Protection
and Northwest Florida Water Management District

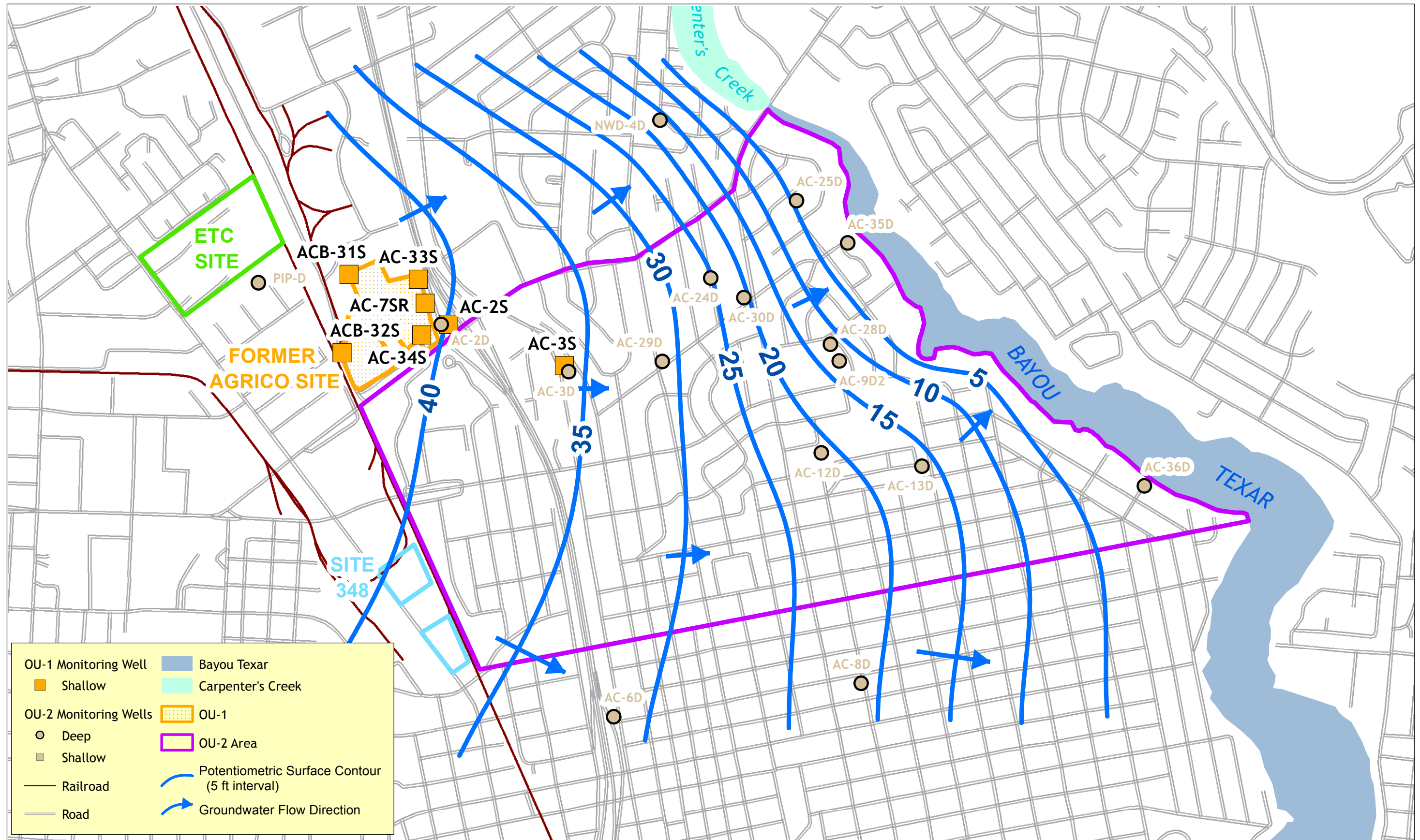


POTENTIOMETRIC SURFACE
MAIN PRODUCING ZONE
November 5, 2012

FIGURE
6

Figure 7
Annual Rainfall and Cumulative Departure from Normal
NOAA Rainfall Station
Pensacola, Florida

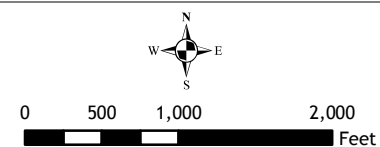




**OU-1 and OU-2
AGRICOLA SITE
PENSACOLA, FLORIDA**



Base Map Data Provided By:
Florida Department of Environmental Protection
and Northwest Florida Water Management District
Aerial Source: Bing Image Server



**TREND PLOT LOCATIONS
SURFICIAL ZONE
OU-1 AREA**

**FIGURE
8**

Figure 9

Fluoride Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

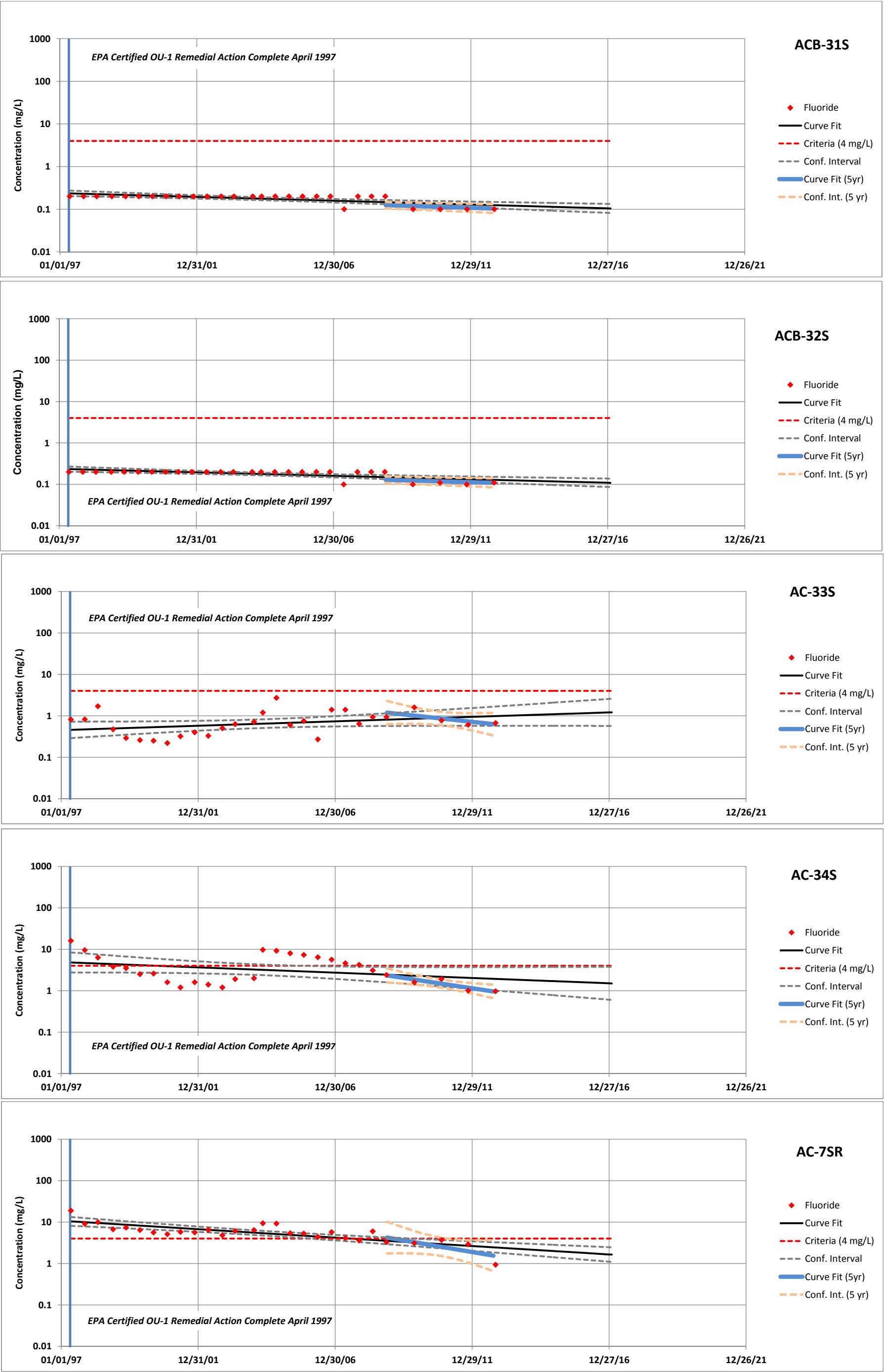


Figure 9 (Cont'd.)

Fluoride Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

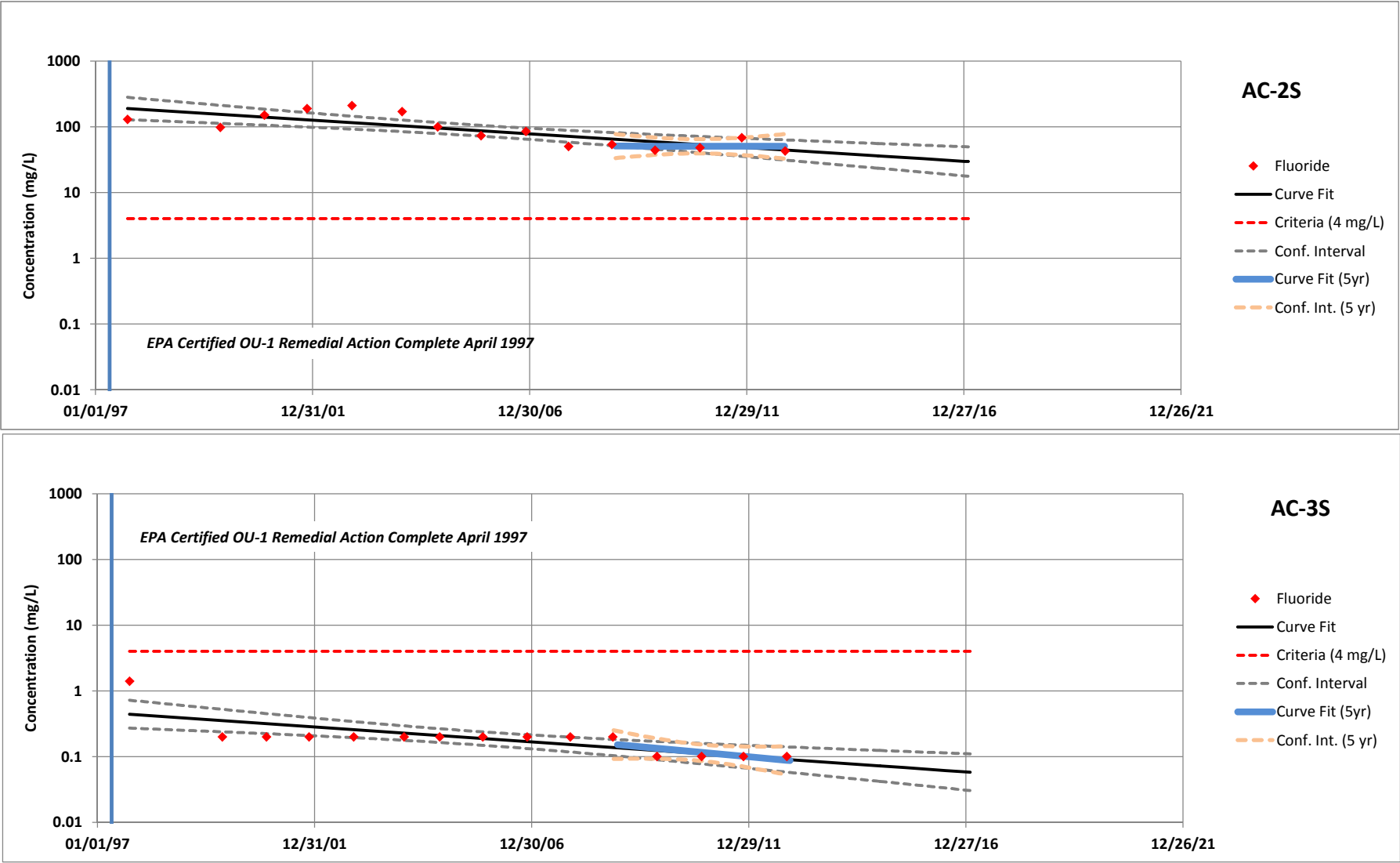


Figure 10

Chloride Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

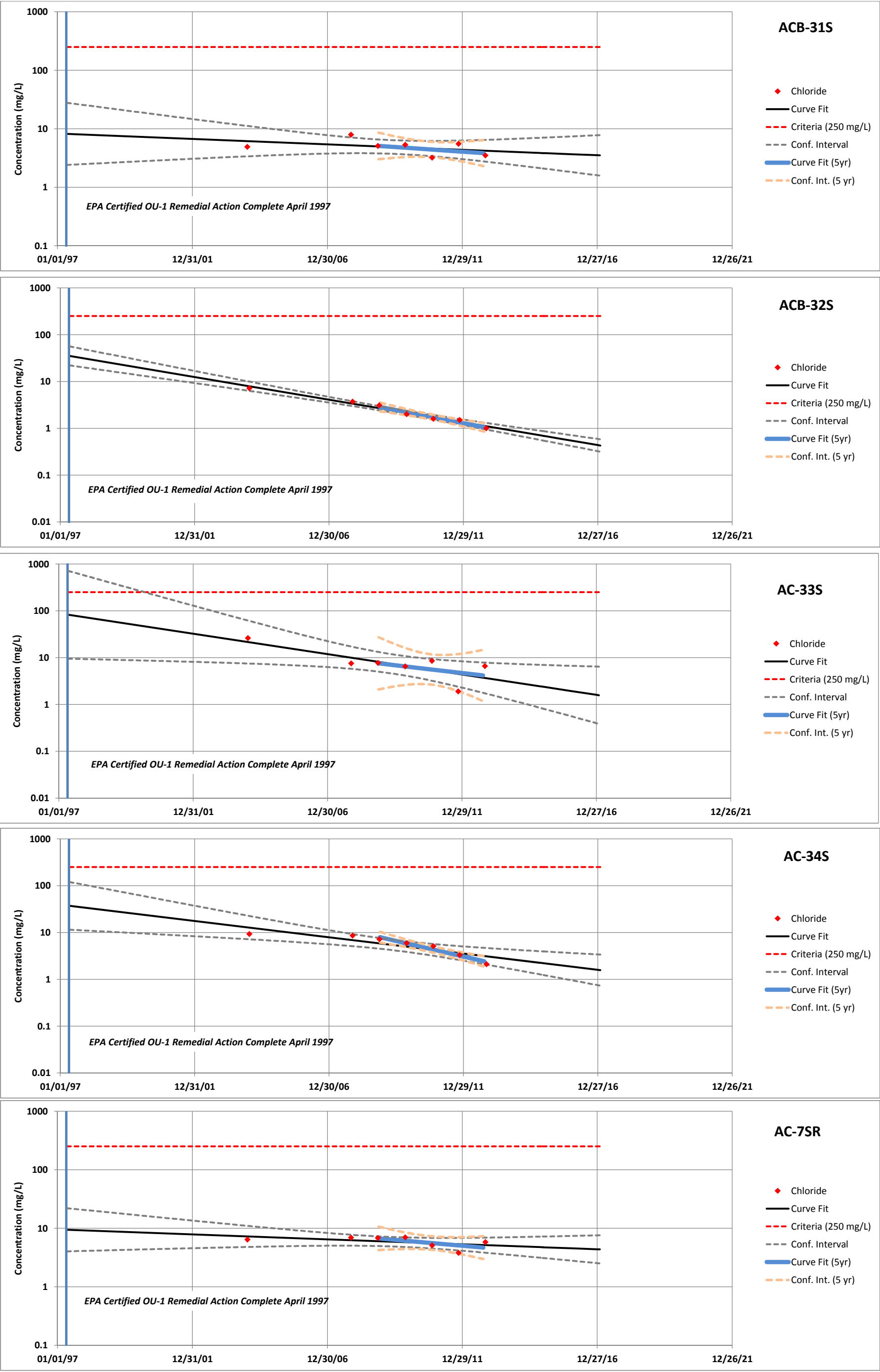


Figure 10 (Cont'd.)

Chloride Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

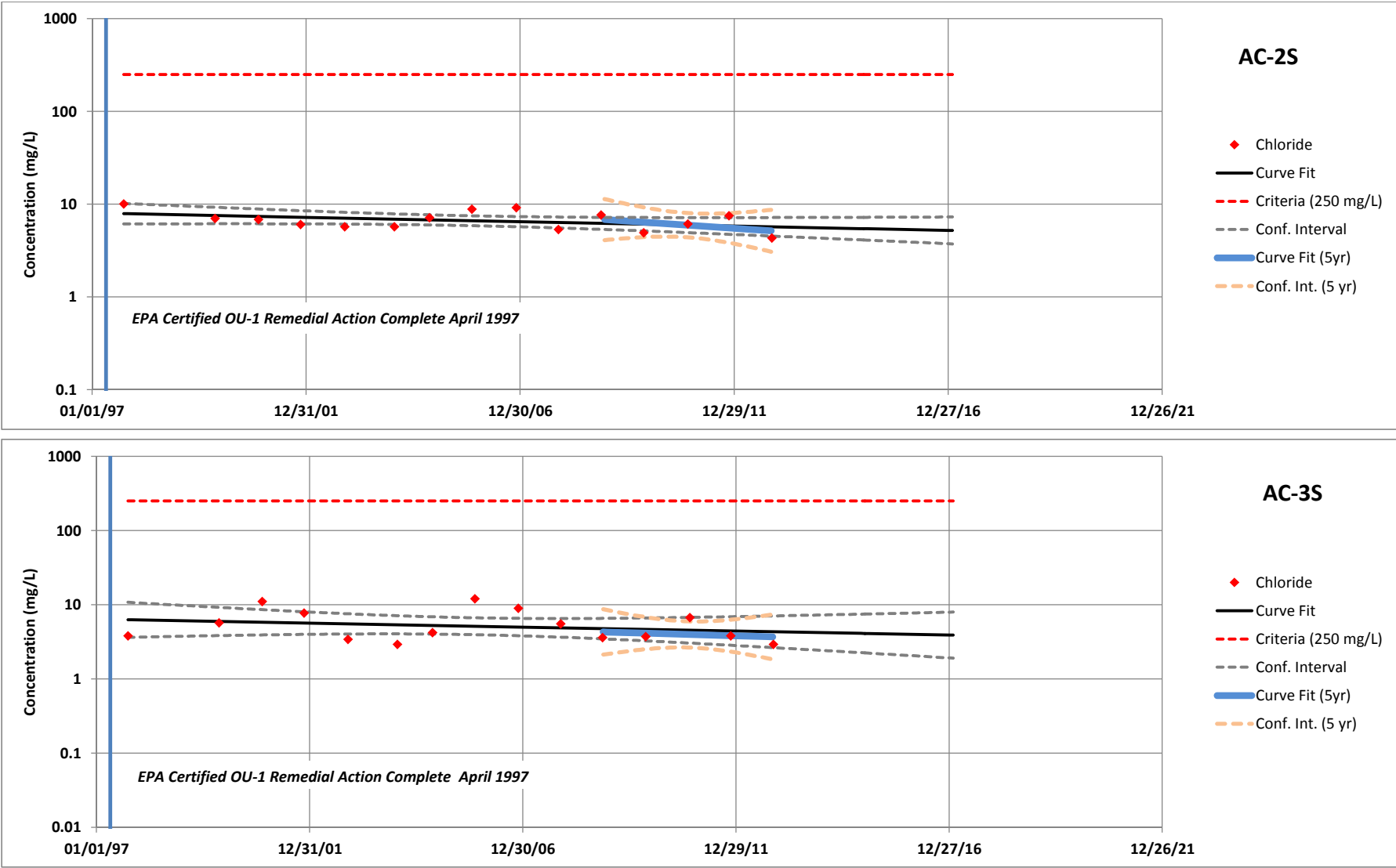


Figure 11

Sulfate Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

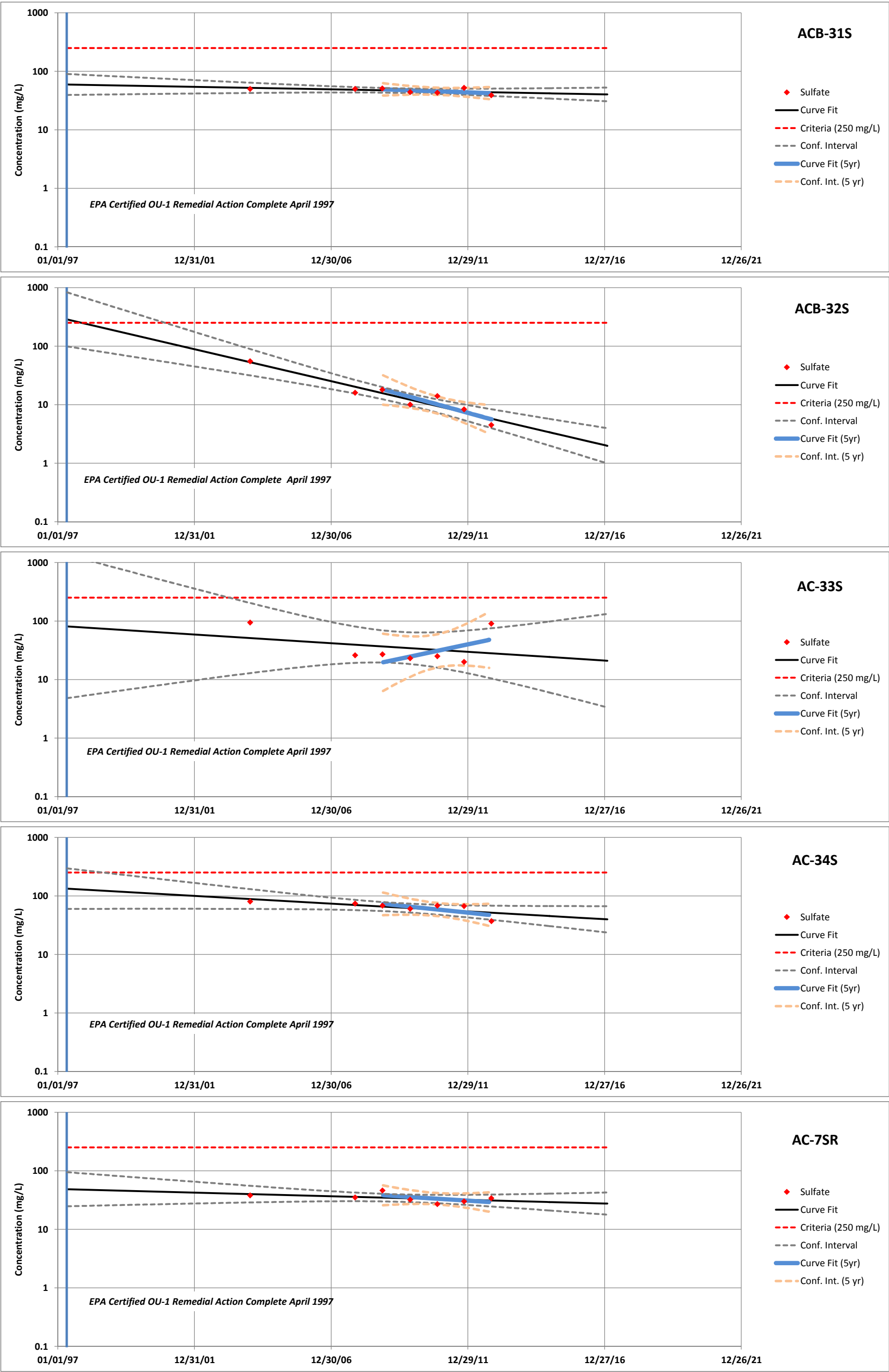


Figure 11 (Cont'd.)

Sulfate Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

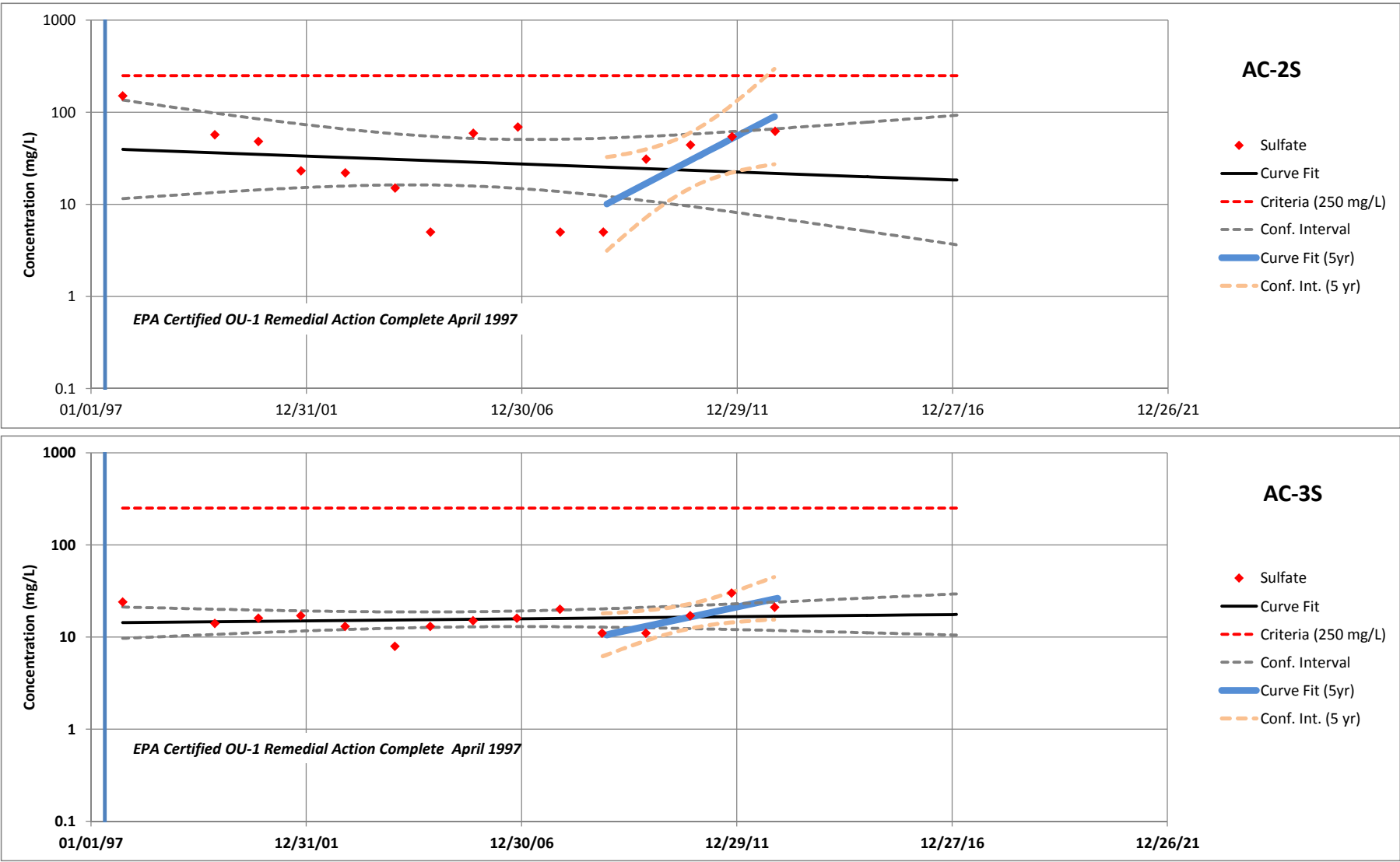


Figure 12

Nitrate-N Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

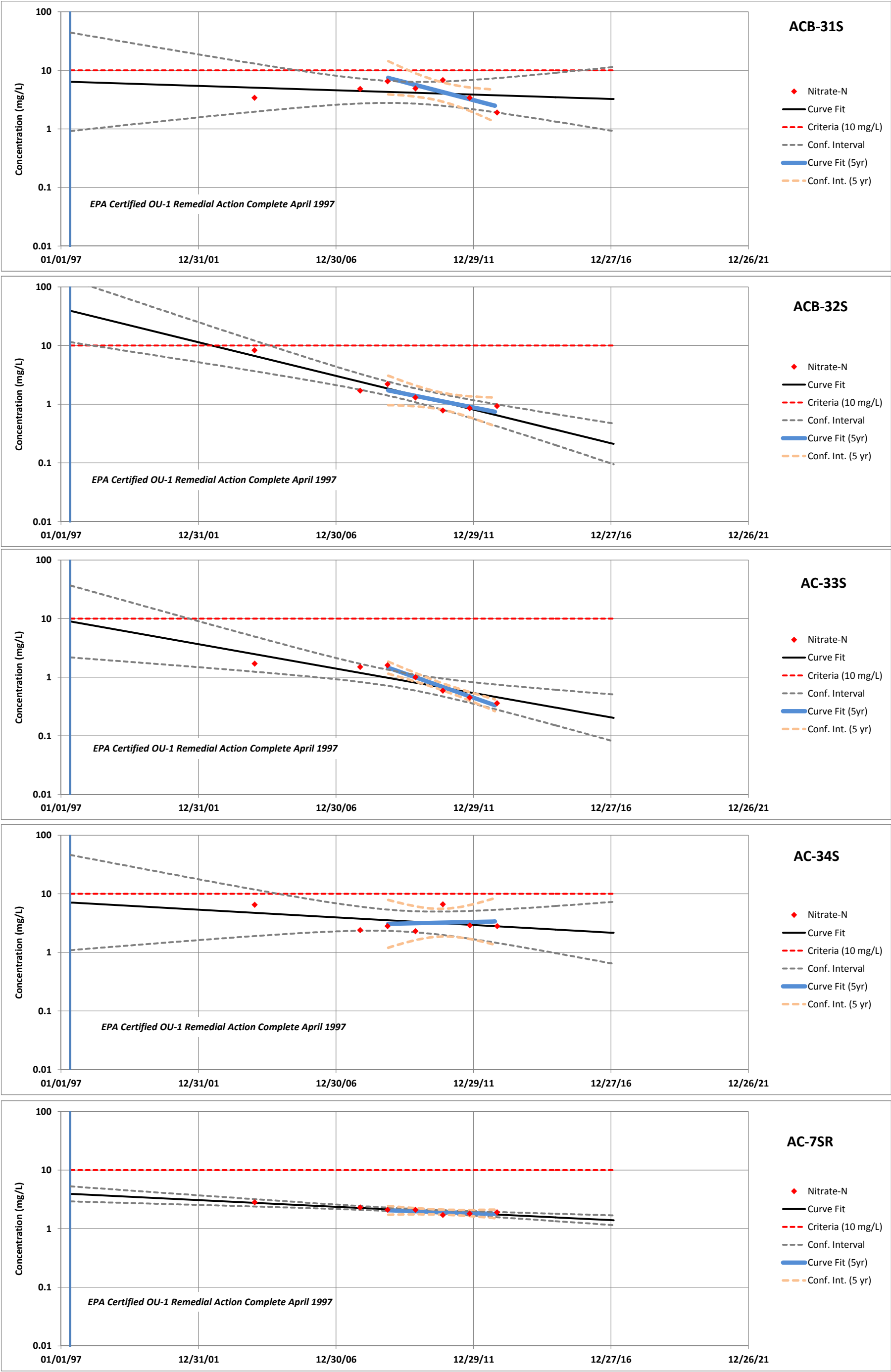


Figure 12 (Cont'd.)

Nitrate-N Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

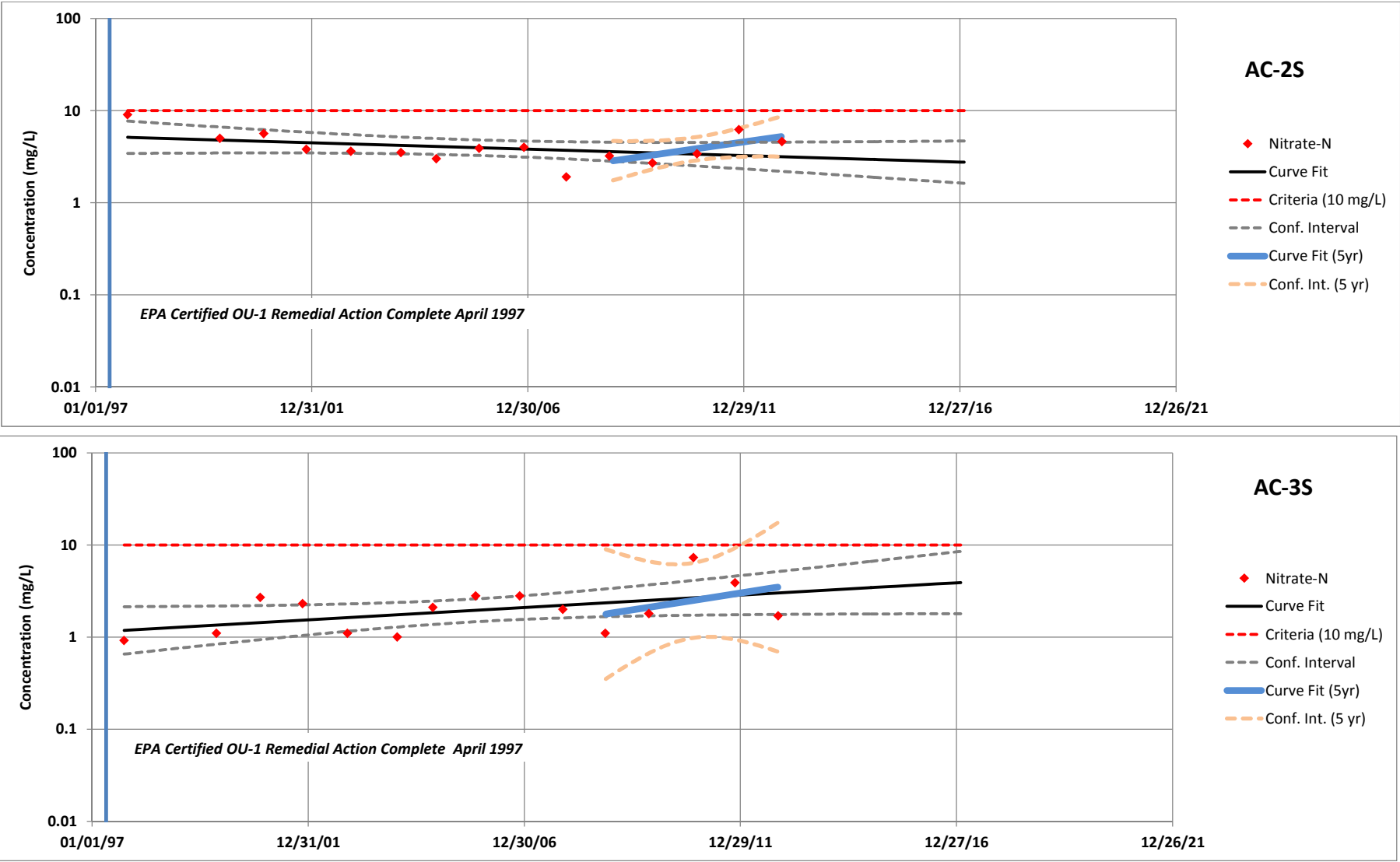


Figure 13

Combined Radium 226 + 228 Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

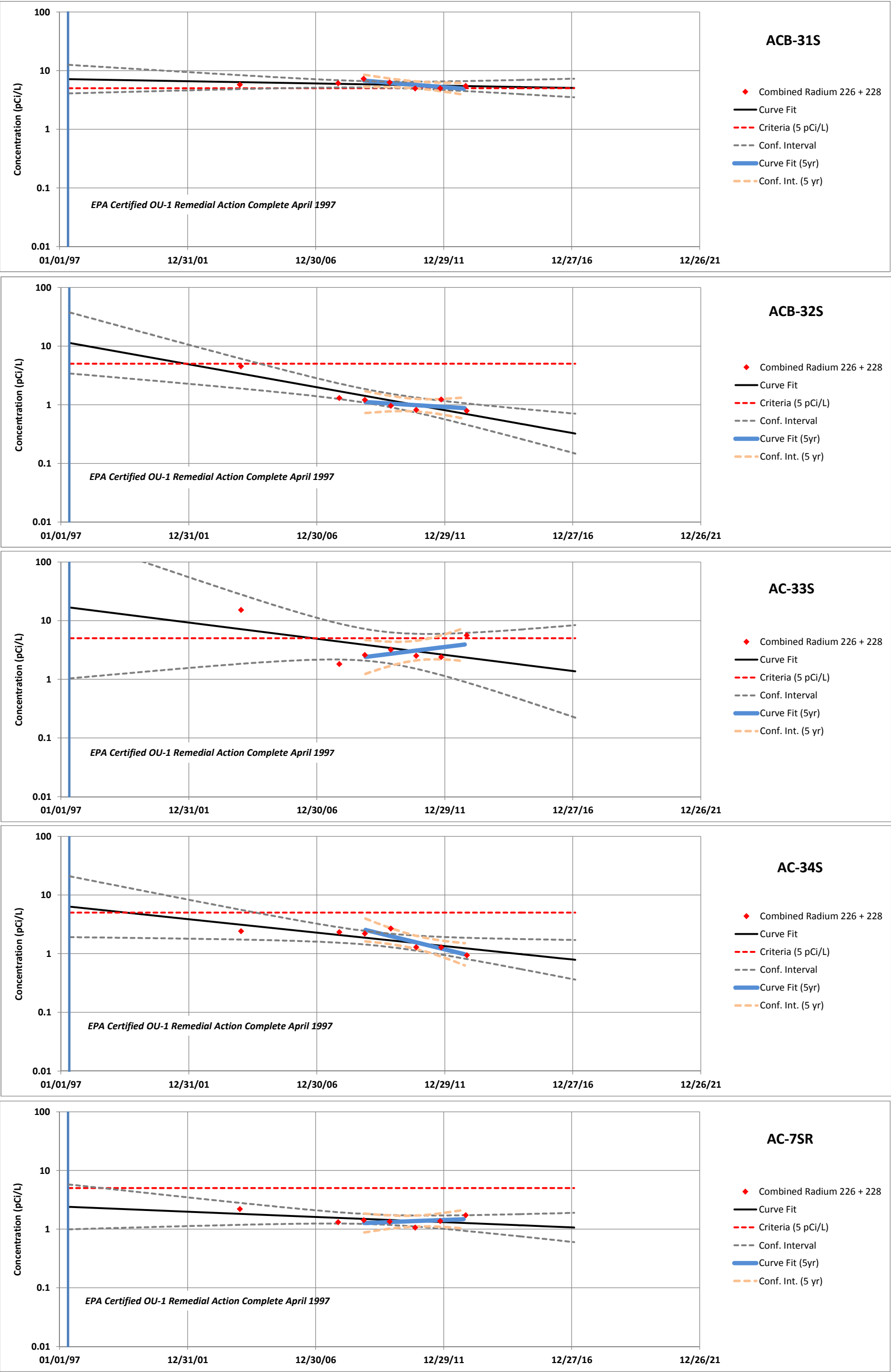
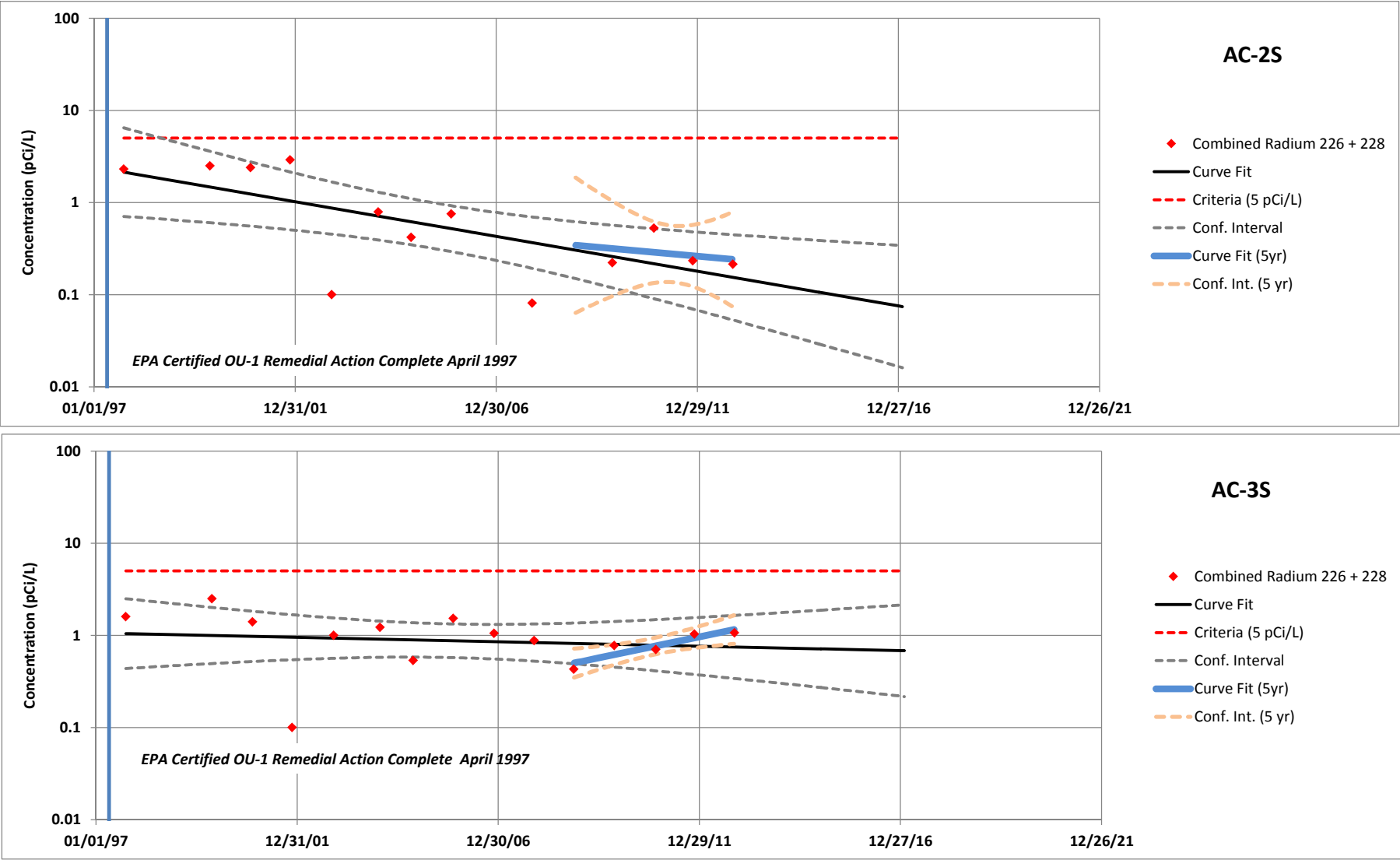
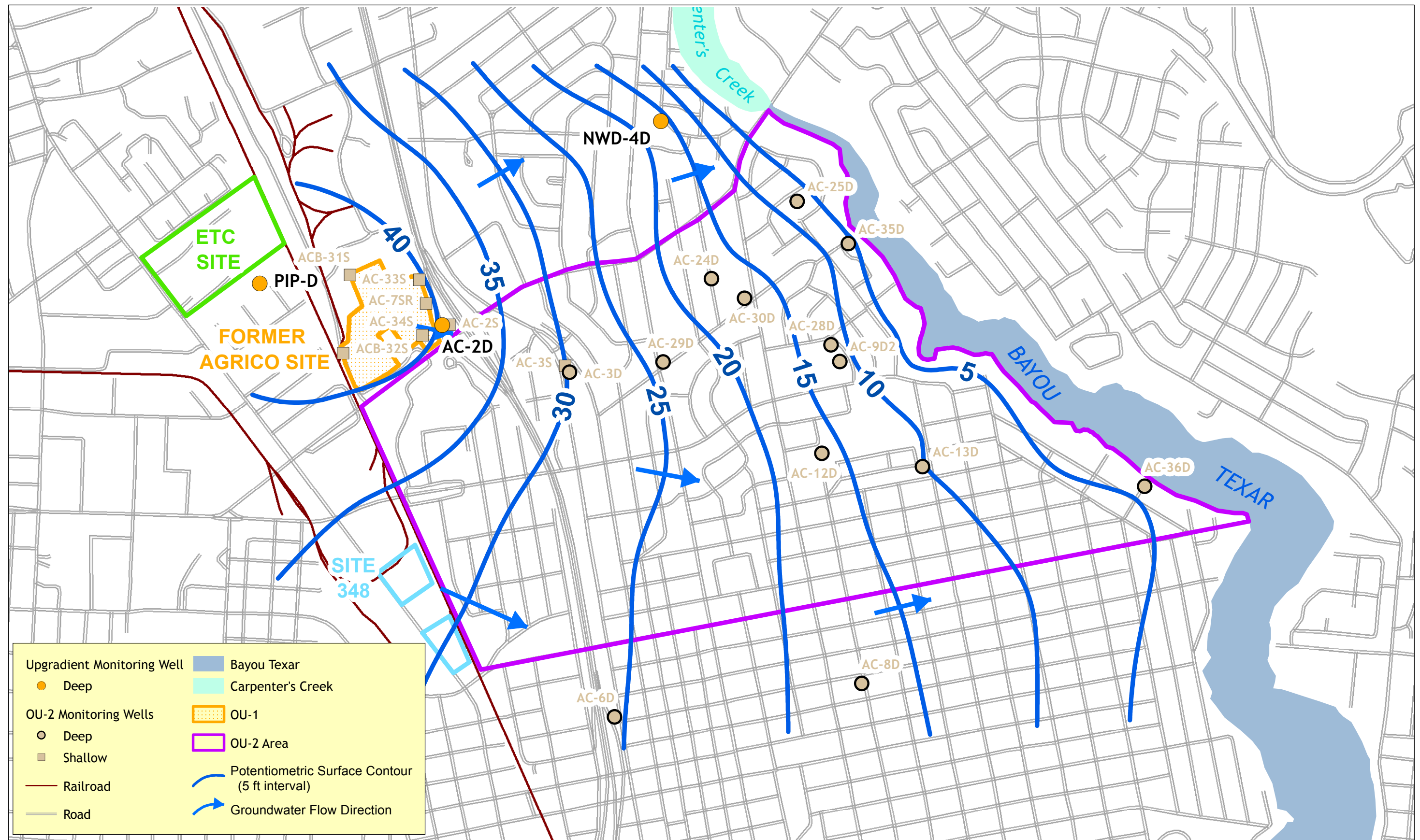


Figure 13 (Cont'd.)

Combined Radium 226 + 228 Trend Plots for Surficial Zone Monitoring Wells, OU-1 Area

Agrico Site
Pensacola, Florida

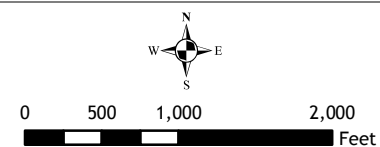




**OU-1 and OU-2
AGRICO SITE
PENSACOLA, FLORIDA**



Base Map Data Provided By:
Florida Department of Environmental Protection
and Northwest Florida Water Management District
Aerial Source: Bing Image Server



**TREND PLOT LOCATIONS
MAIN PRODUCING ZONE
UPGRADIENT AREA**

**FIGURE
14**

Figure 15

Fluoride Trend Plots for Main Producing Zone Monitoring Wells in Upgradient Area

Agrico Site
Pensacola, Florida

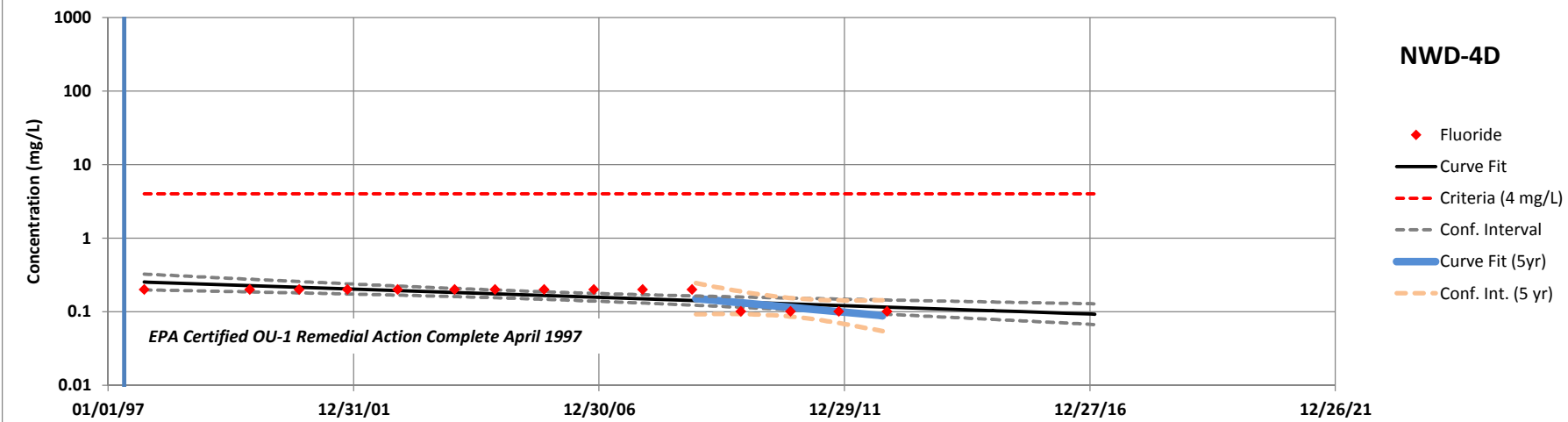
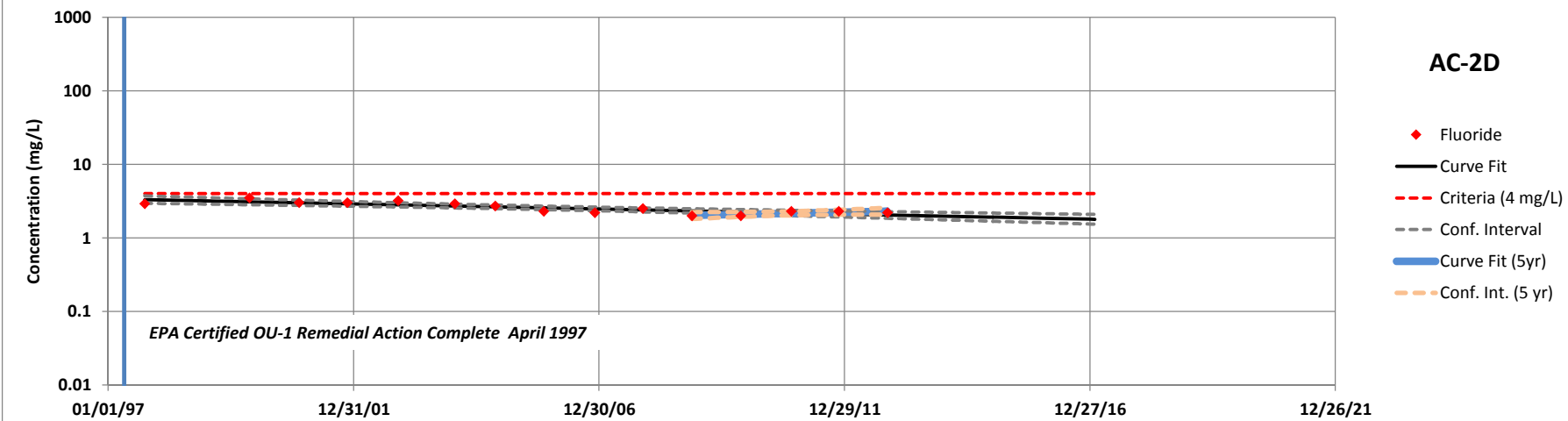
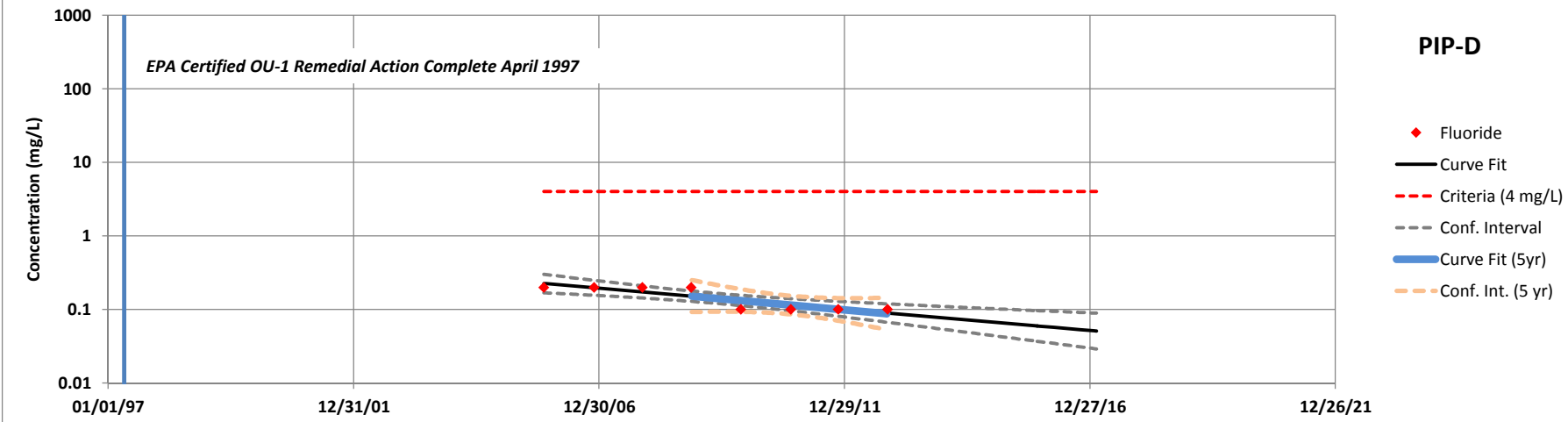


Figure 16

Chloride Trend Plots for Main Producing Zone Monitoring Wells in Upgradient Area

Agrico Site
Pensacola, Florida

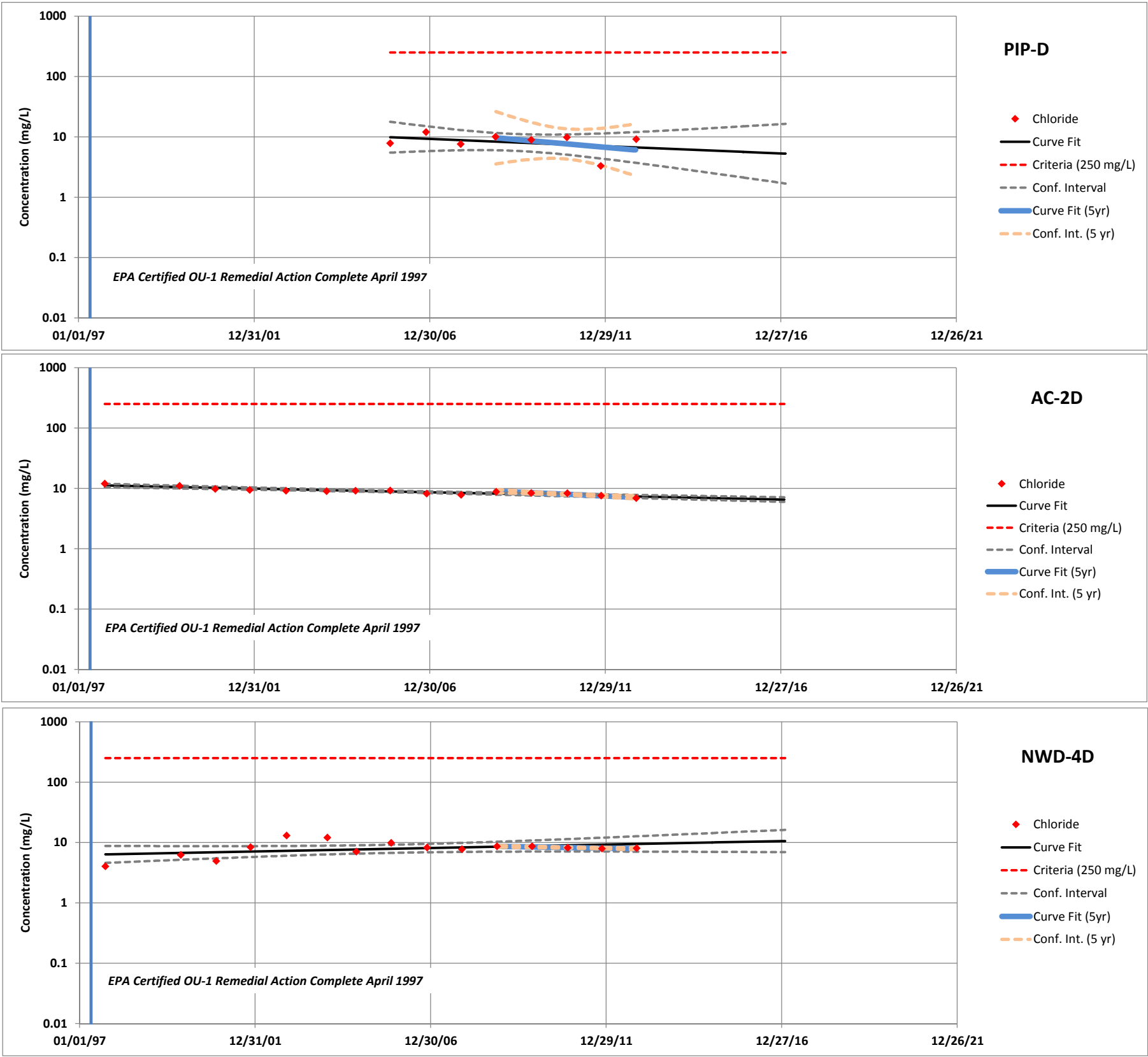


Figure 17

Sulfate Trend Plots for Main Producing Zone Monitoring Wells in Upgradient Area

Agrico Site
Pensacola, Florida

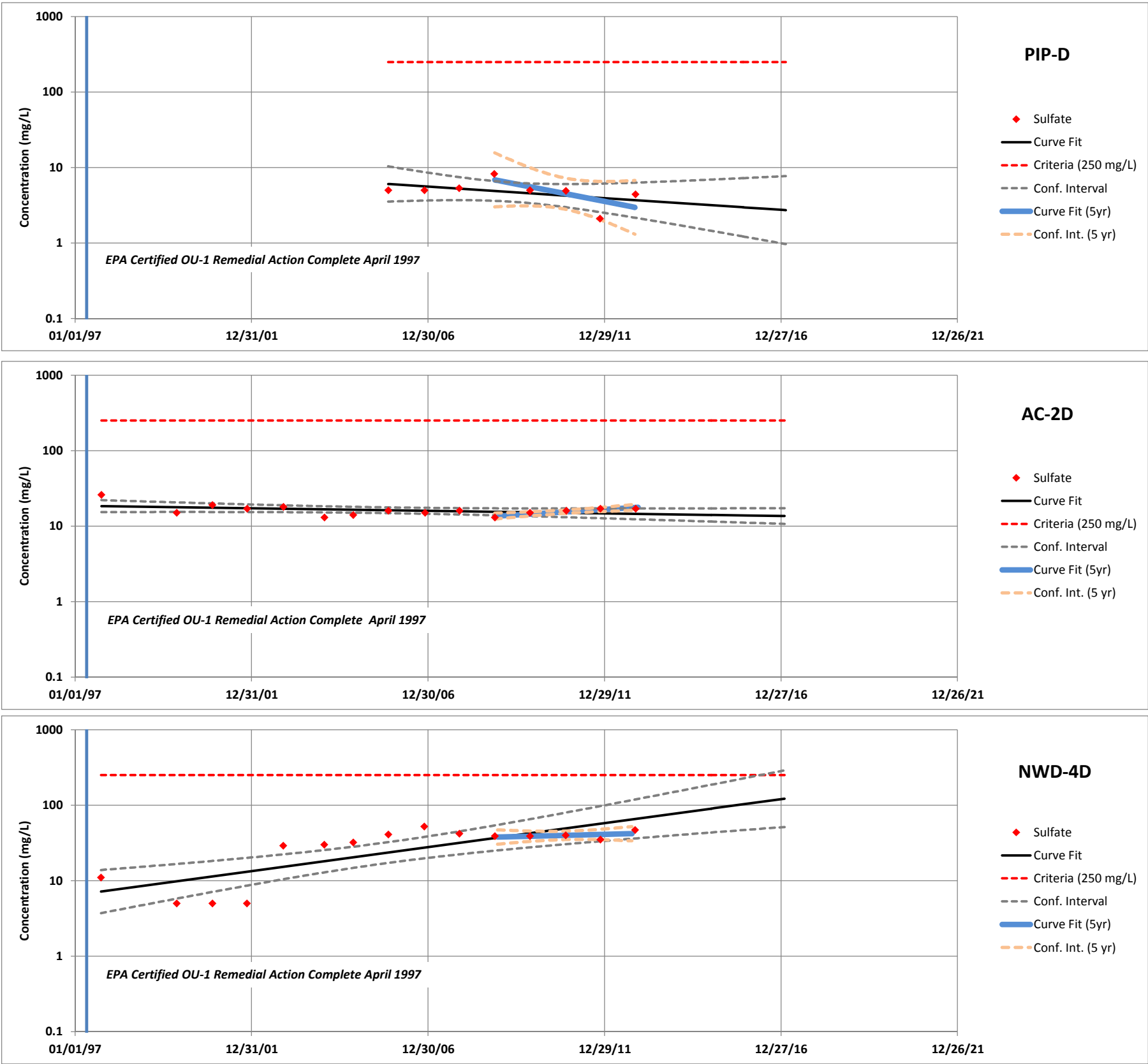


Figure 18

Nitrate-N Trend Plots for Main Producing Zone Monitoring Wells in Upgradient Area

Agrico Site
Pensacola, Florida

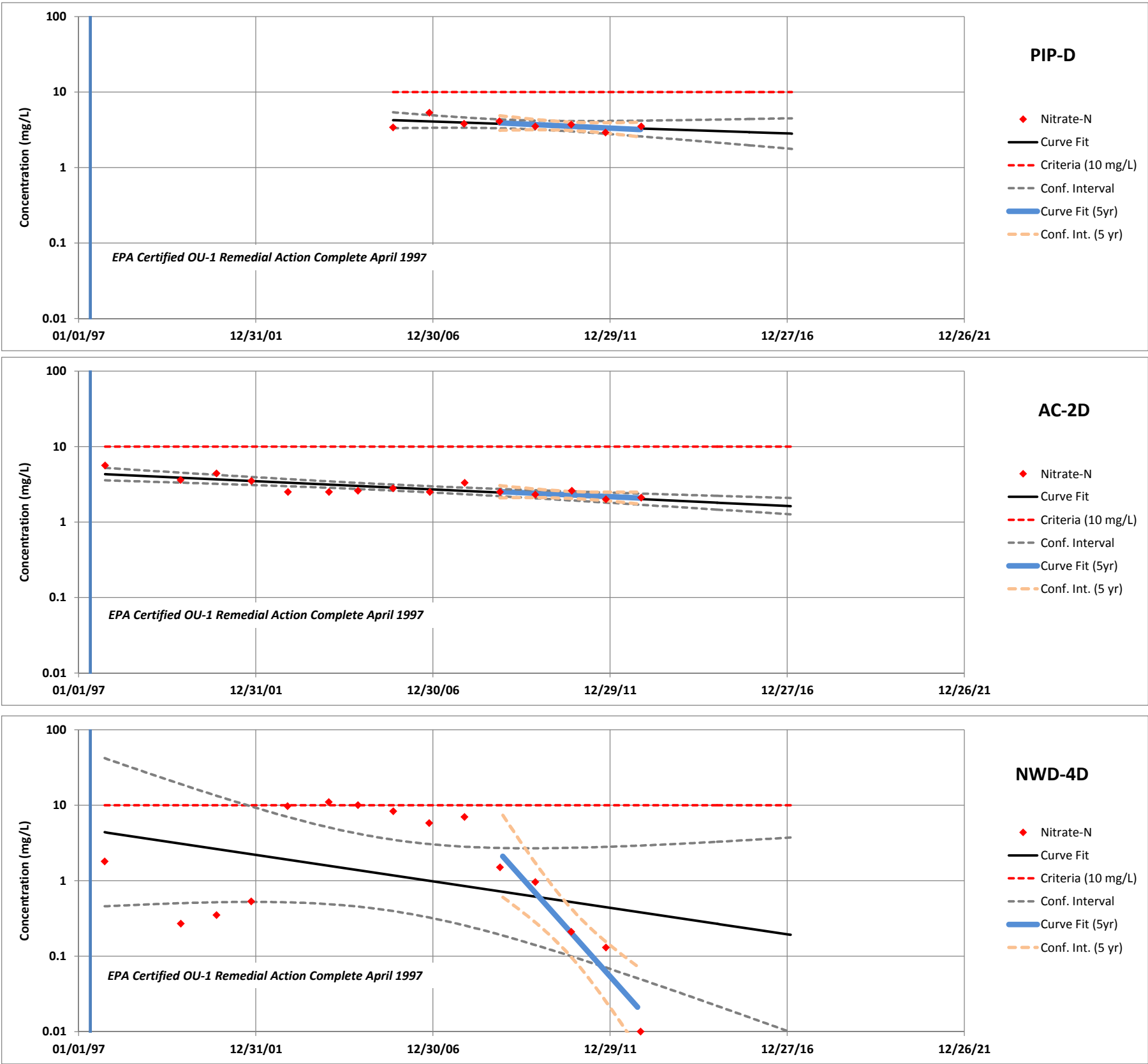
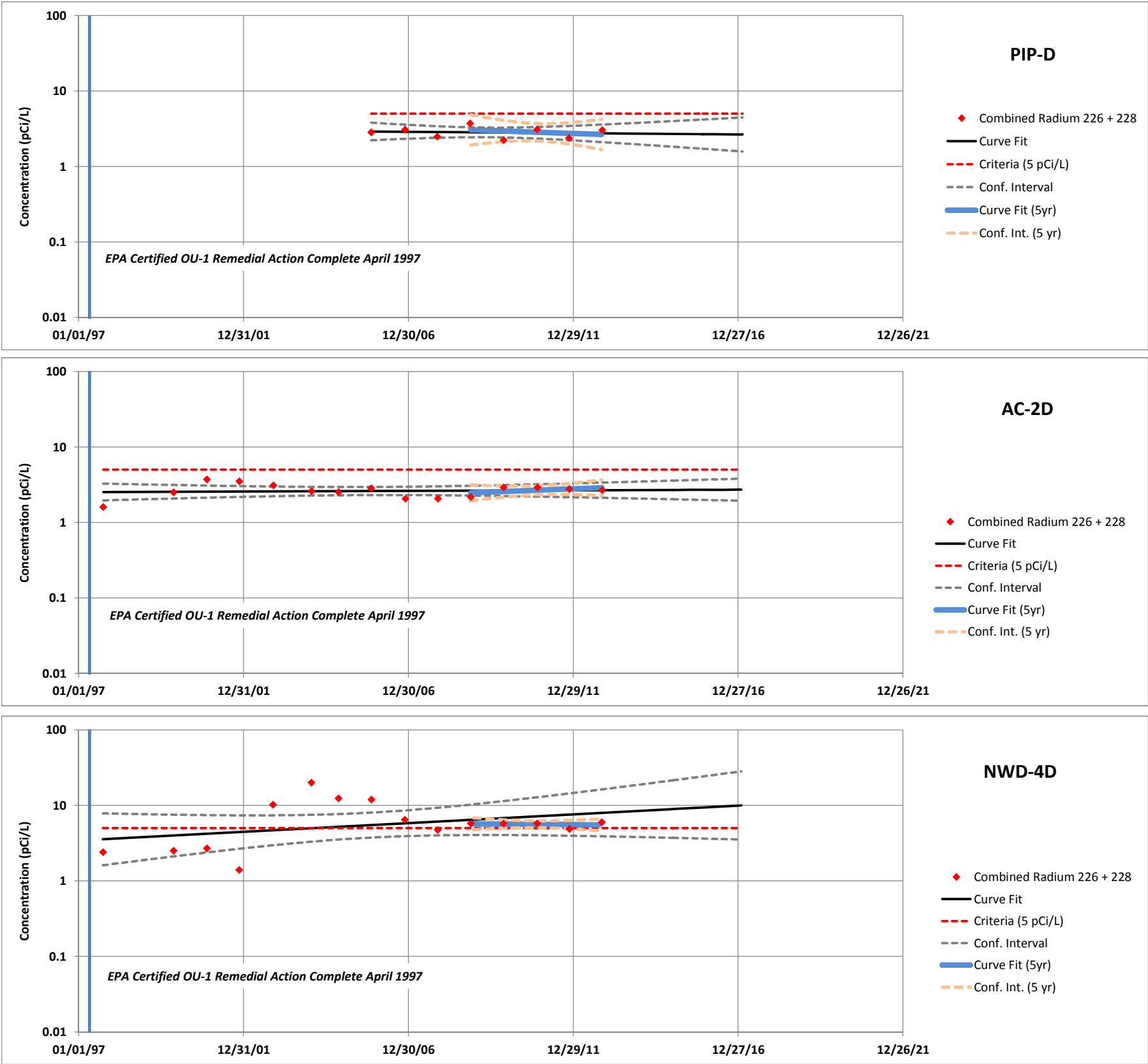
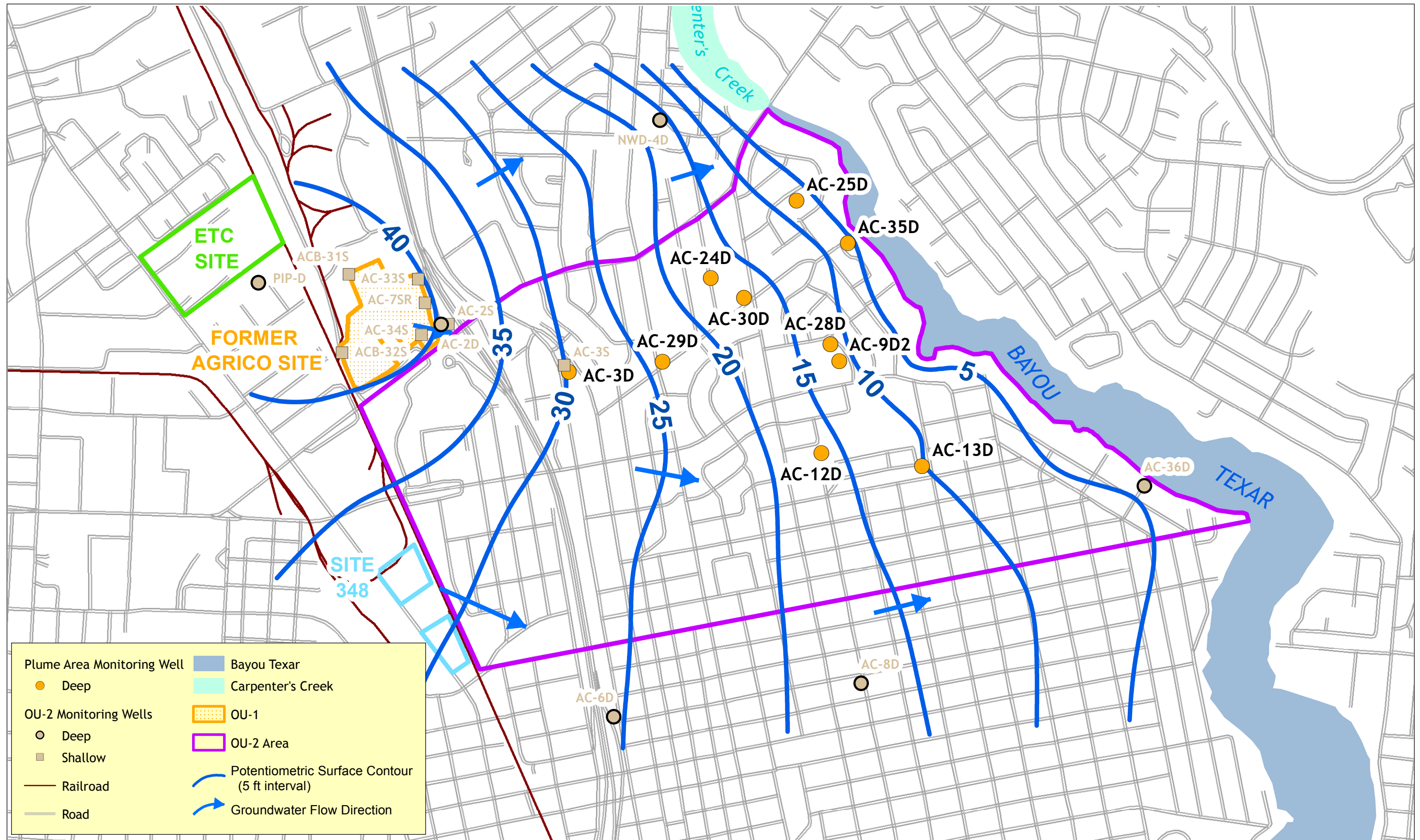


Figure 19

Combined Radium 226 + 228 Trend Plots for Main Producing Zone Monitoring Wells in Upgradient Area

Agrico Site
Pensacola, Florida

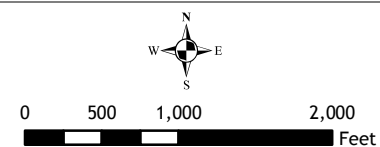




**OU-1 and OU-2
AGRICOLA SITE
PENSACOLA, FLORIDA**



Base Map Data Provided By:
Florida Department of Environmental Protection
and Northwest Florida Water Management District
Aerial Source: Bing Image Server



**TREND PLOT LOCATIONS
MAIN PRODUCING ZONE
PLUME AREA**

**FIGURE
20**

Figure 21

Fluoride Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

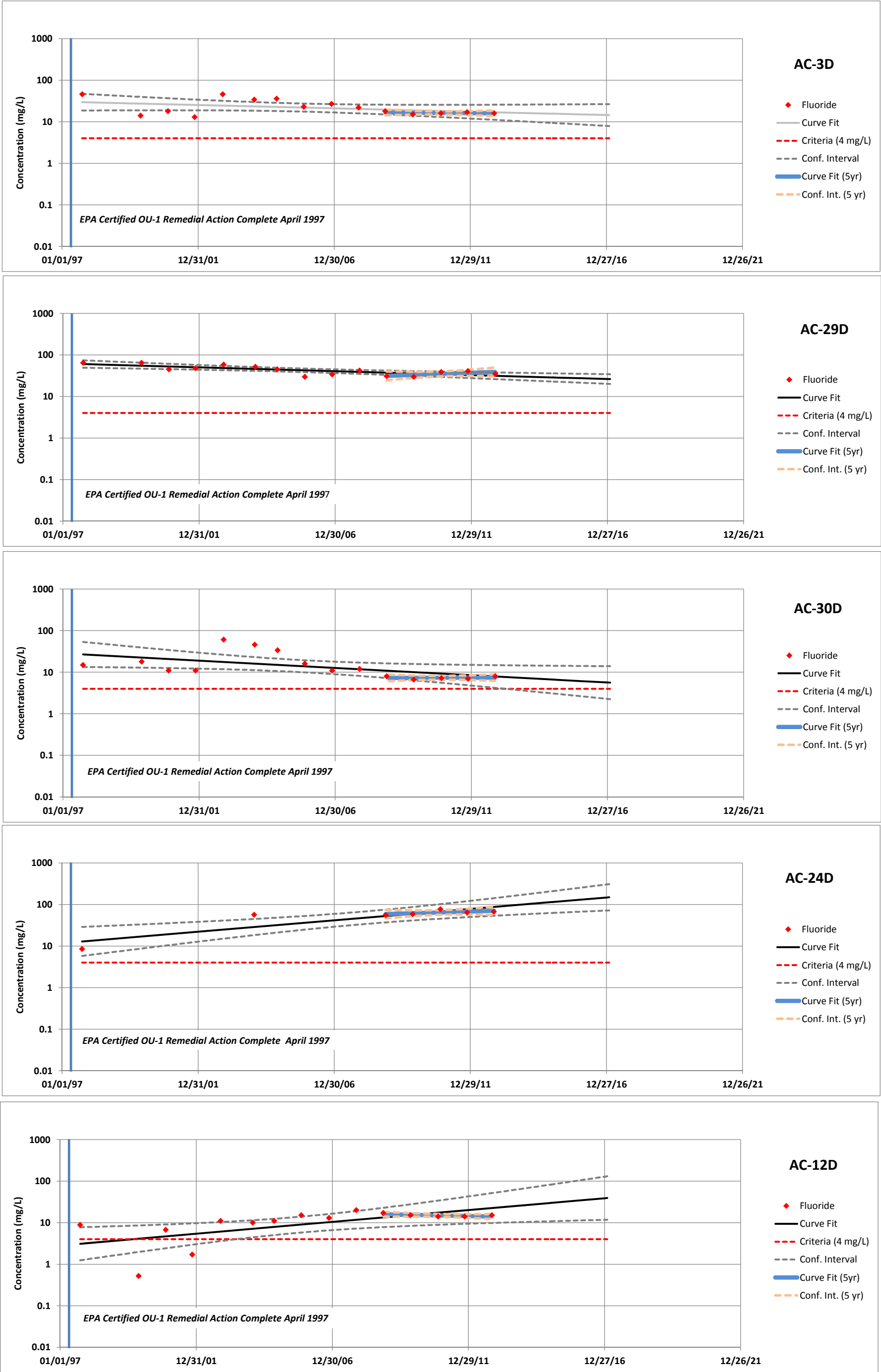


Figure 21 (Cont'd.)

Fluoride Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

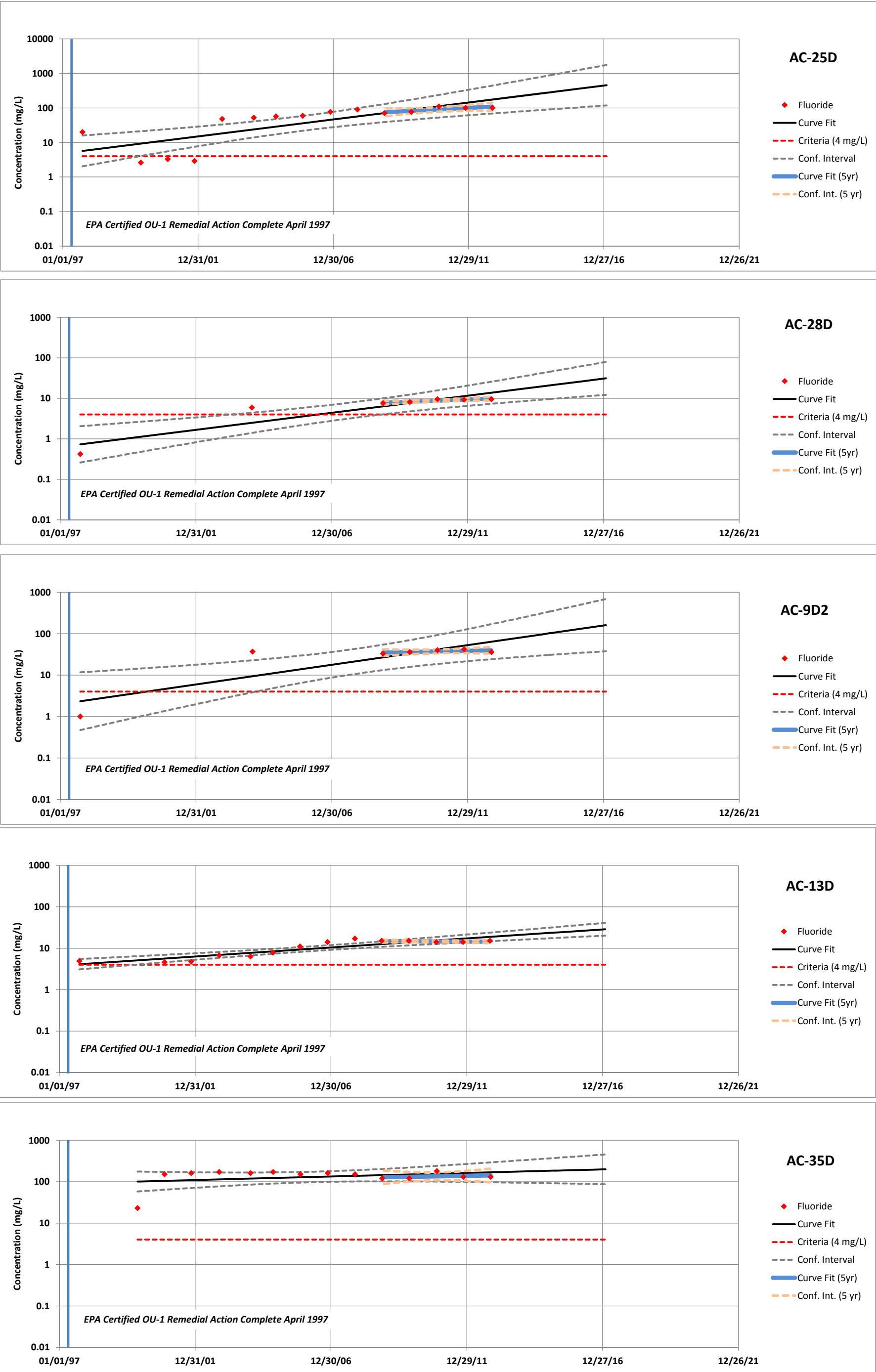


Figure 22

Chloride Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

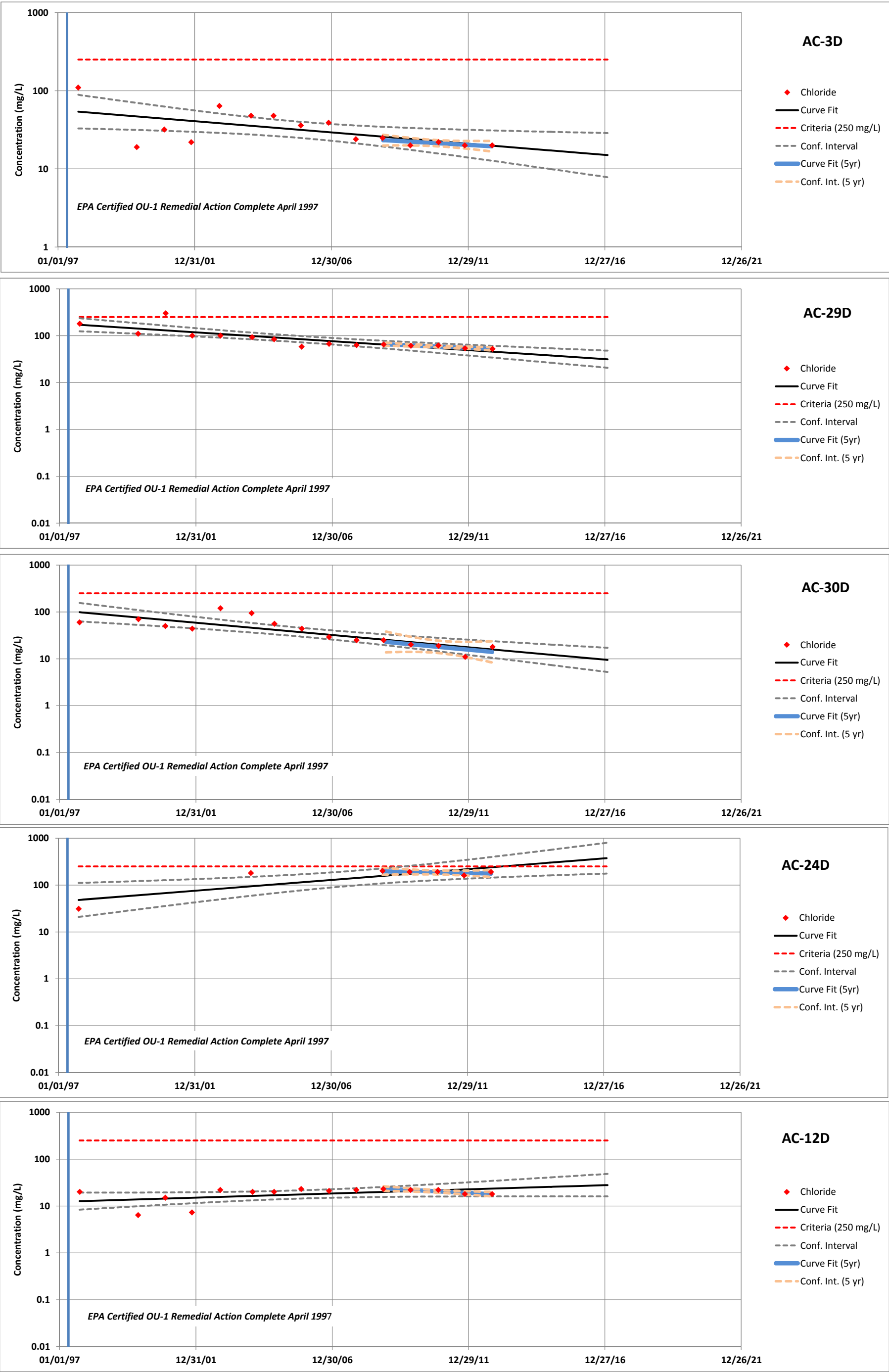


Figure 22 (Cont'd.)

Chloride Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

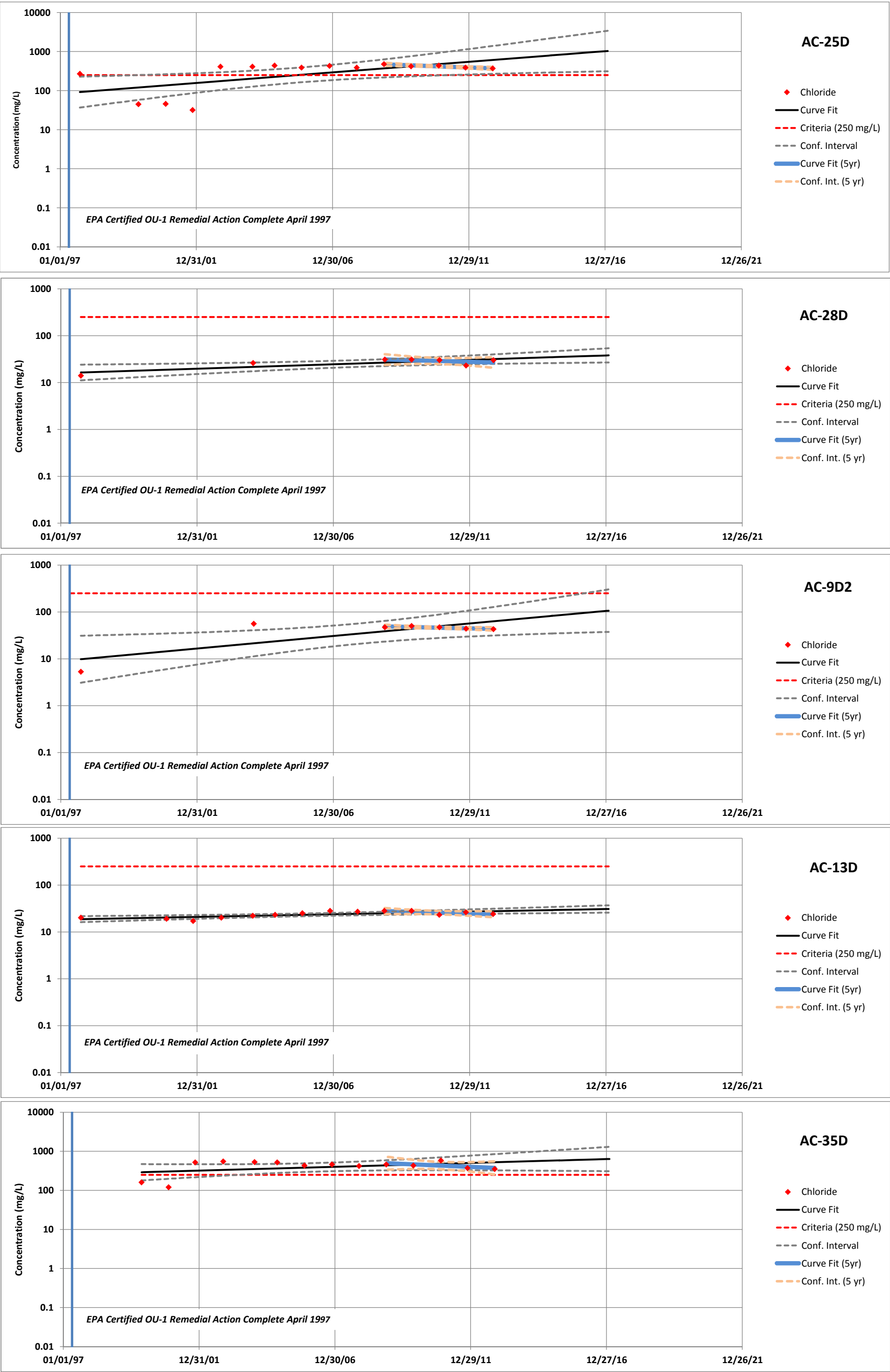


Figure 23

Sulfate Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

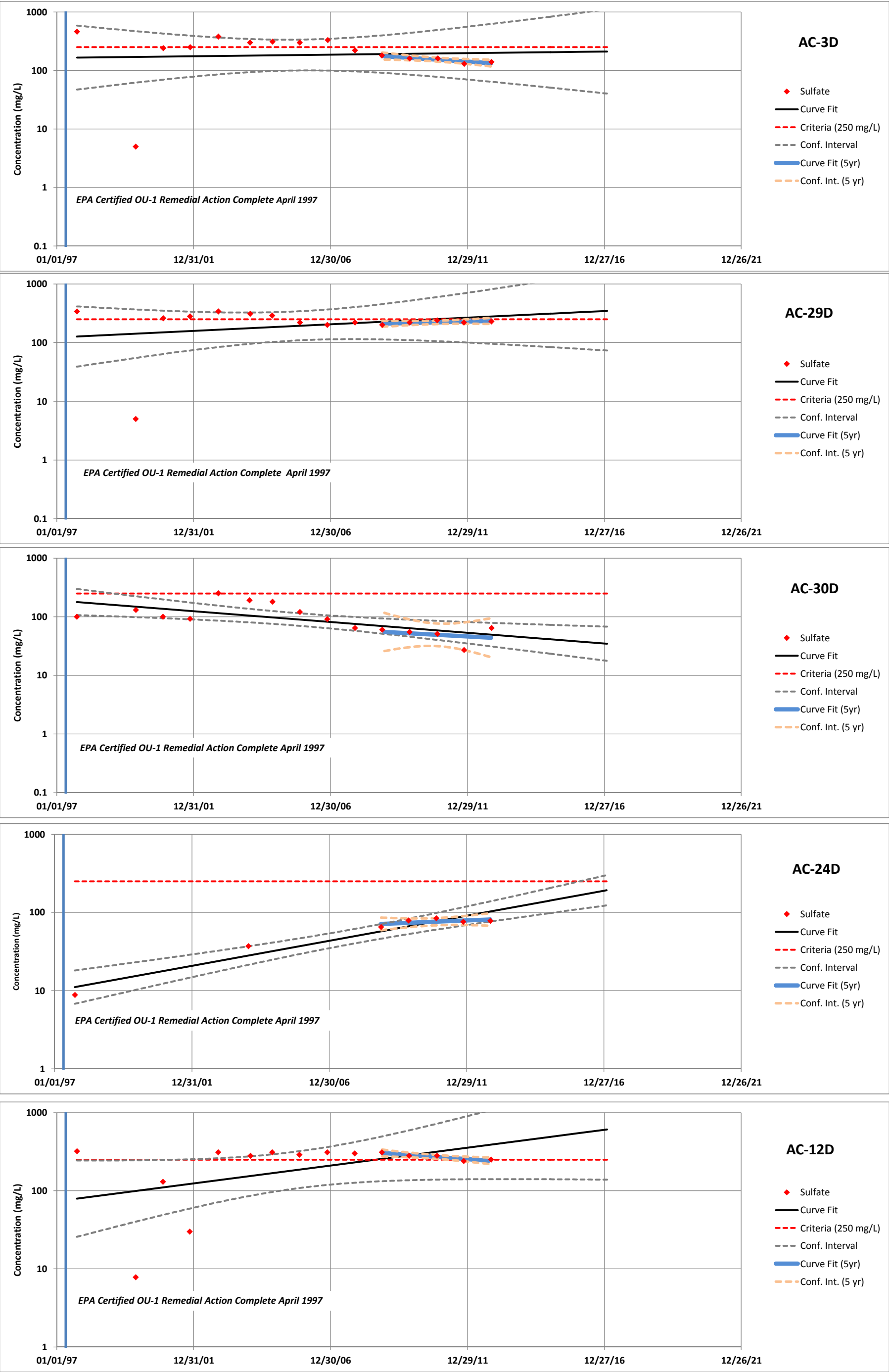


Figure 23 (Cont'd.)

Sulfate Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

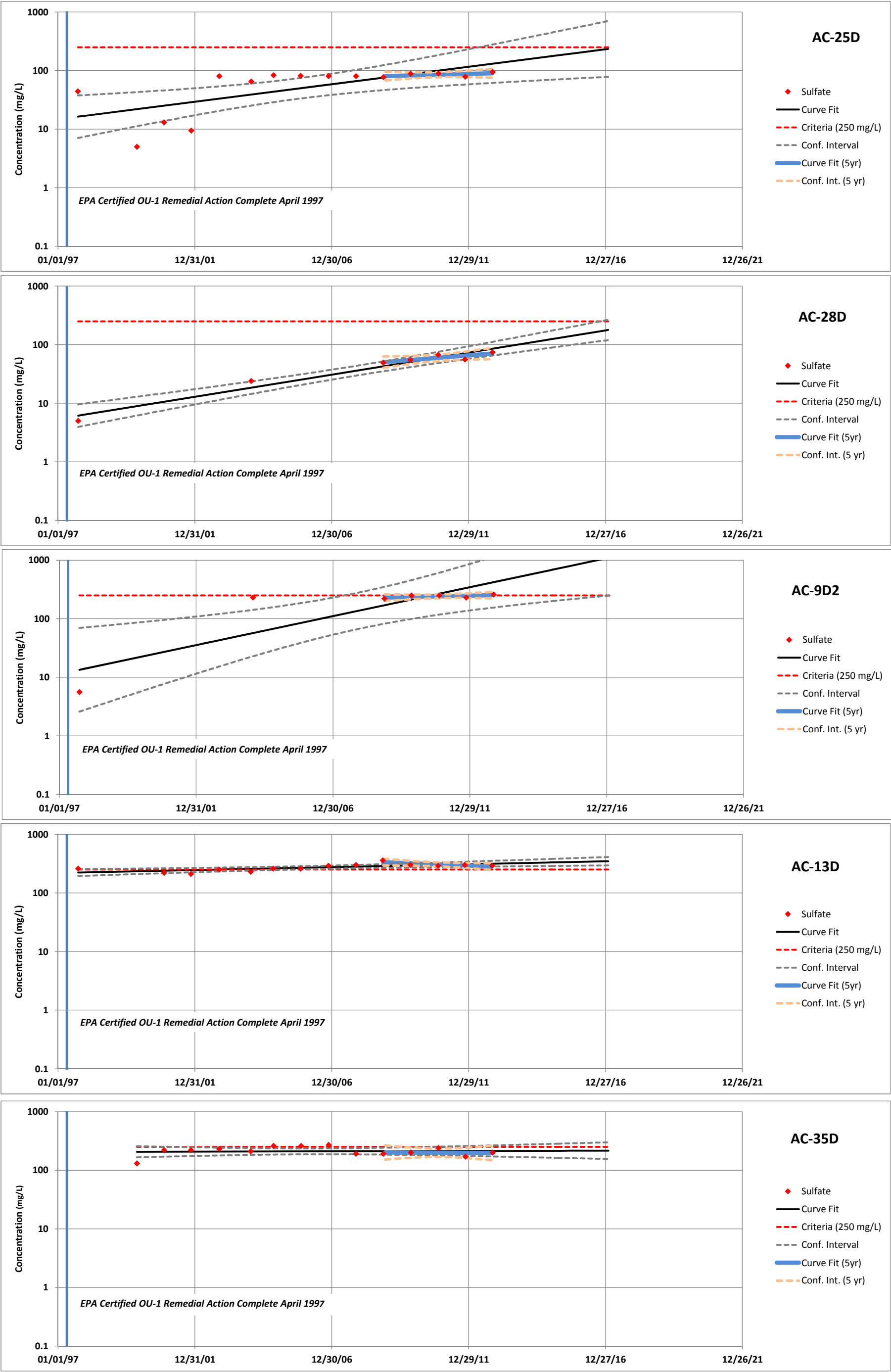


Figure 24

Nitrate-N Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

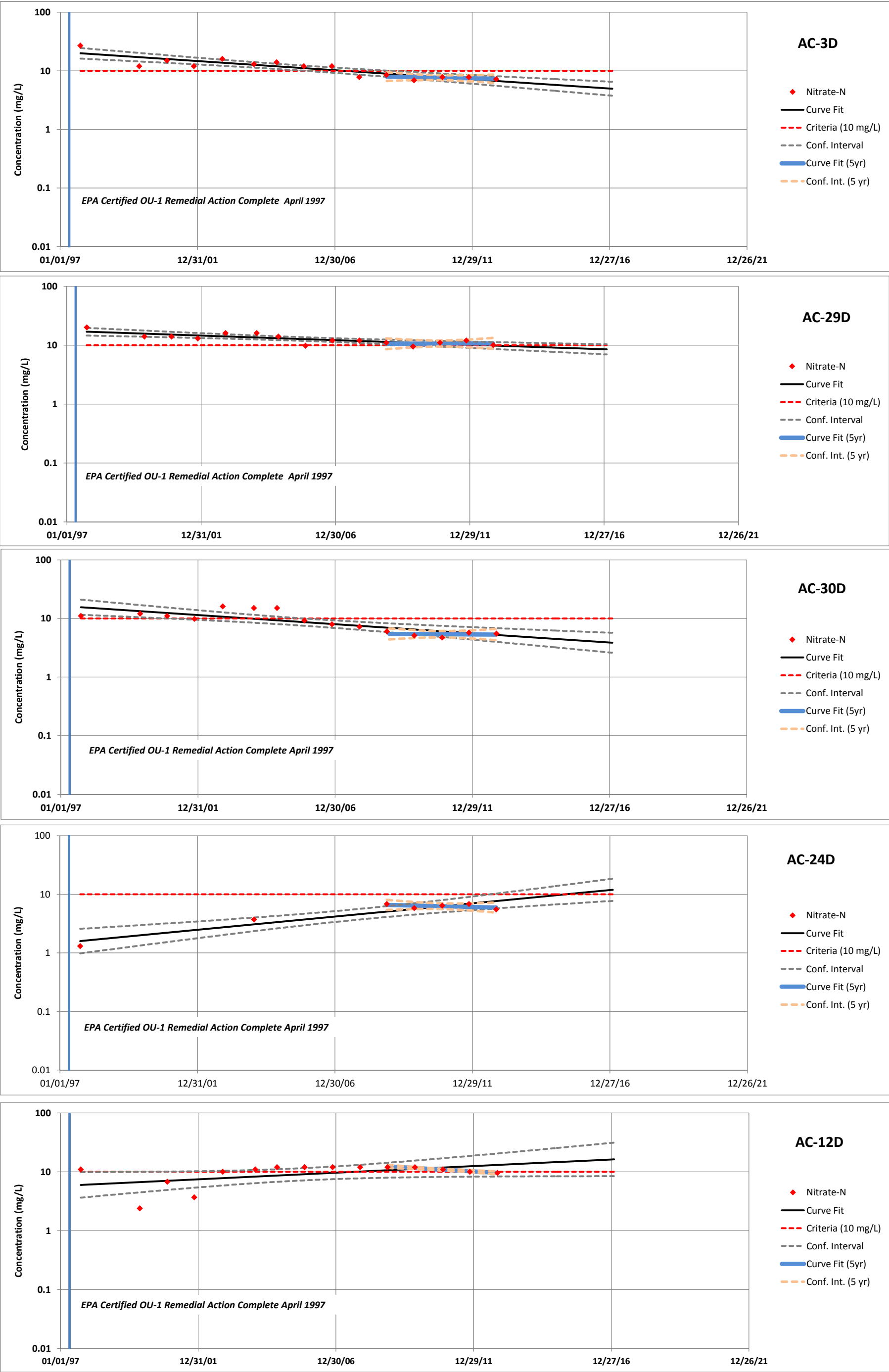


Figure 24 (Cont'd.)

Nitrate-N Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

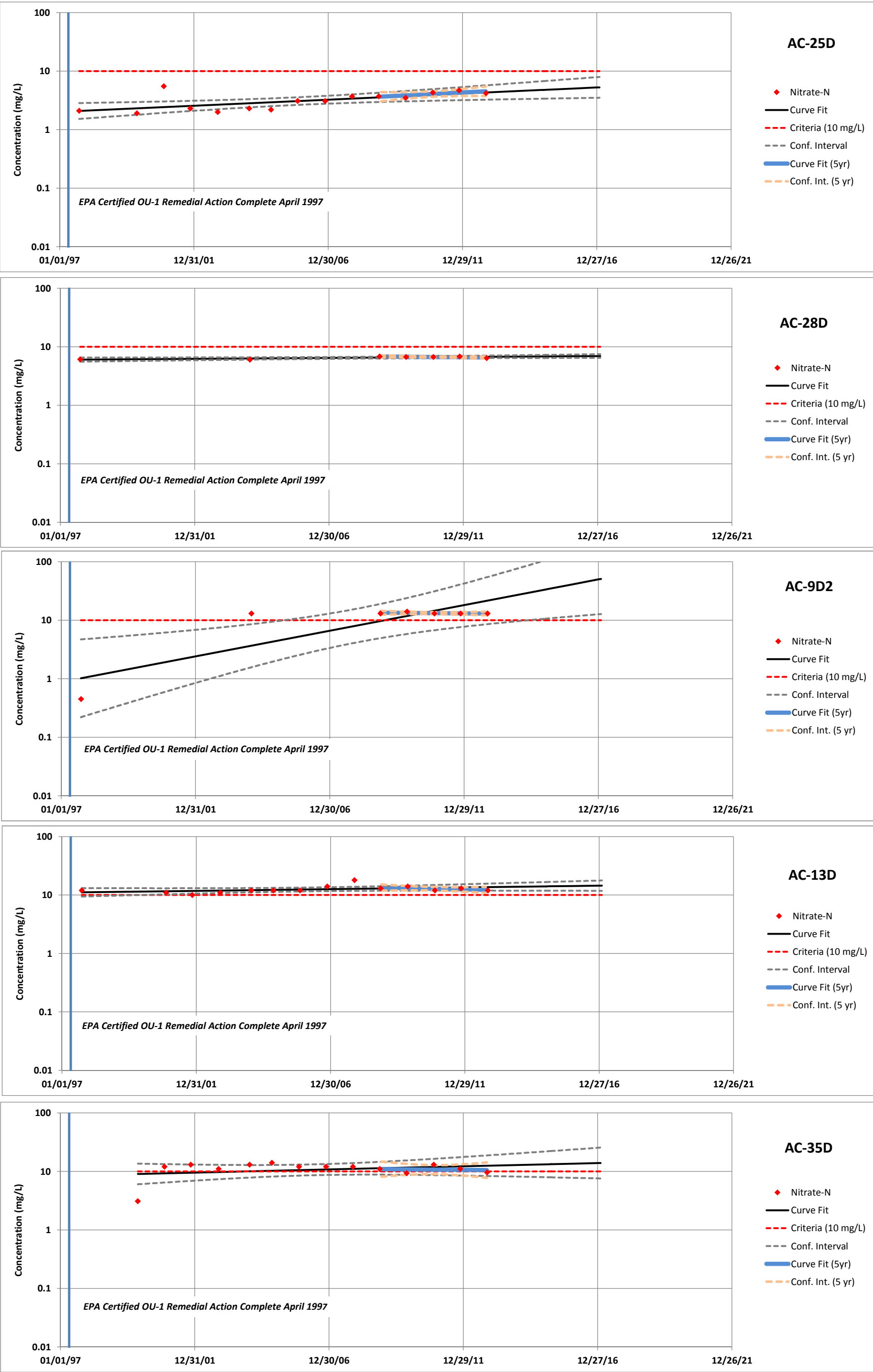


Figure 25

Combined Radium 226+228 Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

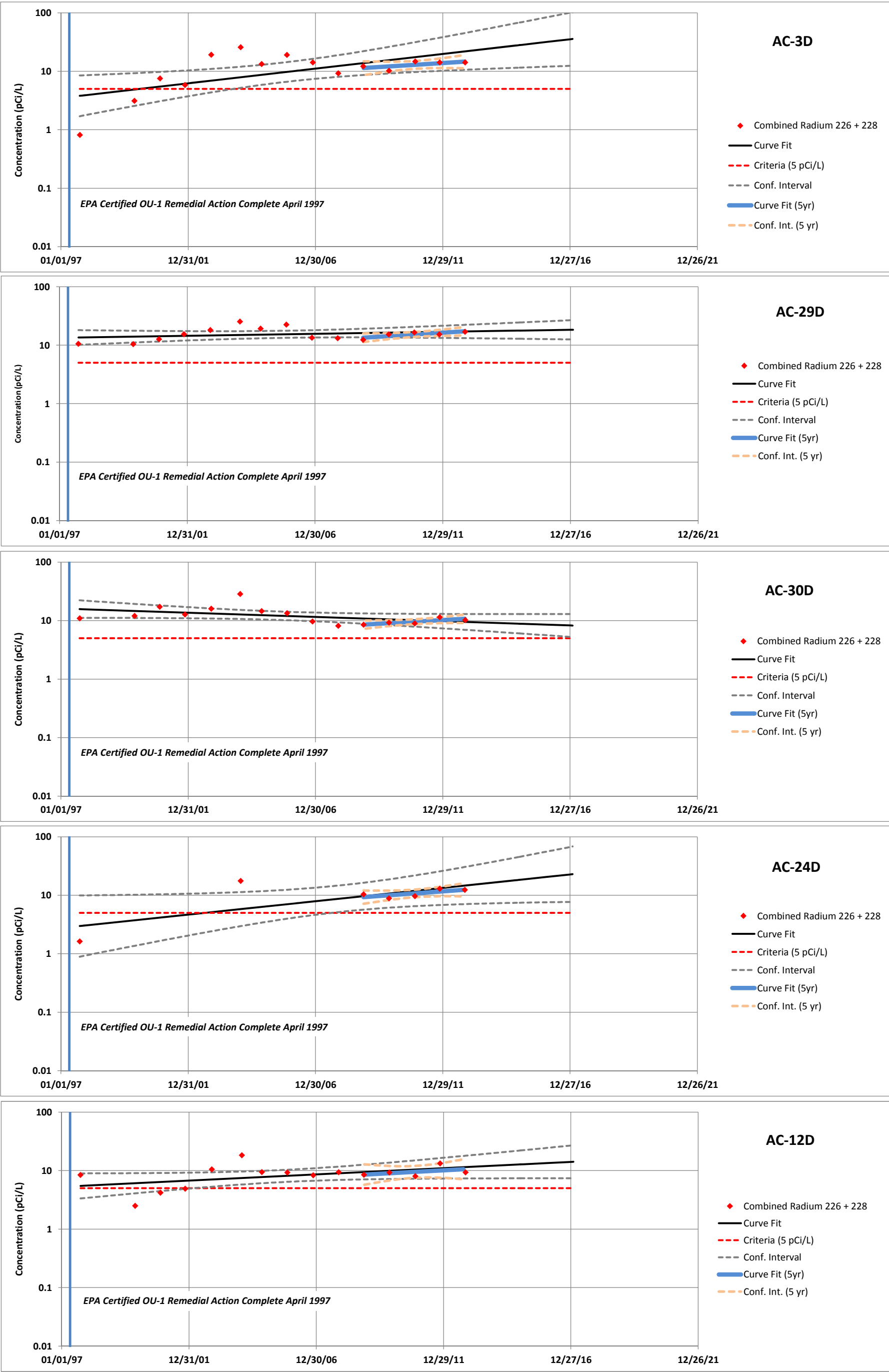
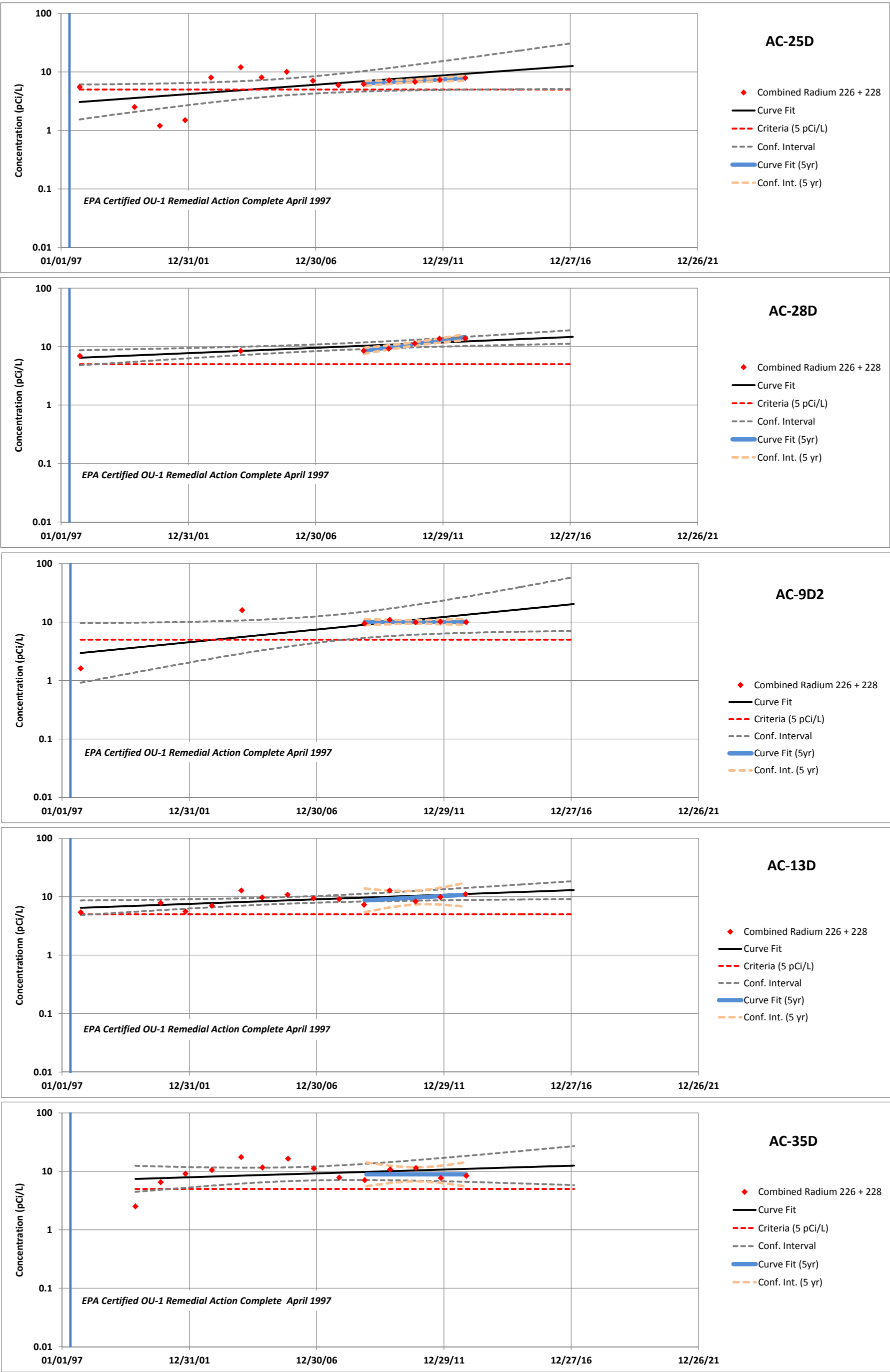
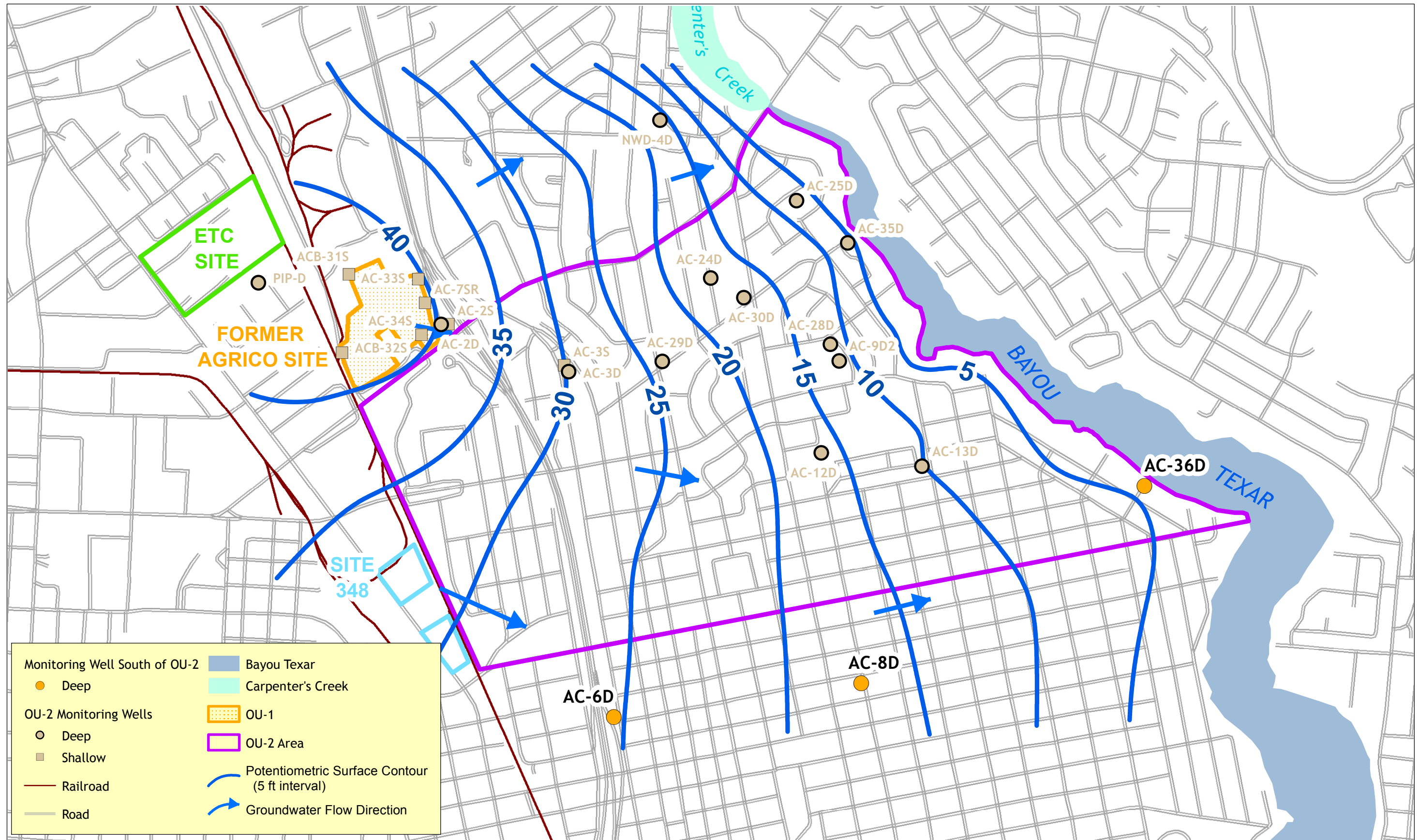


Figure 25 (Cont'd.)

Combined Radium 226+228 Trend Plots for Main Producing Zone Monitoring Wells Inside Plume Area

Agrico Site
Pensacola, Florida

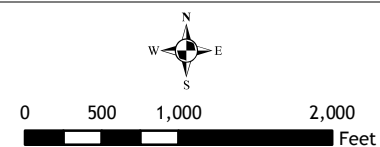




**OU-1 and OU-2
AGRICO SITE
PENSACOLA, FLORIDA**

URS

Base Map Data Provided By:
Florida Department of Environmental Protection
and Northwest Florida Water Management District
Aerial Source: Bing Image Server



**TREND PLOT LOCATIONS
MAIN PRODUCING ZONE
SOUTH OF OU-2 AREA**

**FIGURE
26**

Figure 27

Fluoride Trend Plots for Main Producing Zone Monitoring Wells South of Plume Area

Agrico Site
Pensacola, Florida

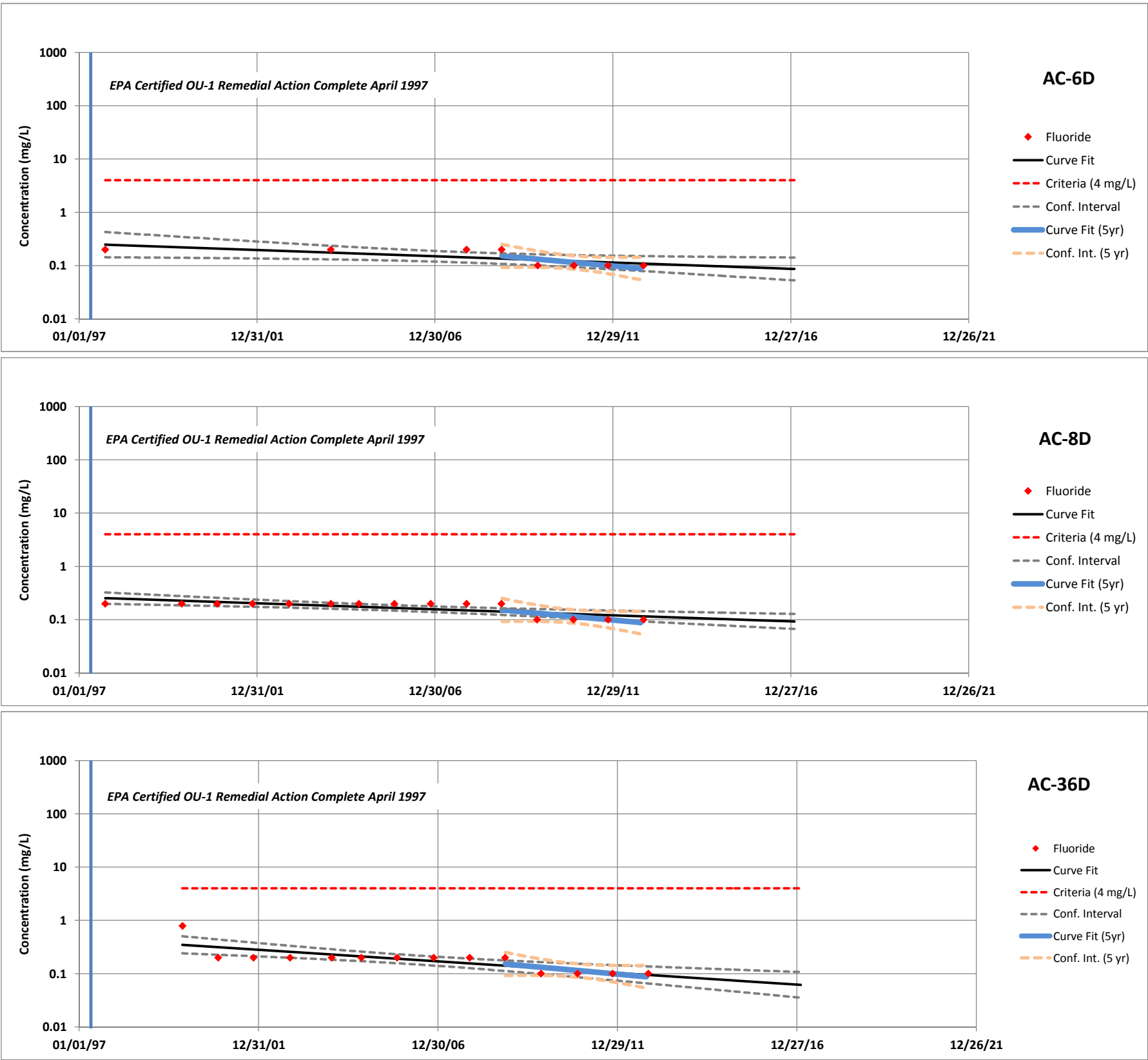


Figure 28

Chloride Trend Plots for Main Producing Zone Monitoring Wells South of Plume Area

Agrico Site
Pensacola, Florida

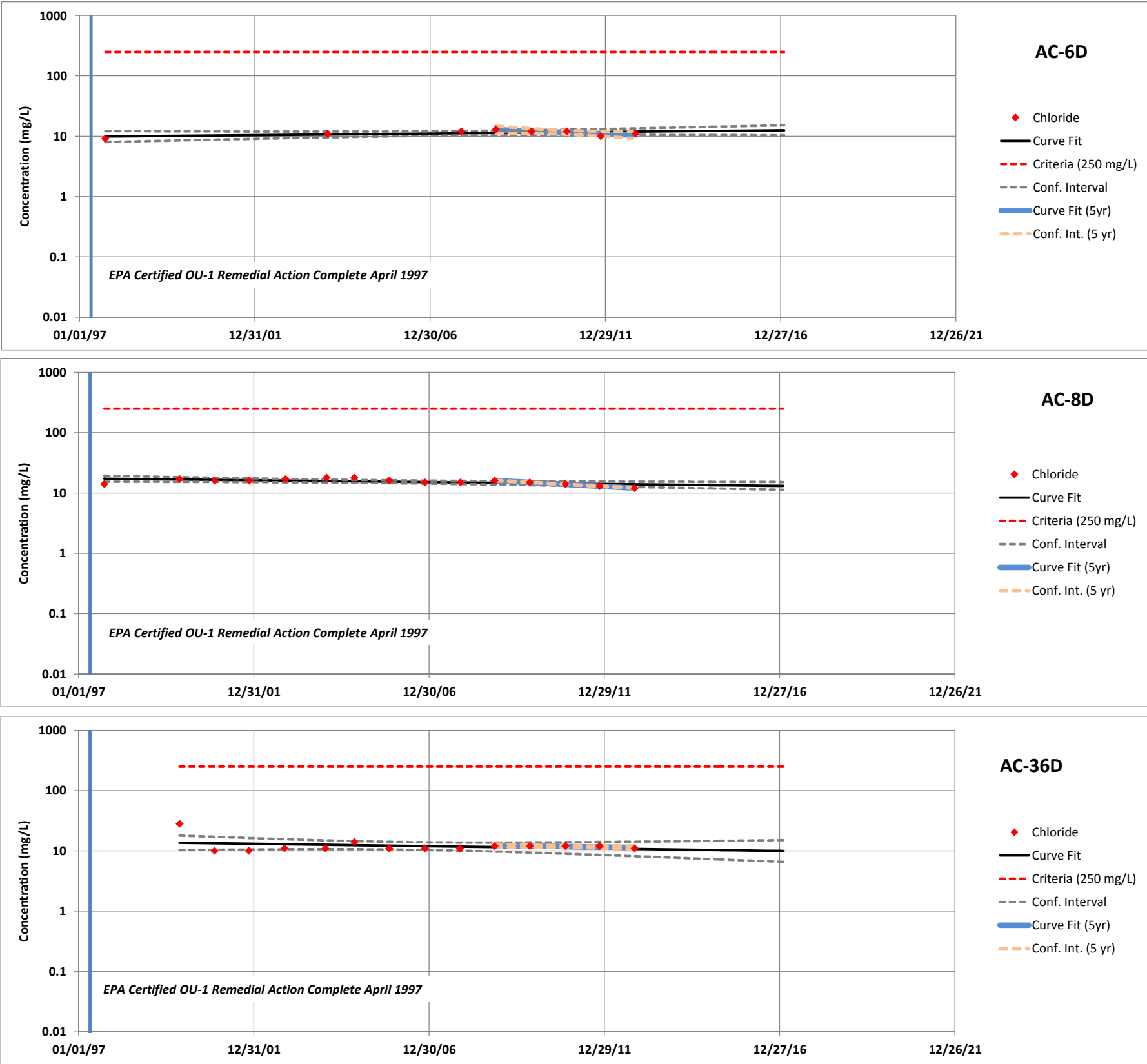


Figure 29

Sulfate Trend Plots for Main Producing Zone Monitoring Wells South of Plume Area

Agrico Site
Pensacola, Florida

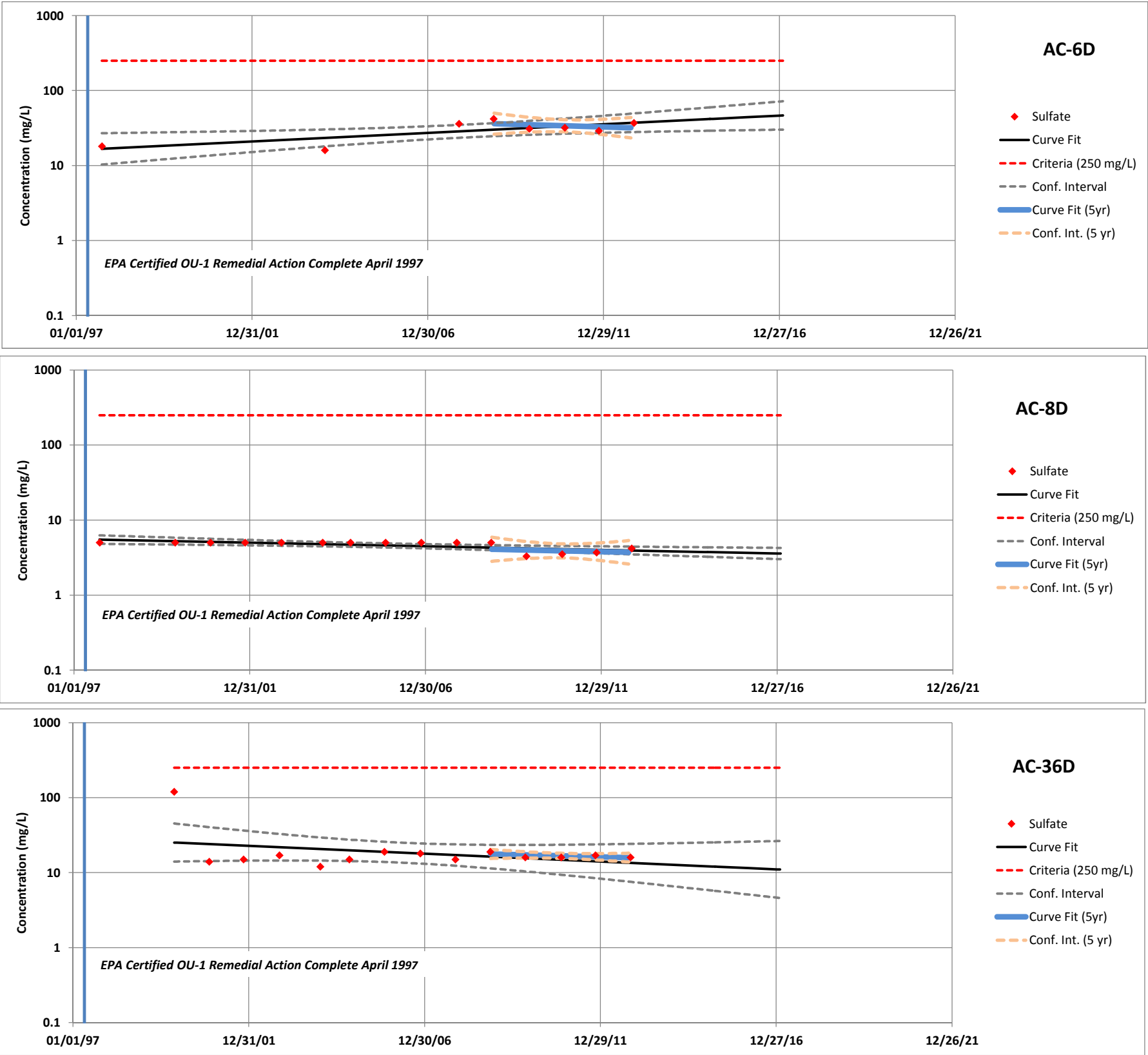


Figure 30

Nitrate-N Trend Plots for Main Producing Zone Monitoring Wells South of Plume Area

Agrico Site
Pensacola, Florida

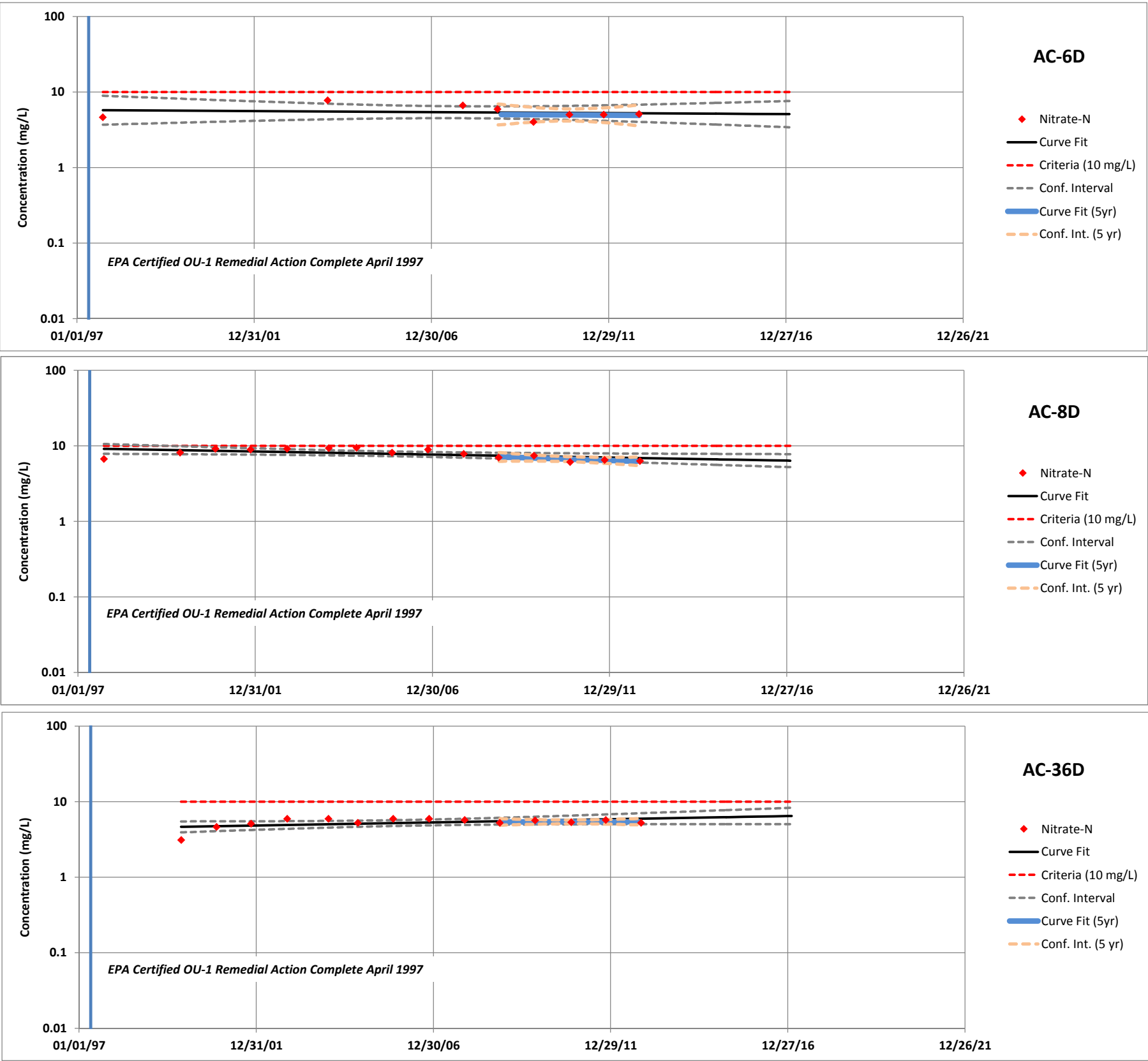
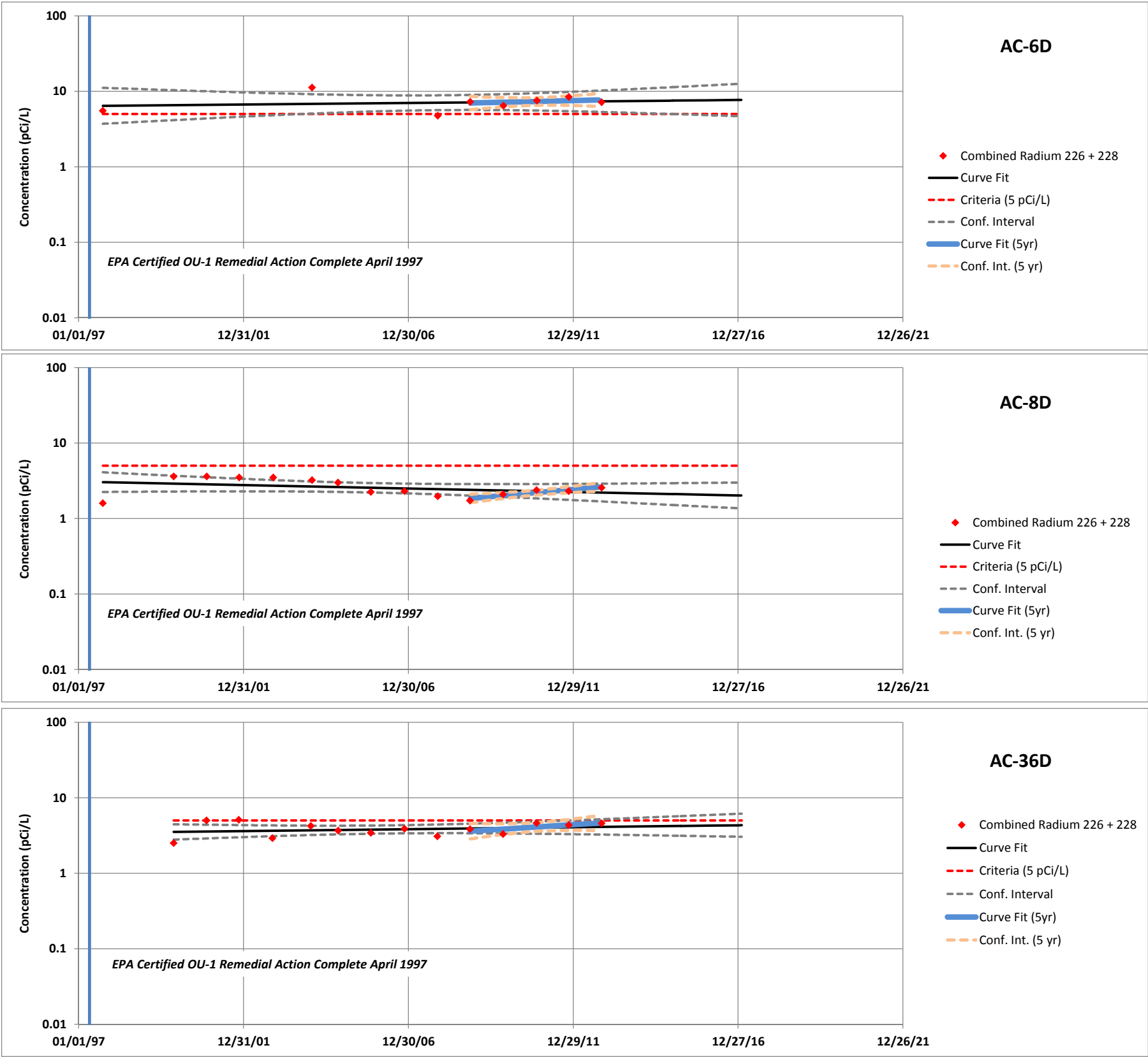


Figure 31

Combined Radium 226 + 228 Trend Plots for Main Producing Zone Monitoring Wells South of Plume Area

Agrico Site
Pensacola, Florida



Fluoride Surface Water Standard = 5 mg/L
2004* - sampled in January 2004

CSX Railroad

- Surface Water Sample Location
- Historic Surface Water Sample Location
- Former Site Area (OU-1)
- Former Kaiser Facility (Site 348)
- Former Escambia Treating Facility

OU-1 and OU-2
AGRICO SITE
PENSACOLA, FLORIDA

URS

Base Map Data Provided By:
Florida Department of Environmental Protection
and Northwest Florida Water Management District
Aerial Source: Bing Image Server (Exact Date Unknown,
approximately 2010)

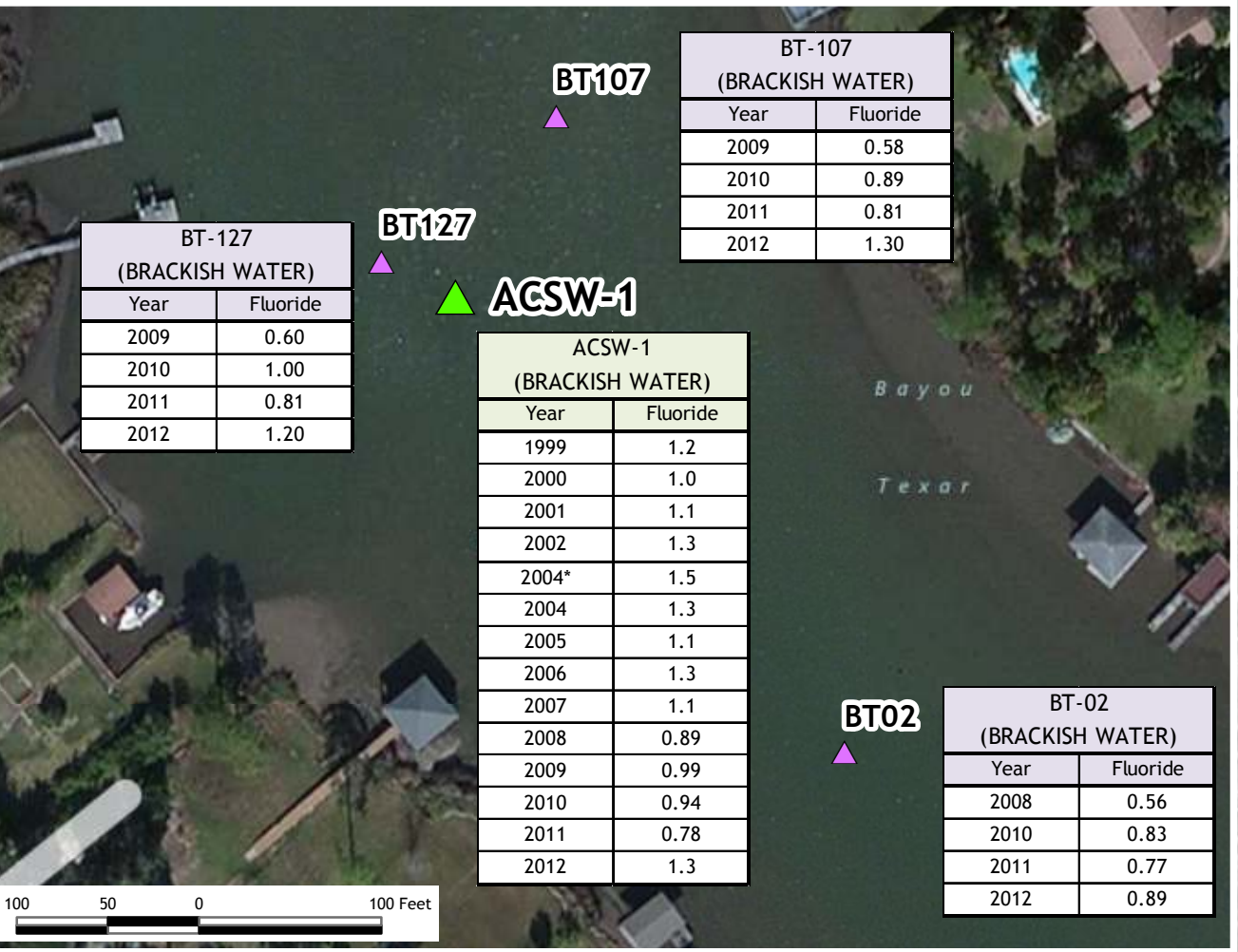


1,200 600 0 1,200 Feet

Coordinate System: UTM, Zone 16, NAD27

FLUORIDE
CONCENTRATIONS (mg/L)
NEAR BOTTOM
SURFACE WATER

FIGURE
32



ACSW-2 (BRACKISH WATER)	
Year	Fluoride
1999	0.82
2000	0.63
2001	0.74
2002	0.59
2004*	0.66
2004	0.69
2005	0.80
2006	0.73
2007	0.82
2008	0.60
2009	0.59
2010	0.65
2011	0.73
2012	0.73

APPENDIX A

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Tel: (850)878-3994

TestAmerica Job ID: 640-41122-1

Client Project/Site: Agrico

For:

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317

Attn: Mr. Jeff Wagner



Authorized for release by:
12/5/2012 11:26:16 AM

Tim Preston
Project Manager II
timothy.preston@testamericainc.com

LINKS

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results through

TotalAccess

Have a Question?



Visit us at:

www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Definitions/Glossary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41122-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41122-1

Job ID: 640-41122-1

Laboratory: TestAmerica Tallahassee

Narrative

Job Narrative 640-41122-1

Comments

No additional comments.

Receipt

The samples were received on 11/7/2012 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.1° C.

Field Service / Mobile Lab

No analytical or quality issues were noted.

General Chemistry

No analytical or quality issues were noted.

Subcontract non-Sister

No analytical or quality issues were noted.

Subcontract Work

Methods Radium 226 by EPA Method 903.1, Radium 228 by EPA Method 904.0: These methods were subcontracted to TestAmerica Richland. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.

Detection Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41122-1

Client Sample ID: AC-36D

Lab Sample ID: 640-41122-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	16		1.0		mg/L	1		300.0	Total/NA
Chloride	11		1.0		mg/L	1		300.0	Total/NA
Nitrate as N	5.2		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: ACB-32S

Lab Sample ID: 640-41122-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	4.5		1.0		mg/L	1		300.0	Total/NA
Chloride	1.0		1.0		mg/L	1		300.0	Total/NA
Fluoride	0.11		0.10		mg/L	1		340.2	Total/NA
Nitrate as N	0.93		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: ACB-31S

Lab Sample ID: 640-41122-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	39		1.0		mg/L	1		300.0	Total/NA
Chloride	3.5		1.0		mg/L	1		300.0	Total/NA
Nitrate as N	1.9		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-33S

Lab Sample ID: 640-41122-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	90		1.0		mg/L	1		300.0	Total/NA
Chloride	6.6		1.0		mg/L	1		300.0	Total/NA
Fluoride	0.67		0.10		mg/L	1		340.2	Total/NA
Nitrate as N	0.36		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-7SR

Lab Sample ID: 640-41122-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	34		1.0		mg/L	1		300.0	Total/NA
Chloride	5.8		1.0		mg/L	1		300.0	Total/NA
Fluoride	0.94		0.10		mg/L	1		340.2	Total/NA
Nitrate as N	1.9		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41122-1

General Chemistry

Client Sample ID: AC-36D
Date Collected: 11/06/12 10:45
Date Received: 11/07/12 09:10

Lab Sample ID: 640-41122-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	16		1.0		mg/L			11/13/12 21:08	1
Chloride	11		1.0		mg/L			11/13/12 21:08	1
Fluoride	<0.10		0.10		mg/L			11/14/12 10:30	1
Nitrate as N	5.2		0.010		mg/L			11/15/12 09:57	1

Client Sample ID: ACB-32S
Date Collected: 11/06/12 12:22
Date Received: 11/07/12 09:10

Lab Sample ID: 640-41122-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.5		1.0		mg/L			11/13/12 21:41	1
Chloride	1.0		1.0		mg/L			11/13/12 21:41	1
Fluoride	0.11		0.10		mg/L			11/14/12 10:30	1
Nitrate as N	0.93		0.010		mg/L			11/15/12 09:57	1

Client Sample ID: ACB-31S
Date Collected: 11/06/12 13:16
Date Received: 11/07/12 09:10

Lab Sample ID: 640-41122-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	39		1.0		mg/L			11/13/12 21:58	1
Chloride	3.5		1.0		mg/L			11/13/12 21:58	1
Fluoride	<0.10		0.10		mg/L			11/14/12 10:30	1
Nitrate as N	1.9		0.010		mg/L			11/15/12 09:57	1

Client Sample ID: AC-33S
Date Collected: 11/06/12 14:05
Date Received: 11/07/12 09:10

Lab Sample ID: 640-41122-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	90		1.0		mg/L			11/13/12 23:21	1
Chloride	6.6		1.0		mg/L			11/13/12 23:21	1
Fluoride	0.67		0.10		mg/L			11/14/12 10:30	1
Nitrate as N	0.36		0.010		mg/L			11/15/12 09:57	1

Client Sample ID: AC-7SR
Date Collected: 11/06/12 14:49
Date Received: 11/07/12 09:10

Lab Sample ID: 640-41122-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	34		1.0		mg/L			11/13/12 23:38	1
Chloride	5.8		1.0		mg/L			11/13/12 23:38	1
Fluoride	0.94		0.10		mg/L			11/14/12 10:30	1
Nitrate as N	1.9		0.010		mg/L			11/15/12 09:57	1

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41122-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 640-97424/12

Matrix: Water

Analysis Batch: 97424

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			11/13/12 15:34	1
Chloride	<1.0		1.0		mg/L			11/13/12 15:34	1

Lab Sample ID: LCS 640-97424/13

Matrix: Water

Analysis Batch: 97424

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	24.0	23.2		mg/L		97	90 - 110
Chloride	6.00	6.13		mg/L		102	90 - 110

Lab Sample ID: 640-41122-1 MS

Matrix: Water

Analysis Batch: 97424

Client Sample ID: AC-36D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	16		24.0	40.7		mg/L		103	80 - 120
Chloride	11		6.00	17.4		mg/L		100	80 - 120

Method: 340.2 - Fluoride

Lab Sample ID: MB 400-166767/1

Matrix: Water

Analysis Batch: 166767

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			11/14/12 10:30	1

Lab Sample ID: LCS 400-166767/2

Matrix: Water

Analysis Batch: 166767

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.07		mg/L		107	90 - 110

Lab Sample ID: 640-41122-1 DU

Matrix: Water

Analysis Batch: 166767

Client Sample ID: AC-36D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	<0.10		<0.10		mg/L		NC	4

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41122-1

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAC	4	E81005	06-30-13
Louisiana	NELAC	6	30663	06-30-13
New Jersey	NELAC	2	FL012	06-30-13
Texas	NELAC	6	T104704459-11-2	03-31-13
USDA	Federal		P330-08-00158	08-05-14

Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-13
Arizona	State Program	9	AZ0710	01-11-13
Arkansas DEQ	State Program	6	88-0689	09-01-13
Florida	NELAC	4	E81010	06-30-13
Georgia	State Program	4	N/A	06-30-13
Illinois	NELAC	5	200041	10-09-13
Iowa	State Program	7	367	08-01-14
Kansas	NELAC	7	E-10253	10-31-13
Kentucky (UST)	State Program	4	53	07-05-13
Louisiana	NELAC	6	30976	06-30-13
Maryland	State Program	3	233	09-30-13
Massachusetts	State Program	1	M-FL094	06-30-13
Michigan	State Program	5	9912	06-30-13
New Hampshire	NELAC	1	2505	08-16-13
New Jersey	NELAC	2	FL006	06-30-13
North Carolina DENR	State Program	4	314	12-31-12
Oklahoma	State Program	6	9810	08-31-13
Pennsylvania	NELAC	3	68-00467	12-31-12
Rhode Island	State Program	1	LAO00307	12-30-12
South Carolina	State Program	4	96026	06-30-12
Tennessee	State Program	4	TN02907	06-30-13
Texas	NELAC	6	T104704286-12-5	09-30-13
USDA	Federal		P330-10-00407	12-10-13
Virginia	NELAC	3	460166	06-14-13
West Virginia DEP	State Program	3	136	06-30-13

Laboratory: TestAmerica Richland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA - LAP	IHLAP		187436	07-01-13
Arizona	State Program	9	AZ0709	07-02-13
California	NELAC	9	E87829	05-31-14
Colorado	State Program	8	N/A	09-30-13
Florida	NELAC	4	E87829	06-30-13
Hawaii	State Program	9	N/A	01-09-13
L-A-B	DoD ELAP		L2291	06-30-14
Nevada	State Program	9	WA00023	07-31-13
New Mexico	State Program	6	WA00023	01-09-13
Oregon	NELAC	10	WA100002	01-09-14
Pennsylvania	NELAC	3	68-04849	08-31-13
Tennessee	State Program	4	4011	01-09-13

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41122-1

Laboratory: TestAmerica Richland (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAC	6	T104704493-10-1	12-31-12
USDA	Federal		P330-11-00043	01-25-14
Utah	NELAC	8	QUAN8	01-09-13
Virginia	State Program	3	00100	06-30-13
Washington	State Program	10	WA01116	08-14-13
Washington (CLIA)	State Program	10	50D0661626	06-30-13

Method Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41122-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL TAL
340.2	Fluoride	MCAWW	TAL PEN
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL TAL
Rad 226-Method 903.1 (Richland)	RAD-226 (RCH)	NONE	TAL RCH
Rad 228-Method 904.0 (Richland)	RAD-228 (RCH)	NONE	TAL RCH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NONE = NONE

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

Sample Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41122-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
640-41122-1	AC-36D	Water	11/06/12 10:45	11/07/12 09:10
640-41122-2	ACB-32S	Water	11/06/12 12:22	11/07/12 09:10
640-41122-3	ACB-31S	Water	11/06/12 13:16	11/07/12 09:10
640-41122-4	AC-33S	Water	11/06/12 14:05	11/07/12 09:10
640-41122-5	AC-7SR	Water	11/06/12 14:49	11/07/12 09:10

Analytical Data Package Prepared For
TestAmerica Tallahassee

640-41122-1

Radiochemical Analysis By

TestAmerica

2800 G. W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 53876

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
46027		AC-33S(640-41122-4)	J2K140450-4	MXCHA1AA	9MXCHA10	2321039
		AC-33S(640-41122-4)	J2K140450-4	MXCHA1AC	9MXCHA10	2321041
		AC-36D(640-41122-1)	J2K140450-1	MXCG51AA	9MXCG510	2321039
		AC-36D(640-41122-1)	J2K140450-1	MXCG51AC	9MXCG510	2321041
		AC-7SR(640-41122-5)	J2K140450-5	MXCHC1AA	9MXCHC10	2321039
		AC-7SR(640-41122-5)	J2K140450-5	MXCHC1AC	9MXCHC10	2321041
		ACB-31S(640-41122-3)	J2K140450-3	MXCG91AA	9MXCG910	2321039
		ACB-31S(640-41122-3)	J2K140450-3	MXCG91AC	9MXCG910	2321041
		ACB-32S(640-41122-2)	J2K140450-2	MXCG81AA	9MXCG810	2321039
		ACB-32S(640-41122-2)	J2K140450-2	MXCG81AC	9MXCG810	2321041

Certificate of Analysis

November 30, 2012

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301

Attention: Tim Preston

Date Received by Lab	:	November 14, 2012
Sample Number/Matrix	:	Five (5) Waters
SDG Number	:	46027
Client	:	Cedar Bay
Project	:	Agrico
Project Number	:	640-41122-1

CASE NARRATIVE

I. Introduction

On November 14, 2012, five water samples were received at the TestAmerica Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package. The samples were assigned to Lot Number J2K140450.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analyses requested were:

Gas Proportional Counting

Radium-228 by method RL-RA-001

Alpha Scintillation Counting

Radium-226 by method RL-RA-001

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Gas Proportional Counting

Radium-228 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation Counting

Radium-226 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,...)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c - Combined Uncertainty.</i>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (BkgrndCnt / BkgrndCntMin) / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{(BkgrndCnt / BkgrndCntMin) / SCntMin}) + 2.71 / SCntMin * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S - D) / [\sqrt{TPUs^2 + TPUD^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUD is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 30-Nov-12

TestAmerica TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 53876

SDG No: 46027

Batch	Client Id Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2321039	E903.0								
	AC-33S(640-41122-4)								
	MXCHA1AA	RADIUM-226	0.930 +- 0.28	J	pCi/L	91%	0.138	1.0	
	AC-36D(640-41122-1)								
	MXCG51AA	RADIUM-226	1.28 +- 0.37	V	pCi/L	86%	0.213	1.0	
	AC-36D(640-41122-1) DUP								
	MXCG51AD	RADIUM-226	1.17 +- 0.35	V	pCi/L	100%	0.173	1.0	0.4
	AC-7SR(640-41122-5)								
	MXCHC1AA	RADIUM-226	0.272 +- 0.16	J	pCi/L	100%	0.206	1.0	
	ACB-31S(640-41122-3)								
	MXCG91AA	RADIUM-226	0.474 +- 0.19	J	pCi/L	84%	0.173	1.0	
	ACB-32S(640-41122-2)								
	MXCG81AA	RADIUM-226	0.206 +- 0.13	J	pCi/L	93%	0.181	1.0	
2321041	E904.0								
	AC-33S(640-41122-4)								
	MXCHA1AC	RADIUM-228	4.68 +- 0.78	V	pCi/L	83%	0.753	1.0	
	AC-36D(640-41122-1)								
	MXCG51AC	RADIUM-228	3.30 +- 0.65	V	pCi/L	79%	0.641	1.0	
	AC-36D(640-41122-1) DUP								
	MXCG51AE	RADIUM-228	2.24 +- 0.49	V	pCi/L	93%	0.517	1.0	2.6
	AC-7SR(640-41122-5)								
	MXCHC1AC	RADIUM-228	1.45 +- 0.44	V	pCi/L	93%	0.74	1.0	
	ACB-31S(640-41122-3)								
	MXCG91AC	RADIUM-228	4.99 +- 0.81	V	pCi/L	76%	0.748	1.0	
	ACB-32S(640-41122-2)								
	MXCG81AC	RADIUM-228	0.580 +- 0.40	U	pCi/L	85%	0.816	1.0	
No. of Results: 12									

TestAmerica RER2 - Replicate Error Ratio = $(S-D)/[\sqrt{sq(TPUs)+sq(TPUD)}]$ as defined by ICPT BOA.
 rptSTLRchSaSum J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 mary2 V5.2.22 V Qual - Detected.
 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

QC Results Summary

Date: 30-Nov-12

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 53876

SDG No.: 46027

Batch	Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
E903.0									
2321039 BLANK QC,									
	MXC351AA	RADIUM-226	-0.00673 +- 0.055	U	pCi/L	97%			0.127
2321039 LCS,									
	MXC351AC	RADIUM-226	9.88 +- 2.2	V	pCi/L	87%	100%	0.0	0.131
E904.0									
2321041 BLANK QC,									
	MXC4V1AA	RADIUM-228	0.442 +- 0.35	U	pCi/L	87%			0.722
2321041 LCS,									
	MXC4V1AC	RADIUM-228	11.0 +- 1.5	V	pCi/L	80%	112%	0.1	0.779
No. of Results: 4									

TestAmerica
rptSTLRchQcSum
mary V5.2.22
A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

V Qual - Detected.

FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140450-4
Client Sample ID: AC-33S(640-41122-4)
SDG: 46027
Report No.: 53876
COC No.: 640-54543.1
Collection Date: 11/6/2012 2:05:00 PM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0												
RADIUM-226	0.930	J	0.18	0.28	0.138	pCi/L	91%	(6.7)	11/26/12 02:33 p		0.8278	ASC/FAC
						0.0585	1.0	(6.7)			L	
Batch: 2321041 E904.0												
RADIUM-228	4.68	V	0.57	0.78	0.753	pCi/L	83%	(6.2)	11/29/12 04:23 p		0.8278	GPC5B
						0.347	1.0	(12.)			L	

No. of Results: 2 Comments:

12/27/2012 TestAmerica MDC\MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 2012 CrptSTLRchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 2012 V5.2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.



FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140450-1
Client Sample ID: AC-36D(640-41122-1)
640-41122-1

SDG: 46027
Report No.: 53876
COC No.: 640-54543.1

Collection Date: 11/6/2012 10:45:00 AM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039	E903.0											
RADIUM-226	1.28	V	0.24	0.37	0.213	pCi/L	86%	(6.)	11/26/12 02:10 p		0.8946	ASCBMA
						0.0944	1.0	(6.9)			L	
Batch: 2321041	E904.0											
RADIUM-228	3.30	V	0.52	0.65	0.641	pCi/L	79%	(5.1)	11/29/12 04:23 p		0.8946	GPC4A
						0.284	1.0	(10.2)			L	

No. of Results: 2 Comments:

TestAmerica	MDC MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
CrptSTLRchSample	J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
V5.2.22 A2002	U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
	V Qual - Detected.

FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140450-5
Client Sample ID: AC-7SR(640-41122-5)
SDG: 46027
Report No.: 53876
COC No.: 640-54543.1
Collection Date: 11/6/2012 2:49:00 PM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0												
RADIUM-226	0.272	J	0.14	0.16	0.206	pCi/L	100%	(1.3)	11/26/12 02:37 p		0.8693	ASCHSB
						0.0903	1.0	(3.5)			L	
Batch: 2321041 E904.0												
RADIUM-228	1.45	V	0.40	0.44	0.74	pCi/L	93%	(2.)	11/29/12 04:23 p		0.8693	GPC5C
						0.345	1.0	(6.7)			L	

No. of Results: 2 Comments:

12/27/2012 TestAmerica MDC\MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 2012 CrptSTLRchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 2012 V5.2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.



FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140450-3
Client Sample ID: ACB-31S(640-41122-3)
640-41122-1

SDG: 46027
Report No.: 53876
COC No.: 640-54543.1

Collection Date: 11/6/2012 1:16:00 PM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039	E903.0											
RADIUM-226	0.474	J	0.15	0.19	0.173	pCi/L	84%	(2.7)	11/26/12 02:34 p		0.8943	ASCESD
						0.0742	1.0	(5.)			L	
Batch: 2321041	E904.0											
RADIUM-228	4.99	V	0.59	0.81	0.748	pCi/L	76%	(6.7)	11/29/12 04:23 p		0.8943	GPC5A
						0.344	1.0	(12.3)			L	

No. of Results: 2 Comments:

TestAmerica	MDC MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
CrptSTLRchSample	J Qual - No U < qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
V5.2.22 A2002	U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
	V Qual - Detected.

FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140450-2
Client Sample ID: ACB-32S(640-41122-2)
640-41122-1

SDG: 46027
Report No.: 53876
COC No.: 640-54543.1

Collection Date: 11/6/2012 12:22:00 PM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039	E903.0											
RADIUM-226	0.206	J	0.12	0.13	0.181	pCi/L	93%	(1.1)	11/26/12 02:02 p		0.8947	ASCDUE
						0.0793	1.0	(3.2)			L	
Batch: 2321041	E904.0											
RADIUM-228	0.580	U	0.38	0.40	0.816	pCi/L	85%	0.71	11/29/12 04:23 p		0.8947	GPC4C
						0.374	1.0	(2.9)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V Qual - Detected.

FORM II

Date: 30-Nov-12

DUPLICATE RESULTS

Lab Name: TestAmerica SDG: 46027 Collection Date: 11/6/2012 10:45:00 AM
Lot-Sample No.: J2K140450-1 Report No.: 53876 Received Date: 11/14/2012 10:50:00 AM
Client Sample ID: AC-36D(640-41122-1) DUP COC No.: 640-54543.1 Matrix: WATER W

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0 Work Order: MXCG51AD Report DB ID: MXCG51DR Orig Sa DB ID: 9MXCG510												
RADIUM-226	1.17	V	0.25	0.35	0.173	pCi/L	100%	(6.8)	11/26/12 02:05 p		0.886	ASCCSD
	1.28	V	RER2 0.4			1.0		(6.8)			L	
Batch: 2321041 E904.0 Work Order: MXCG51AE Report DB ID: MXCG51ER Orig Sa DB ID: 9MXCG510												
RADIUM-228	2.24	V	0.40	0.49	0.517	pCi/L	93%	(4.3)	11/29/12 04:23 p		0.886	GPC4B
	3.3	V	RER2 2.6			1.0		(9.3)			L	

No. of Results: 2 Comments:

12/5/2012 TestAmerica RER2 - Replicate Error Ratio = (S-D)/[sqrt((sq(TPU_s)+sq(TPU_d))] as defined by ICPT BOA.
SptSTLRchDupV5. MDC[MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
12.22 A2002 V Qual - Detected.

FORM II
BLANK RESULTS

Date: 30-Nov-12

Lab Name: TestAmerica SDG: 46027 Report No. : 53876
Matrix: WATER

Parameter	Batch	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0 RADIUM-226													
Work Order: MXC351AA Report DB ID: MXC351AB													
		-0.00673	U	0.055	0.055	0.127	pCi/L	97%	-0.05	11/26/12 02:35 p		1.0008	ASCJMB
						0.0542	1.0		-0.24			L	
Batch: 2321041 E904.0 RADIUM-228													
Work Order: MXC4V1AA Report DB ID: MXC4V1AB													
		0.442	U	0.35	0.35	0.722	pCi/L	87%	0.61	11/29/12 04:23 p		1.0008	GPC5D
						0.337	3.0		(2.5)			L	

No. of Results: 2 Comments:



FORM II

LCS RESULTS

Date: 30-Nov-12

Lab Name: TestAmerica SDG: 46027
 Matrix: WATER Report No.: 53876

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2321039 E903.0													
Work Order: MXC351AC Report DB ID: MXC351CS													
RADIUM-226	9.88	V	0.53	2.2	0.131	pCi/L	87%	9.87	0.1	100%	11/26/12 02:29 p	1.0027	ASCKMF
Rec Limits: 75 125 0.0													
Batch: 2321041 E904.0													
Work Order: MXC4V1AC Report DB ID: MXC4V1CS													
RADIUM-228	11.0	V	0.77	1.5	0.779	pCi/L	80%	9.85	0.11	112%	11/29/12 04:24 p	1.0027	GPC6B
Rec Limits: 75 125 0.1													

No. of Results: 2 Comments:




TestAmerica Tallahassee

2846 Industrial Plaza Drive
Tallahassee, FL 32301
Phone (850) 878-3994 Fax (850) 878-9504

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab) Client Contact: _____ Shipping/Receiving: _____ Company: TestAmerica Laboratories, Inc. Address: 2800 George Washington Way, City: Tallahassee State, Zip: FL 32301 Phone: (850) 878-3994 (Tel) 878-9504 (Fax) Email: _____ Project Name: _____ Project #: 64000434 Site: _____		Lab PM: Preston, Tim E-Mail: timothy.preston@testamericainc.com Carrier Tracking No(s): 640-54543.1 Page: 1 of 1 Job #: 640-41122-1	
Analysis Requested Due Date Requested: 11/19/2012 TAT Requested (days): _____ PO #: _____ WO #: _____ Project #: 64000434 SSOW#: _____		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: _____ M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)	
Sample Identification - Client ID (Lab ID) AC-36D (640-41122-1) <i>MXCB5</i> ACB-32S (640-41122-2) <i>MXCB8</i> ACB-31S (640-41122-3) <i>MXCB9</i> AC-33S (640-41122-4) <i>MXCHFA</i> AC-7SR (640-41122-5) <i>MXCHC</i> <i>J2K140450</i> <i>SDG-46027</i> <i>Due 12-12-12</i> 		Special Instructions/Note: Total Number of containers: _____ SUBCONTRACT/ Rad 226-Method 903.1 (Richland) _____ SUBCONTRACT/ Rad 228-Method 904.0 (Richland) _____ Perform MS/MSD (Yes or No) _____ Field Filtered Sample (Yes or No) _____ Matrix (W=water, S=solid, O=organic, A=air) Sample Type (C=Comp, G=grab) Sample Time Sample Date Preservation Code Matrix (W=water, S=solid, O=organic, A=air) Sample Type (C=Comp, G=grab) Sample Time Sample Date Preservation Code Matrix (W=water, S=solid, O=organic, A=air)	
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) _____ Empty Kit Relinquished by: _____ Relinquished by: <i>SDP</i> Relinquished by: _____ Relinquished by: _____ Custody Seals Intact: _____ Δ Yes Δ No		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements: _____ Date: _____ Method of Shipment: _____ Received by: _____ Date/Time: 11/12/12 1730 Company: _____ Received by: _____ Date/Time: _____ Company: _____ Received by: _____ Date/Time: _____ Company: _____ Cooler Temperature(s) °C and Other Remarks: _____	

Sample Check-in List

Date/Time Received: 11-14-12 / 1050 Container GM Screen Result: (Airlock) .06 Initials BP
Sample GM Screen Result (Sample Receiving) .04 Initials BP

Client: STL-T SDG #: 46027 NA [] SAF #: NA

Lot Number: J2K140

Chain of Custody # 640-54543.1

Shipping Container ID: NA Air Bill Number: NA

Samples received inside shipping container/cooler/box Yes BP] Continue with 1 through 4. Initial appropriate response.
No [] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes BP] No [] No Custody Seal []
2. Custody Seals dated and signed? Yes [] No BP] No Custody Seal []
3. Cooler temperature: _____ °C NA BP]
4. Vermiculite/packing materials is NA [] Wet [] Dry BP]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes BP] No []
6. Number of samples received (Each sample may contain multiple bottles): 5
7. Containers received: 10 x LP

8. Sample holding times exceeded? NA [] Yes [] No BP]

9. Samples have:
_____ tape BP hazard labels
_____ custody seals BP appropriate sample labels

10. Matrix:
_____ A (FLT, Wipe, Solid, Soil) BP I (Water)
_____ S (Air, Niosh 7400) _____ T (Biological, Ni-63)

11. Samples:
BP are in good condition _____ are leaking
_____ are broken _____ have air bubbles (Only for samples requiring no head space)
_____ Other _____

12. Sample pH appropriate for analysis requested Yes BP] No [] NA []
(If acidification is necessary, then document sample ID, initial pH, amount of HNO₃ added and pH after addition on table overleaf)

RPL ID # of preservative used: _____

13. Were any anomalies identified in sample receipt? Yes [] No BP]

14. Description of anomalies (include sample numbers): NA BP

Chain of Custody Record

Client Information		Sample #	12806149.00000	Lab #	640-35431-6826.4
Client Contact: Mr. Jeff Wagner		Phone #	850 251 6585	E-Mail	timothy.preston@testamericainc.com
Company: URS Corporation		Due Date Requested:		Carrier Tracking No(s)	
Address: 1625 Summit Lake Drive Suite 200		TAT Requested (days):		Job #	
City: Tallahassee		PO #	12806149.00000	Page 4 of 4	
State ZIP: FL 32317		Project #	64000434	Page 4 of 4	
Phone		SSCOW#		Page 4 of 4	
Email: jeffry_wagner@urscorp.com		Field Filtered Sample (Yes or No)		Page 4 of 4	
Project Name: Agrico Annual		Perform MS/MSD (Yes or No)		Page 4 of 4	
Site: Pensacola, FL		340.2 - Fluoride (Pensacola)		Page 4 of 4	
		SUBCONTRACT - Rad 226-Method 903.1 (Richland)		Page 4 of 4	
		SUBCONTRACT - Rad 228-Method 904.0 (Richland)		Page 4 of 4	
		353.2 - Nitrate as N		Page 4 of 4	
		300.0_28D - Chloride, Sulfate		Page 4 of 4	
		SM4500_NO2_B - Nitrate as N		Page 4 of 4	
		6010B - Arsenic		Page 4 of 4	
		Total Number of containers		Page 4 of 4	
		Special Instructions/Note:		Page 4 of 4	

Sample Identification	Sample Date	Sample Time	Sample Type (C=Camp, G=grab)	Matrix (Type, Solid, G=grab)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	340.2 - Fluoride (Pensacola)	SUBCONTRACT - Rad 226-Method 903.1 (Richland)	SUBCONTRACT - Rad 228-Method 904.0 (Richland)	353.2 - Nitrate as N	300.0_28D - Chloride, Sulfate	SM4500_NO2_B - Nitrate as N	6010B - Arsenic	Total Number of containers	Special Instructions/Note:
AC-36D	11/6/12	1045	G	W											
ACB-323		1332													
ACB-313		1316													
AC-333		1405													
AC-75R		1449													

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	<input type="checkbox"/> Return To Client	<input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months
Deliverable Requested I, II, III, IV, Other (Specify)		Special Instructions/QC Requirements:	
Empty Kit Relinquished by: <i>[Signature]</i> Date: 10/30/12 Time: 11:45		Method of Shipment:	
Relinquished by: <i>[Signature]</i> Date/Time: 11/6/12 1645		Received by: <i>[Signature]</i> Date/Time: 11/7/12 910	
Relinquished by: <i>[Signature]</i> Date/Time:		Received by: <i>[Signature]</i> Date/Time:	
Relinquished by: <i>[Signature]</i> Date/Time:		Received by: <i>[Signature]</i> Date/Time:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:	
Cooler Temperature(s) °C and Other Remarks:			

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41122-1

Login Number: 41122

List Source: TestAmerica Tallahassee

List Number: 1

Creator: Delp, Eric

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41122-1

Login Number: 41122

List Source: TestAmerica Pensacola

List Number: 1

List Creation: 11/08/12 06:05 PM

Creator: Serratore, Maria

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.8°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Tel: (850)878-3994

TestAmerica Job ID: 640-41147-1

Client Project/Site: Agrico
Revision: 1

For:

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317

Attn: Mr. Jeff Wagner



Authorized for release by:
12/11/2012 4:11:59 PM

Tim Preston
Project Manager II
timothy.preston@testamericainc.com

LINKS

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

Job ID: 640-41147-1

Laboratory: TestAmerica Tallahassee

Narrative

Job Narrative 640-41147-1

Comments

No additional comments.

Receipt

The samples were received on 11/8/2012 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C.

Field Service / Mobile Lab

No analytical or quality issues were noted.

General Chemistry

No analytical or quality issues were noted.

Subcontract non-Sister

No analytical or quality issues were noted.

Subcontract Work

Methods Radium 226 by EPA Method 903.1, Radium 228 by EPA Method 904.0: These methods were subcontracted to TestAmerica Richland. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.

Detection Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

Client Sample ID: AC-8D

Lab Sample ID: 640-41147-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12		1.0		mg/L	1		300.0	Total/NA
Sulfate	4.2		1.0		mg/L	1		300.0	Total/NA
Nitrate as N	6.3		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-13D

Lab Sample ID: 640-41147-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	290		5.0		mg/L	5		300.0	Total/NA
Chloride	24		5.0		mg/L	5		300.0	Total/NA
Fluoride	15		1.0		mg/L	10		340.2	Total/NA
Nitrate as N	12		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-34S

Lab Sample ID: 640-41147-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	37		1.0		mg/L	1		300.0	Total/NA
Chloride	2.1		1.0		mg/L	1		300.0	Total/NA
Fluoride	0.97		0.10		mg/L	1		340.2	Total/NA
Nitrate as N	2.8		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-6D

Lab Sample ID: 640-41147-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11		1.0		mg/L	1		300.0	Total/NA
Sulfate	37		1.0		mg/L	1		300.0	Total/NA
Nitrate as N	5.1		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: Dup-1

Lab Sample ID: 640-41147-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	58	H	1.0		mg/L	1		300.0	Total/NA
Chloride	3.3	H	1.0		mg/L	1		300.0	Total/NA
Fluoride	0.95		0.10		mg/L	1		340.2	Total/NA
Nitrate as N	2.8		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

General Chemistry

Client Sample ID: AC-8D

Date Collected: 11/07/12 08:17

Date Received: 11/08/12 09:00

Lab Sample ID: 640-41147-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		1.0		mg/L			11/29/12 12:35	1
Sulfate	4.2		1.0		mg/L			11/29/12 12:35	1
Fluoride	<0.10		0.10		mg/L			11/14/12 10:30	1
Nitrate as N	6.3		0.010		mg/L			11/19/12 11:34	1

Client Sample ID: AC-13D

Date Collected: 11/07/12 10:21

Date Received: 11/08/12 09:00

Lab Sample ID: 640-41147-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	290		5.0		mg/L			11/14/12 00:11	5
Chloride	24		5.0		mg/L			11/14/12 00:11	5
Fluoride	15		1.0		mg/L			11/14/12 10:30	10
Nitrate as N	12		0.010		mg/L			11/19/12 11:34	1

Client Sample ID: AC-34S

Date Collected: 11/07/12 12:52

Date Received: 11/08/12 09:00

Lab Sample ID: 640-41147-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	37		1.0		mg/L			11/14/12 00:28	1
Chloride	2.1		1.0		mg/L			11/14/12 00:28	1
Fluoride	0.97		0.10		mg/L			11/14/12 10:30	1
Nitrate as N	2.8		0.010		mg/L			11/19/12 11:34	1

Client Sample ID: AC-6D

Date Collected: 11/07/12 15:35

Date Received: 11/08/12 09:00

Lab Sample ID: 640-41147-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		1.0		mg/L			11/29/12 12:47	1
Sulfate	37		1.0		mg/L			11/29/12 12:47	1
Fluoride	<0.10		0.10		mg/L			11/14/12 10:30	1
Nitrate as N	5.1		0.010		mg/L			11/19/12 11:34	1

Client Sample ID: Dup-1

Date Collected: 11/07/12 00:00

Date Received: 11/08/12 09:00

Lab Sample ID: 640-41147-5

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	58	H	1.0		mg/L			12/10/12 17:52	1
Chloride	3.3	H	1.0		mg/L			12/10/12 17:52	1
Fluoride	0.95		0.10		mg/L			11/14/12 10:30	1
Nitrate as N	2.8		0.010		mg/L			11/19/12 11:34	1

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-258123/2

Matrix: Water

Analysis Batch: 258123

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			11/29/12 10:18	1
Sulfate	<1.0		1.0		mg/L			11/29/12 10:18	1

Lab Sample ID: LCS 680-258123/3

Matrix: Water

Analysis Batch: 258123

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.0		mg/L		100	90 - 110
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 680-258123/4

Matrix: Water

Analysis Batch: 258123

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.0		mg/L		100	90 - 110	0	30
Sulfate	10.0	10.3		mg/L		103	90 - 110	0	30

Lab Sample ID: MB 640-97424/12

Matrix: Water

Analysis Batch: 97424

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			11/13/12 15:34	1
Chloride	<1.0		1.0		mg/L			11/13/12 15:34	1

Lab Sample ID: LCS 640-97424/13

Matrix: Water

Analysis Batch: 97424

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	24.0	23.2		mg/L		97	90 - 110
Chloride	6.00	6.13		mg/L		102	90 - 110

Lab Sample ID: MB 640-97967/10

Matrix: Water

Analysis Batch: 97967

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			12/10/12 16:19	1
Chloride	<1.0		1.0		mg/L			12/10/12 16:19	1

Lab Sample ID: LCS 640-97967/18

Matrix: Water

Analysis Batch: 97967

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	24.0	23.6		mg/L		98	90 - 110

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 640-97967/18

Matrix: Water

Analysis Batch: 97967

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	6.00	6.06		mg/L		101	90 - 110

Lab Sample ID: LCSD 640-97967/16

Matrix: Water

Analysis Batch: 97967

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	24.0	23.4		mg/L		97	90 - 110	1	30
Chloride	6.00	6.04		mg/L		101	90 - 110	0	30

Method: 340.2 - Fluoride

Lab Sample ID: MB 400-166767/1

Matrix: Water

Analysis Batch: 166767

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			11/14/12 10:30	1

Lab Sample ID: LCS 400-166767/2

Matrix: Water

Analysis Batch: 166767

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.07		mg/L		107	90 - 110

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAC	4	E81005	06-30-13
Louisiana	NELAC	6	30663	06-30-13
New Jersey	NELAC	2	FL012	06-30-13
Texas	NELAC	6	T104704459-11-2	03-31-13
USDA	Federal		P330-08-00158	08-05-14

Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-13
Arizona	State Program	9	AZ0710	01-11-13
Arkansas DEQ	State Program	6	88-0689	09-01-13
Florida	NELAC	4	E81010	06-30-13
Georgia	State Program	4	N/A	06-30-13
Illinois	NELAC	5	200041	10-09-13
Iowa	State Program	7	367	08-01-14
Kansas	NELAC	7	E-10253	10-31-13
Kentucky (UST)	State Program	4	53	07-05-13
Louisiana	NELAC	6	30976	06-30-13
Maryland	State Program	3	233	09-30-13
Massachusetts	State Program	1	M-FL094	06-30-13
Michigan	State Program	5	9912	06-30-13
New Hampshire	NELAC	1	2505	08-16-13
New Jersey	NELAC	2	FL006	06-30-13
North Carolina DENR	State Program	4	314	12-31-12
Oklahoma	State Program	6	9810	08-31-13
Pennsylvania	NELAC	3	68-00467	12-31-12
Rhode Island	State Program	1	LAO00307	12-30-12
South Carolina	State Program	4	96026	06-30-12
Tennessee	State Program	4	TN02907	06-30-13
Texas	NELAC	6	T104704286-12-5	09-30-13
USDA	Federal		P330-10-00407	12-10-13
Virginia	NELAC	3	460166	06-14-13
West Virginia DEP	State Program	3	136	06-30-13

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

TestAmerica Tallahassee

Method Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
300.0	Anions, Ion Chromatography	MCAWW	TAL TAL
340.2	Fluoride	MCAWW	TAL PEN
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL TAL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

Sample Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41147-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
640-41147-1	AC-8D	Water	11/07/12 08:17	11/08/12 09:00
640-41147-2	AC-13D	Water	11/07/12 10:21	11/08/12 09:00
640-41147-3	AC-34S	Water	11/07/12 12:52	11/08/12 09:00
640-41147-4	AC-6D	Water	11/07/12 15:35	11/08/12 09:00
640-41147-5	Dup-1	Water	11/07/12 00:00	11/08/12 09:00

Analytical Data Package Prepared For
TestAmerica Tallahassee

640-41147-1

Radiochemical Analysis By

TestAmerica

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 53875

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
46026		AC-13D(640-41147-2)	J2K140449-2	MXCGP1AA	9MXCGP10	2321039
		AC-13D(640-41147-2)	J2K140449-2	MXCGP1AC	9MXCGP10	2321041
		AC-34S(640-41147-3)	J2K140449-3	MXCGQ1AA	9MXCGQ10	2321039
		AC-34S(640-41147-3)	J2K140449-3	MXCGQ1AC	9MXCGQ10	2321041
		AC-6D(640-41147-4)	J2K140449-4	MXCGV1AA	9MXCGV10	2321039
		AC-6D(640-41147-4)	J2K140449-4	MXCGV1AC	9MXCGV10	2321041
		AC-8D(640-41147-1)	J2K140449-1	MXCGL1AA	9MXCGL10	2321039
		AC-8D(640-41147-1)	J2K140449-1	MXCGL1AC	9MXCGL10	2321041
		DUP-1(640-41147-5)	J2K140449-5	MXCGW1AA	9MXCGW10	2321039
		DUP-1(640-41147-5)	J2K140449-5	MXCGW1AC	9MXCGW10	2321041

Certificate of Analysis

November 30, 2012

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301

Attention: Tim Preston

Date Received by Lab	:	November 14, 2012
Sample Number/Matrix	:	Five (5) Waters
SDG Number	:	46026
Client	:	Cedar Bay
Project	:	Agrico
Project Number	:	640-41147-1

CASE NARRATIVE

I. Introduction

On November 14, 2012, five water samples were received at the TestAmerica Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package. The samples were assigned to Lot Number J2K140449.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analyses requested were:

Gas Proportional Counting

Radium-228 by method RL-RA-001

Alpha Scintillation Counting

Radium-226 by method RL-RA-001

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Gas Proportional Counting

Radium-228 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation Counting

Radium-226 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x, y, z, \dots)$. The components (x, y, z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1, 2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c - Combined Uncertainty.</i>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (BkgrndCnt / BkgrndCntMin) / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{((BkgrndCnt / BkgrndCntMin) / SCntMin) + 2.71 / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S - D) / [\sqrt{TPUs^2 + TPUD^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUD is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 30-Nov-12

TestAmerica TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 53875

SDG No: 46026

Client Id		Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
Batch	Work Order								
2321039 E903.0									
AC-13D(640-41147-2)									
	MXCGP1AA	RADIUM-226	2.05 +- 0.54	V	pCi/L	89%	0.175	1.0	
AC-34S(640-41147-3)									
	MXCGQ1AA	RADIUM-226	0.152 +- 0.12	U	pCi/L	100%	0.199	1.0	
AC-36D(640-41122-1) DUP									
	MXCG51AD	RADIUM-226	1.17 +- 0.35	V	pCi/L	100%	0.173	1.0	0.4
AC-6D(640-41147-4)									
	MXCGV1AA	RADIUM-226	4.10 +- 0.93	V	pCi/L	96%	0.222	1.0	
AC-8D(640-41147-1)									
	MXCGL1AA	RADIUM-226	0.918 +- 0.28	J	pCi/L	90%	0.154	1.0	
DUP-1(640-41147-5)									
	MXCGW1A	RADIUM-226	0.284 +- 0.16	J	pCi/L	83%	0.232	1.0	
2321041 E904.0									
AC-13D(640-41147-2)									
	MXCGP1AC	RADIUM-228	8.99 +- 1.3	V	pCi/L	84%	0.555	1.0	
AC-34S(640-41147-3)									
	MXCGQ1AC	RADIUM-228	0.785 +- 0.29	J	pCi/L	93%	0.463	1.0	
AC-36D(640-41122-1) DUP									
	MXCG51AE	RADIUM-228	2.24 +- 0.49	V	pCi/L	93%	0.517	1.0	2.6
AC-6D(640-41147-4)									
	MXCGV1AC	RADIUM-228	3.04 +- 0.58	V	pCi/L	89%	0.549	1.0	
AC-8D(640-41147-1)									
	MXCGL1AC	RADIUM-228	1.65 +- 0.43	V	pCi/L	84%	0.547	1.0	
DUP-1(640-41147-5)									
	MXCGW1A	RADIUM-228	0.668 +- 0.34	J	pCi/L	77%	0.636	1.0	
No. of Results: 12									

TestAmerica

rptSTLRchSaSummary2 V5.2.22
A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUD))] as defined by ICPT BOA.

J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

V Qual - Detected.

QC Results Summary
TestAmerica TARL
 Ordered by Method, Batch No, QC Type,.

Date: 30-Nov-12

Report No. : 53875

SDG No.: 46027

Batch	Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
E903.0									
2321039 BLANK QC,									
	MXC351AA	RADIUM-226	-0.00673 +- 0.055	U	pCi/L	97%			0.127
2321039 LCS,									
	MXC351AC	RADIUM-226	9.88 +- 2.2	V	pCi/L	87%	100%	0.0	0.131
E904.0									
2321041 BLANK QC,									
	MXC4V1AA	RADIUM-228	0.442 +- 0.35	U	pCi/L	87%			0.722
2321041 LCS,									
	MXC4V1AC	RADIUM-228	11.0 +- 1.5	V	pCi/L	80%	112%	0.1	0.779
No. of Results: 4									

TestAmerica rptSTLRchQcSummary V5.2.22 A2002	Bias - (Result/Expected)-1 as defined by ANSI N13.30. U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software. V Qual - Detected.
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FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140449-2
Client Sample ID: AC-13D(640-41147-2)
640-41147-1

SDG: 46026
Report No.: 53875
COC No.: 640-54564.1

Collection Date: 11/7/2012 10:21:00 AM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0												
RADIUM-226	2.05	V	0.28	0.54	0.175	pCi/L	89%	(11.7)	11/26/12 02:38 p		0.8768	ASC3RC
Work Order: MXCGP1AA Report DB ID: 9MXCGP10												
						0.0755	1.0	(7.6)			L	
Batch: 2321041 E904.0												
RADIUM-228	8.99	V	0.76	1.3	0.555	pCi/L	84%	(16.2)	11/29/12 04:23 p		0.8768	GPC3A
Work Order: MXCGP1AC Report DB ID: 9MXCGP10												
						0.243	1.0	(14.1)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V5.2.22 A2002 V Qual - Detected.

FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140449-3
Client Sample ID: AC-34S(640-41147-3)
640-41147-1

SDG: 46026
Report No.: 53875
COC No.: 640-54564.1

Collection Date: 11/7/2012 12:52:00 PM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0												
Work Order: MXCGQ1AA Report DB ID: 9MXCGQ10												
RADIUM-226	0.152	U	0.12	0.12	0.199	pCi/L	100%	0.77	11/26/12 02:02 p		0.8817	ASC4UA
						0.088	1.0	(2.5)			L	
Batch: 2321041 E904.0												
Work Order: MXCGQ1AC Report DB ID: 9MXCGQ10												
RADIUM-228	0.785	J	0.27	0.29	0.463	pCi/L	93%	(1.7)	11/29/12 04:23 p		0.8817	GPC3B
						0.201	1.0	(5.4)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V Qual - Detected.

FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140449-4
Client Sample ID: AC-6D(640-41147-4)
640-41147-1

SDG: 46026
Report No.: 53875
COC No.: 640-54564.1

Collection Date: 11/7/2012 3:35:00 PM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0												
RADIUM-226	4.10	V	0.37	0.93	0.222	pCi/L	96%	(18.5)	11/26/12 02:04 p		0.8728	ASC5HB
						0.101	1.0	(8.8)			L	
Batch: 2321041 E904.0												
RADIUM-228	3.04	V	0.46	0.58	0.549	pCi/L	89%	(5.5)	11/29/12 04:23 p		0.8728	GPC3C
						0.242	1.0	(10.4)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V Qual - Detected.

FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140449-1
Client Sample ID: AC-8D(640-41147-1)
SDG: 46026
Report No.: 53875
COC No.: 640-54564.1
Collection Date: 11/7/2012 8:17:00 AM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0												
RADIUM-226	0.918	J	0.19	0.28	0.154	pCi/L	90%	(6.)	11/26/12 02:06 p		0.88	ASC1MB
						0.0655	1.0	(6.5)			L	
Batch: 2321041 E904.0												
RADIUM-228	1.65	V	0.38	0.43	0.547	pCi/L	84%	(3.)	11/29/12 04:22 p		0.88	GPC2D
						0.238	1.0	(7.6)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.

FORM I

Date: 30-Nov-12

SAMPLE RESULTS

Lab Name: TestAmerica
Lot-Sample No.: J2K140449-5
Client Sample ID: DUP-1(640-41147-5)
SDG: 46026
Report No.: 53875
COC No.: 640-54564.1
Collection Date: 11/7/2012 3:35:00 PM
Received Date: 11/14/2012 10:50:00 AM
Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0												
RADIUM-226	0.284	J	0.15	0.16	0.232	pCi/L	83%	(1.2)	11/26/12 02:07 p		0.8884	ASC6RA
						0.104	1.0	(3.5)			L	
Batch: 2321041 E904.0												
RADIUM-228	0.668	J	0.32	0.34	0.636	pCi/L	77%	(1.1)	11/29/12 04:23 p		0.8884	GPC3D
						0.281	1.0	(3.9)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.

FORM II

Date: 30-Nov-12

DUPLICATE RESULTS

Lab Name: TestAmerica SDG: 46027 Collection Date: 11/6/2012 10:45:00 AM
Lot-Sample No.: J2K140450-1 Report No.: 53875 Received Date: 11/14/2012 10:50:00 AM
Client Sample ID: AC-36D(640-41122-1) DUP COC No.: 640-54543.1 Matrix: WATER W

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0 Work Order: MXCG51AD Report DB ID: MXCG51DR Orig Sa DB ID: 9MXCG510												
RADIUM-226	1.17	V	0.25	0.35	0.173	pCi/L	100%	(6.8)	11/26/12 02:05 p		0.886	ASCCSD
	1.28	V	RER2 0.4			1.0		(6.8)			L	
Batch: 2321041 E904.0 Work Order: MXCG51AE Report DB ID: MXCG51ER Orig Sa DB ID: 9MXCG510												
RADIUM-228	2.24	V	0.40	0.49	0.517	pCi/L	93%	(4.3)	11/29/12 04:23 p		0.886	GPC4B
	3.3	V	RER2 2.6			1.0		(9.3)			L	

No. of Results: 2 Comments:

TestAmerica RER2 - Replicate Error Ratio = (S-D)/[sqrt((sq(TPU_s)+sq(TPU_d))] as defined by ICPT BOA.
OptSTLRchDupV5. MDC[MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
2.22 A2002 V Qual - Detected.



FORM II

BLANK RESULTS

Date: 30-Nov-12

Lab Name: TestAmerica
Matrix: WATER

SDG: 46027
Report No. : 53875

Parameter	Batch	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2321039 E903.0													
RADIUM-226													
		-0.00673	U	0.055	0.055	0.127	pCi/L	97%	-0.05	11/26/12 02:35 p		1.0008	ASCJMB
						0.0542	1.0		-0.24			L	
Batch: 2321041 E904.0													
RADIUM-228													
		0.442	U	0.35	0.35	0.722	pCi/L	87%	0.61	11/29/12 04:23 p		1.0008	GPC5D
						0.337	3.0		(2.5)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

LCS RESULTS

Date: 30-Nov-12

Lab Name: TestAmerica SDG: 46027
 Matrix: WATER Report No.: 53875

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2321039 E903.0													
RADIUM-226	9.88	V	0.53	2.2	0.131	pCi/L	87%	9.87	0.1	100%	11/26/12 02:29 p	1.0027	ASCKMF
							Rec Limits:	75	125	0.0			
Batch: 2321041 E904.0													
RADIUM-228	11.0	V	0.77	1.5	0.779	pCi/L	80%	9.85	0.11	112%	11/29/12 04:24 p	1.0027	GPC6B
							Rec Limits:	75	125	0.1			

No. of Results: 2 Comments:

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchLcs V Qual - Detected.
 NV5.2.22 A2002

TestAmerica Tallahassee

2846 Industrial Plaza Drive
Tallahassee, FL 32301
Phone (850) 878-3994 Fax (850) 878-9504

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)		Sampler:		Lab Pmt: Preston, Tim		Carrier Tracking No(s):		COC No: 640-54564.1	
Client Contact: Shipping/Receiving		Phone:		E-Mail: timothy.preston@testamericainc.com				Page: Page 1 of 1	
Company: TestAmerica Laboratories, Inc.		Due Date Requested: 11/20/2012		Analysis Requested		Job #: 640-41147-1		Preservation Codes:	
Address: 2800 George Washington Way,		TAT Requested (days):						A - HCL M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Z - other (specify)	
City: Richland		PO #:						Other:	
State, Zip: WA, 99352		WO #:							
Phone: 509-375-3131(Tel) 509-375-5590(Fax)		Project #:							
Email:		SOW#:							
Project Name: Agrico		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=oil, BT=issue, A=air)	
Site:		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=oil, BT=issue, A=air)	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=oil, BT=issue, A=air)	
AC-8D (640-41147-1) MYCBL		11/7/12		08:17 Eastern		Water		Field Filtered Sample (Yes or No)	
AC-13D (640-41147-2) MYCBL		11/7/12		10:21 Eastern		Water		Perform MS/MSD (Yes or No)	
AC-34S (640-41147-3) MYCBL		11/7/12		12:52 Eastern		Water		SUBCONTRACT/ Rad 228-Method 904.0 (Richland)	
AC-6D (640-41147-4) MYCBL		11/7/12		15:35 Eastern		Water		SUBCONTRACT/ Rad 226-Method 903.1 (Richland)	
Dup-1 (640-41147-5) MYCBL		11/7/12		Eastern		Water		Total Number of Containers	
J2K140449								Special Instructions/Note:	
SDG-46026									
Due 12-12-12									
Possible Hazard Identification									
Unconfirmed									
Deliverable Requested: I, II, III, IV, Other (specify)									
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Relinquished by: Jm		11/8/12		12:00		10SD		Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Relinquished by:		Date/Time:		Date/Time:		Date/Time:		Special Instructions/QC Requirements:	
Relinquished by:		Date/Time:		Date/Time:		Date/Time:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:							

Sample Check-in List

Date/Time Received: 11-14-12/1050 Container GM Screen Result: (Airlock) .02 Initials JS
Sample GM Screen Result (Sample Receiving) .04 Initials JS

Client: STL-T SDG #: 46026 NA [] SAF #: _____ NA JS

Lot Number: J2K140449

Chain of Custody # 640-54564.1

Shipping Container ID: _____ NA JS Air Bill Number: _____ NA JS

Samples received inside shipping container/cooler/box Yes JS] Continue with 1 through 4. Initial appropriate response.
No [] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes JS] No [] No Custody Seal []

2. Custody Seals dated and signed? Yes JS] No [] No Custody Seal []

3. Cooler temperature: _____ °C NA JS]

4. Vermiculite/packing materials is NA [] Wet [] Dry JS]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes JS] No []

6. Number of samples received (Each sample may contain multiple bottles): 5

7. Containers received: 10 x LP

8. Sample holding times exceeded? NA [] Yes [] No JS]

9. Samples have:
_____ tape JS hazard labels
_____ custody seals JS appropriate sample labels

10. Matrix:
_____ A (FLT, Wipe, Solid, Soil) JS I (Water)
_____ S (Air, Niosh 7400) _____ T (Biological, Ni-63)

11. Samples:
JS are in good condition _____ are leaking
_____ are broken _____ have air bubbles (Only for samples requiring no head space)
_____ Other _____

12. Sample pH appropriate for analysis requested Yes JS] No [] NA []
(If acidification is necessary, then document sample ID, initial pH, amount of HNO₃ added and pH after addition on table overleaf)

RPL ID # of preservative used : _____

13. Were any anomalies identified in sample receipt? Yes [] No JS]

14. Description of anomalies (include sample numbers): NA JS

Yes [43] No []

10. Additional Information: _____

[] Client/Courier unpack cooler.

Date: 11-14-12

by

Person contacted

[X] No action necessary; process as is

Project Manager

Date _____

SAMPLE ID	Initial pH	Acid Amt	Final pH
<i>[Signature]</i>			
11-04-12			

SAMPLE ID	Initial pH	Acid Amt	Final pH
<i>[Signature]</i>			
11-14-12			

TestAmerica

Phone (850) 878-3994 Fax (850) 878-9504

[illegible]

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41147-1

Login Number: 41147

List Source: TestAmerica Tallahassee

List Number: 1

Creator: Mitchell, Travis X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41147-1

Login Number: 41147

List Source: TestAmerica Pensacola

List Number: 1

List Creation: 11/09/12 03:47 PM

Creator: Crawford, Lauren E

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.9°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41147-1

Login Number: 41147

List Source: TestAmerica Savannah

List Number: 1

List Creation: 11/09/12 04:04 PM

Creator: Barnett, Eddie T

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Tel: (850)878-3994

TestAmerica Job ID: 640-41173-1

Client Project/Site: Agrico

For:

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317

Attn: Mr. Jeff Wagner



Authorized for release by:
12/18/2012 10:01:59 AM

Tim Preston
Project Manager II
timothy.preston@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Job ID: 640-41173-1

Laboratory: TestAmerica Tallahassee

Narrative

Job Narrative 640-41173-1

Comments

No additional comments.

Receipt

The samples were received on 11/9/2012 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8° C.

Field Service / Mobile Lab

No analytical or quality issues were noted.

General Chemistry

Method 300.0: Due to the high concentration of chloride, the matrix spike / matrix spike duplicate (MS/MSD) for batch 257615 could not be evaluated for accuracy and precision. The associated laboratory control sample and laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

No other analytical or quality issues were noted.

Subcontract non-Sister

No analytical or quality issues were noted.

Subcontract Work

Methods Radium 226 by EPA Method 903.1, Radium 228 by EPA Method 904.0: These methods were subcontracted to TestAmerica Richland. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.

Detection Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Client Sample ID: AC-12D

Lab Sample ID: 640-41173-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18		1.0		mg/L	1		300.0	Total/NA
Sulfate	250		5.0		mg/L	5		300.0	Total/NA
Fluoride	15		1.0		mg/L	10		340.2	Total/NA
Nitrate as N	9.6		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: NWD-4D

Lab Sample ID: 640-41173-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.0		1.0		mg/L	1		300.0	Total/NA
Sulfate	47		1.0		mg/L	1		300.0	Total/NA

Client Sample ID: ACSW-1

Lab Sample ID: 640-41173-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13000		500		mg/L	500		300.0	Total/NA
Sulfate	1700		50		mg/L	50		300.0	Total/NA
Fluoride	1.3		0.10		mg/L	1		340.2	Total/NA
Nitrate as N	0.31		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: ACSW-2

Lab Sample ID: 640-41173-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	14000		500		mg/L	500		300.0	Total/NA
Sulfate	1900		50		mg/L	50		300.0	Total/NA
Fluoride	0.73		0.10		mg/L	1		340.2	Total/NA
Nitrate as N	0.066		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: BT-107

Lab Sample ID: 640-41173-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.3		0.10		mg/L	1		340.2	Total/NA

Client Sample ID: BT-02

Lab Sample ID: 640-41173-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.89		0.10		mg/L	1		340.2	Total/NA

Client Sample ID: BT-127

Lab Sample ID: 640-41173-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	1.2		0.10		mg/L	1		340.2	Total/NA

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

General Chemistry

Client Sample ID: AC-12D
Date Collected: 11/08/12 08:40
Date Received: 11/09/12 10:00

Lab Sample ID: 640-41173-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18		1.0		mg/L			11/25/12 13:20	1
Sulfate	250		5.0		mg/L			11/27/12 16:31	5
Fluoride	15		1.0		mg/L			11/16/12 14:20	10
Nitrate as N	9.6		0.010		mg/L			11/19/12 11:34	1

Client Sample ID: NWD-4D
Date Collected: 11/08/12 10:30
Date Received: 11/09/12 10:00

Lab Sample ID: 640-41173-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.0		1.0		mg/L			11/25/12 13:32	1
Sulfate	47		1.0		mg/L			11/25/12 13:32	1
Fluoride	<0.10		0.10		mg/L			11/16/12 14:20	1
Nitrate as N	<0.010		0.010		mg/L			11/19/12 11:34	1

Client Sample ID: ACSW-1
Date Collected: 11/08/12 13:22
Date Received: 11/09/12 10:00

Lab Sample ID: 640-41173-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13000		500		mg/L			11/27/12 17:08	500
Sulfate	1700		50		mg/L			11/27/12 16:43	50
Fluoride	1.3		0.10		mg/L			11/16/12 14:20	1
Nitrate as N	0.31		0.010		mg/L			11/19/12 11:34	1

Client Sample ID: ACSW-2
Date Collected: 11/08/12 14:48
Date Received: 11/09/12 10:00

Lab Sample ID: 640-41173-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14000		500		mg/L			11/27/12 18:23	500
Sulfate	1900		50		mg/L			11/27/12 17:58	50
Fluoride	0.73		0.10		mg/L			11/16/12 14:20	1
Nitrate as N	0.066		0.010		mg/L			11/19/12 11:34	1

Client Sample ID: BT-107
Date Collected: 11/08/12 14:17
Date Received: 11/09/12 10:00

Lab Sample ID: 640-41173-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1.3		0.10		mg/L			11/16/12 14:20	1

Client Sample ID: BT-02
Date Collected: 11/08/12 14:32
Date Received: 11/09/12 10:00

Lab Sample ID: 640-41173-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.89		0.10		mg/L			11/16/12 14:20	1

Client Sample ID: BT-127
Date Collected: 11/08/12 13:47
Date Received: 11/09/12 10:00

Lab Sample ID: 640-41173-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	1.2		0.10		mg/L			11/16/12 14:20	1

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-257615/2

Matrix: Water

Analysis Batch: 257615

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			11/25/12 11:53	1
Sulfate	<1.0		1.0		mg/L			11/25/12 11:53	1

Lab Sample ID: LCS 680-257615/3

Matrix: Water

Analysis Batch: 257615

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.1		mg/L		101	90 - 110
Sulfate	10.0	10.8		mg/L		108	90 - 110

Lab Sample ID: LCSD 680-257615/4

Matrix: Water

Analysis Batch: 257615

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.1		mg/L		101	90 - 110	0	30
Sulfate	10.0	10.9		mg/L		109	90 - 110	0	30

Lab Sample ID: MB 680-257866/7

Matrix: Water

Analysis Batch: 257866

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			11/27/12 13:24	1
Sulfate	<1.0		1.0		mg/L			11/27/12 13:24	1

Lab Sample ID: LCS 680-257866/8

Matrix: Water

Analysis Batch: 257866

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.0		mg/L		100	90 - 110
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 680-257866/9

Matrix: Water

Analysis Batch: 257866

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.0		mg/L		100	90 - 110	0	30
Sulfate	10.0	10.5		mg/L		105	90 - 110	1	30

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Method: 340.2 - Fluoride

Lab Sample ID: MB 400-166992/1

Matrix: Water

Analysis Batch: 166992

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			11/16/12 14:20	1

Lab Sample ID: LCS 400-166992/2

Matrix: Water

Analysis Batch: 166992

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.05		mg/L		105	90 - 110

Lab Sample ID: 640-41173-1 MS

Matrix: Water

Analysis Batch: 166992

Client Sample ID: AC-12D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	15		16.0	32.0		mg/L		109	74 - 125

Lab Sample ID: 640-41173-1 MSD

Matrix: Water

Analysis Batch: 166992

Client Sample ID: AC-12D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	15		16.0	31.8		mg/L		107	74 - 125	1	4

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAC	4	E81005	06-30-13
Louisiana	NELAC	6	30663	06-30-13
New Jersey	NELAC	2	FL012	06-30-13
Texas	NELAC	6	T104704459-11-2	03-31-13
USDA	Federal		P330-08-00158	08-05-14

Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-13
Arizona	State Program	9	AZ0710	01-11-13
Arkansas DEQ	State Program	6	88-0689	09-01-13
Florida	NELAC	4	E81010	06-30-13
Georgia	State Program	4	N/A	06-30-13
Illinois	NELAC	5	200041	10-09-13
Iowa	State Program	7	367	08-01-14
Kansas	NELAC	7	E-10253	10-31-13
Kentucky (UST)	State Program	4	53	07-05-13
Louisiana	NELAC	6	30976	06-30-13
Maryland	State Program	3	233	09-30-13
Massachusetts	State Program	1	M-FL094	06-30-13
Michigan	State Program	5	9912	06-30-13
New Hampshire	NELAC	1	2505	08-16-13
New Jersey	NELAC	2	FL006	06-30-13
North Carolina DENR	State Program	4	314	12-31-12
Oklahoma	State Program	6	9810	08-31-13
Pennsylvania	NELAC	3	68-00467	12-31-12
Rhode Island	State Program	1	LAO00307	12-30-12
South Carolina	State Program	4	96026	06-30-12
Tennessee	State Program	4	TN02907	06-30-13
Texas	NELAC	6	T104704286-12-5	09-30-13
USDA	Federal		P330-10-00407	12-10-13
Virginia	NELAC	3	460166	06-14-13
West Virginia DEP	State Program	3	136	06-30-13

Laboratory: TestAmerica Richland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA - LAP	IHLAP		187436	07-01-13
Arizona	State Program	9	AZ0709	07-02-13
California	NELAC	9	E87829	05-31-14
Colorado	State Program	8	N/A	09-30-13
Florida	NELAC	4	E87829	06-30-13
Hawaii	State Program	9	N/A	01-09-13
L-A-B	DoD ELAP		L2291	06-30-14
Nevada	State Program	9	WA00023	07-31-13
New Mexico	State Program	6	WA00023	01-09-13
Oregon	NELAC	10	WA100002	01-09-14
Pennsylvania	NELAC	3	68-04849	08-31-13
Tennessee	State Program	4	4011	01-09-13

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Laboratory: TestAmerica Richland (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAC	6	T104704493-10-1	12-31-12
USDA	Federal		P330-11-00043	01-25-14
Utah	NELAC	8	QUAN8	01-09-13
Virginia	State Program	3	00100	06-30-13
Washington	State Program	10	WA01116	08-14-13
Washington (CLIA)	State Program	10	50D0661626	06-30-13

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

Method Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
340.2	Fluoride	MCAWW	TAL PEN
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL TAL
Rad 226-Method 903.1 (Richland)	RAD-226 (RCH)	NONE	TAL RCH
Rad 228-Method 904.0 (Richland)	RAD-228 (RCH)	NONE	TAL RCH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NONE = NONE

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

Sample Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41173-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
640-41173-1	AC-12D	Water	11/08/12 08:40	11/09/12 10:00
640-41173-2	NWD-4D	Water	11/08/12 10:30	11/09/12 10:00
640-41173-3	ACSW-1	Water	11/08/12 13:22	11/09/12 10:00
640-41173-4	ACSW-2	Water	11/08/12 14:48	11/09/12 10:00
640-41173-5	BT-107	Water	11/08/12 14:17	11/09/12 10:00
640-41173-6	BT-02	Water	11/08/12 14:32	11/09/12 10:00
640-41173-7	BT-127	Water	11/08/12 13:47	11/09/12 10:00

Analytical Data Package Prepared For
TestAmerica Tallahassee

Radiochemical Analysis By
TestAmerica

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 53943

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
46042		AC-12D(640-41173-1)	J2K160449-1	MXDD51AA	9MXDD510	2324046
		AC-12D(640-41173-1)	J2K160449-1	MXDD51AC	9MXDD510	2324047
		ACSW-1(640-41173-3)	J2K160449-3	MXDED1AA	9MXDED10	2324046
		ACSW-1(640-41173-3)	J2K160449-3	MXDED1AC	9MXDED10	2324047
		ACSW-2(640-41173-4)	J2K160449-4	MXDEF1AA	9MXDEF10	2324046
		ACSW-2(640-41173-4)	J2K160449-4	MXDEF1AC	9MXDEF10	2324047
		NWD-4D(640-41173-2)	J2K160449-2	MXDD81AA	9MXDD810	2324046
		NWD-4D(640-41173-2)	J2K160449-2	MXDD81AC	9MXDD810	2324047

Certificate of Analysis

December 11, 2012

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301

Attention: Tim Preston

Date Received by Lab	:	November 16, 2012
Sample Number/Matrix	:	Four (4) Waters
SDG Number	:	46042
Client	:	Cedar Bay
Project	:	Agrico
Project Number	:	640-41173-1

CASE NARRATIVE

I. Introduction

On November 16, 2012, four water samples were received at the TestAmerica Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package. The samples were assigned to Lot Number J2K160449.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analyses requested were:

Gas Proportional Counting

Radium-228 by method RL-RA-001

Alpha Scintillation Counting

Radium-226 by method RL-RA-001

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Gas Proportional Counting

Radium-228 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation Counting

Radium-226 by method RL-RA-001:

The LCS had to go through a second ingrow period due to a processing error. The data is acceptable. Except as noted, the LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,...)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c - Combined Uncertainty.</i>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgndCnt}/\text{BkgndCntMin})/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \text{Sqrt}((\text{BkgndCnt}/\text{BkgndCntMin})/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{TPUs}^2 + \text{TPUd}^2)]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 11-Dec-12

TestAmerica TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 53943

SDG No: 46042

Batch	Client Id Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2324046	E903.0								
	AC-12D(640-41173-1)								
	MXDD51AA	RADIUM-226	1.43 +/- 0.39	V	pCi/L	98%	0.155	1.0	
	AC-12D(640-41173-1) DUP								
	MXDD51AD	RADIUM-226	1.45 +/- 0.40	V	pCi/L	100%	0.197	1.0	0.1
	ACSW-1(640-41173-3)								
	MXDED1AA	RADIUM-226	0.247 +/- 0.16	U	pCi/L	83%	0.255	1.0	
	ACSW-2(640-41173-4)								
	MXDEF1AA	RADIUM-226	0.133 +/- 0.11	U	pCi/L	94%	0.172	1.0	
	NWD-4D(640-41173-2)								
	MXDD81AA	RADIUM-226	1.91 +/- 0.44	V	pCi/L	99%	0.178	1.0	
2324047	E904.0								
	AC-12D(640-41173-1)								
	MXDD51AC	RADIUM-228	7.88 +/- 1.1	V	pCi/L	89%	0.79	1.0	
	AC-12D(640-41173-1) DUP								
	MXDD51AE	RADIUM-228	7.49 +/- 1.0	V	pCi/L	91%	0.665	1.0	0.5
	ACSW-1(640-41173-3)								
	MXDED1AC	RADIUM-228	0.828 +/- 0.47	U	pCi/L	73%	0.937	1.0	
	ACSW-2(640-41173-4)								
	MXDEF1AC	RADIUM-228	0.558 +/- 0.29	J	pCi/L	88%	0.549	1.0	
	NWD-4D(640-41173-2)								
	MXDD81AC	RADIUM-228	4.09 +/- 0.70	V	pCi/L	90%	0.758	1.0	
No. of Results: 10									

TestAmerica

RER2 - Replicate Error Ratio = $(S-D)/[\sqrt{sq(TPUs)+sq(TPUD)}]$ as defined by ICPT BOA.

rptSTLRchSaSum
mary2 V5.2.22
A2002

J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V Qual - Detected.

QC Results Summary
TestAmerica TARL
 Ordered by Method, Batch No, QC Type,.

Date: 11-Dec-12

Report No. : 53943

SDG No.: 46042

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
E903.0									
	2324046 BLANK QC,								
	MXDP81AA	RADIUM-226	-0.0346 +/- 0.056	U	pCi/L	91%			0.142
	2324046 LCS,								
	MXDP81AC	RADIUM-226	11.2 +/- 3.1	V	pCi/L	89%	113%	0.1	0.286
E904.0									
	2324047 BLANK QC,								
	MXDQD1AA	RADIUM-228	0.157 +/- 0.23	U	pCi/L	83%			0.502
	2324047 LCS,								
	MXDQD1AC	RADIUM-228	10.8 +/- 1.5	V	pCi/L	77%	110%	0.1	0.529
No. of Results: 4									

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchQcSum U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or
 mary V5.2.22 not identified by gamma scan software.
 A2002 V Qual - Detected.

FORM I

Date: 11-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K160449-1
 Client Sample ID: AC-12D(640-41173-1)
 SDG: 46042
 Report No.: 53943
 COC No.: 640-54588.1
 Collection Date: 11/8/2012 8:40:00 AM
 Received Date: 11/16/2012 10:30:00 AM
 Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2324046 E903.0												
RADIUM-226												
	1.43	V	0.23	0.39	0.155 pCi/L	0.0657	98%	(9.2)	11/26/12 07:03 p		0.8671	ASC2RC
							1.0	(7.2)			L	
Batch: 2324047 E904.0												
RADIUM-228												
	7.88	V	0.69	1.1	0.79 pCi/L	0.369	89%	(10.)	12/4/12 04:02 p		0.8671	GPC1A
							1.0	(14.2)			L	

No. of Results: 2 Comments:

FORM I

Date: 11-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K160449-3
 Client Sample ID: ACSW-1(640-41173-3)
 SDG: 46042
 Report No.: 53943
 COC No.: 640-54588.1
 Collection Date: 11/8/2012 1:22:00 PM
 Received Date: 11/16/2012 10:30:00 AM
 Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2324046	E903.0				Work Order: MXDED1AA	Report DB ID: 9MXDED10						
RADIUM-226	0.247	U	0.16	0.16	0.255 pCi/L	0.113	83%	0.97 (3.)	11/26/12 07:02 p		0.8477 L	ASC9RA
Batch: 2324047	E904.0				Work Order: MXDED1AC	Report DB ID: 9MXDED10						
RADIUM-228	0.828	U	0.46	0.47	0.937 pCi/L	0.436	73%	0.88 (3.5)	12/4/12 04:02 p		0.8477 L	GPC1D

No. of Results: 2 Comments:



FORM I

Date: 11-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica

SDG: 46042

Collection Date: 11/8/2012 2:48:00 PM

Lot-Sample No.: J2K160449-4

Report No.: 53943

Received Date: 11/16/2012 10:30:00 AM

Client Sample ID: ACSW-2(640-41173-4)

COC No.: 640-54588.1

Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2324046	E903.0				Work Order: MXDEF1AA		Report DB ID: 9MXDEF10					
RADIUM-226	0.133	U	0.10	0.11	0.172	pCi/L	94%	0.77 (2.5)	11/26/12 07:02 p		0.8062 L	ASCASB
Batch: 2324047	E904.0				Work Order: MXDEF1AC		Report DB ID: 9MXDEF10					
RADIUM-228	0.558	J	0.28	0.29	0.549	pCi/L	88%	(1.) (3.8)	12/4/12 04:17 p		0.8062 L	GPC2B

No. of Results: 2 Comments:

TestAmerica MDC[MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTL_RchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.

FORM I

Date: 11-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K160449-2
 Client Sample ID: NWD-4D(640-41173-2)
 SDG: 46042
 Report No.: 53943
 COC No.: 640-54588.1
 Collection Date: 11/8/2012 10:30:00 AM
 Received Date: 11/16/2012 10:30:00 AM
 Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2324046	E903.0											
RADIUM-226	1.91	V	0.26	0.44	0.178	pCi/L	99%	(10.7)	11/26/12 06:58 p		0.9061	ASC8HD
						0.0789	1.0	(8.6)			L	
Batch: 2324047	E904.0											
RADIUM-228	4.09	V	0.53	0.70	0.758	pCi/L	90%	(5.4)	12/4/12 04:02 p		0.9061	GPC1C
						0.353	1.0	(11.6)			L	

No. of Results: 2 Comments:

TestAmerica MDC\MDA\Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.



FORM II

Date: 11-Dec-12

DUPLICATE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K160449-1
 Client Sample ID: AC-12D(640-41173-1) DUP

SDG: 46042
 Report No.: 53943
 COC No.: 640-54588.1

Collection Date: 11/8/2012 8:40:00 AM
 Received Date: 11/16/2012 10:30:00 AM
 Matrix: WATER W

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2324046	E903.0											
RADIUM-226	1.45	V	0.22	0.40	0.197	pCi/L	100%	MXDD51DR	Orig Sa DB ID: 9MXDD510	11/26/12 06:58 p	0.9203	ASC7HA
	1.43	V	RER2 0.1			1.0	(7.2)				L	
Batch: 2324047	E904.0											
RADIUM-228	7.49	V	0.63	1.0	0.665	pCi/L	91%	MXDD51ER	Orig Sa DB ID: 9MXDD510	12/4/12 04:02 p	0.9203	GPC1B
	7.88	V	RER2 0.5			1.0	(14.3)				L	

No. of Results: 2 Comments:

TestAmerica RER2 - Replicate Error Ratio = $(S-D)/[\sqrt{(sq(TPU_s) + sq(TPU_d))}]$ as defined by ICPT BOA.
 rptSTLRchDupV5. MDC|MDA_{Lc} - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 2.22 A2002 V Qual - Detected.



FORM II

Date: 11-Dec-12

BLANK RESULTS

Lab Name: TestAmerica
Matrix: WATER

SDG: 46042
Report No.: 53943

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2324046 E903.0												
RADIUM-226												
Work Order: MXDP81AA Report DB ID: MXDP81AB												
	-0.0346	U	0.055	0.056	0.142	pCi/L	91%	-0.24	11/26/12 07:00 p		1.0019	ASCMAD
					0.0607	1.0		-(1.2)			L	
Batch: 2324047 E904.0												
RADIUM-228												
Work Order: MXDQD1AA Report DB ID: MXDQD1AB												
	0.157	U	0.23	0.23	0.502	pCi/L	83%	0.31	12/4/12 04:17 p		1.0019	GPC2C
					0.22	1.0		(1.4)			L	

No. of Results: 2 Comments:

TestAmerica MDC[MDA\Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
rptSTLRchBlank U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V5.2.22 A2002



FORM II

Date: 11-Dec-12

LCS RESULTS

Lab Name: TestAmerica

SDG: 46042

Matrix: WATER

Report No.: 53943

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2324046 E903.0													
RADIUM-226	11.2	V	0.66	3.1	0.286	pCi/L	89%	9.90	0.1	113%	11/30/12 01:11 p	1.0005	ASC5HA
							Report DB ID: MXDP81AC						
							Rec Limits:	75	125	0.1		L	
Batch: 2324047 E904.0													
RADIUM-228	10.8	V	0.81	1.5	0.529	pCi/L	77%	9.84	0.11	110%	12/4/12 04:17 p	1.0005	GPC2D
							Report DB ID: MXDQD1CS						
							Rec Limits:	75	125	0.1		L	

No. of Results: 2 Comments:

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.

V Qual - Detected.

rptSTLRchLcs
V5.2.22 A2002

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Phone (850) 878-3994 Fax (850) 878-9504

Chain of Custody Record

[illegible]

Chain of Custody Record

Client Information		Sampler: <u>Eric Mann</u>	Lab FM: <u>Preston, Tim</u>	Carrier Tracking No. (S):	COC No: <u>640-35431-6826.2</u>
Client Contact: <u>Mr. Jeff Wagner</u>		Phone: <u>850 251 0585</u>	E-Mail: <u>timothy.preston@testamericainc.com</u>		Page 2 of 4
Company: <u>URS Corporation</u>		Analysis Requested			
Address: <u>1625 Summit Lake Drive Suite 200</u>		Due Date Requested:			
City: <u>Tallahassee</u>		TAT Requested (days):			
State: <u>Fla.</u>		PO #:			
F.L. <u>32317</u>		W/O #:			
Phone:		Field Filtered Sample (Yes or No)			
Email: <u>jeffry.wagner@urscorp.com</u>		Perform MS/MSD (Yes or No)			
Project Name: <u>AgriCo Annual</u>		340.2 - Fluoride (Pensacola)			
Site: <u>Pensacola, FL</u>		SUBCONTRACT - Rad 226-Method 903.1 (Richland)			
SSO/V#:		SUBCONTRACT - Rad 228-Method 904.0 (Richland)			
		353.2 - Nitrate as N			
		300.0 28D - Chloride, Sulfate			
		SM4500_NO2_B - Nitrate as N			
		6010B - Arsenic			
		Total Number of containers:			
		Special Instructions/Note:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (V=water, S=solid, O=unknown)	Preservation Code	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	340.2 - Fluoride (Pensacola)	SUBCONTRACT - Rad 226-Method 903.1 (Richland)	SUBCONTRACT - Rad 228-Method 904.0 (Richland)	353.2 - Nitrate as N	300.0 28D - Chloride, Sulfate	SM4500_NO2_B - Nitrate as N	6010B - Arsenic	Total Number of containers	Special Instructions/Note
AC-12D	11/8/12	0840	G	W												
NMD-4D		1030														
ACSW-1		1322														
ACSW-2		1448														
BT-107		1417														
BT-02		1438														
BT-127		1347	V	V												

Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
<input type="checkbox"/> Non-Hazard	<input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	<input type="checkbox"/> Return To Client	<input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months
Deliverable Requested (I, II, III, IV, Other (specify))		Special Instructions/OC Requirements:	
Empty Kit Relinquished by: <u>Jeff Wagner</u>	Date: <u>12/30/12</u>	Time: <u>11:45</u>	Method of Shipment: <u>Fed Ex</u>
Relinquished by: <u>Jeff Wagner</u>	Date/Time: <u>11/8/12 1645</u>	Company: <u>URS</u>	Received by: <u>Tim Preston</u>
Relinquished by: <u>Jeff Wagner</u>	Date/Time: <u>11/8/12 1645</u>	Company: <u>URS</u>	Received by: <u>Tim Preston</u>
Relinquished by: <u>Jeff Wagner</u>	Date/Time: <u>11/8/12 1645</u>	Company: <u>URS</u>	Received by: <u>Tim Preston</u>
Custody Seals Intact: <u>Yes</u>	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: <u>0.60</u>	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41173-1

Login Number: 41173

List Source: TestAmerica Tallahassee

List Number: 1

Creator: Mitchell, Travis X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41173-1

Login Number: 41173

List Source: TestAmerica Pensacola

List Number: 1

List Creation: 11/10/12 02:45 PM

Creator: Serratore, Maria

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.6°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41173-1

Login Number: 41173

List Source: TestAmerica Savannah

List Number: 1

List Creation: 11/10/12 02:42 PM

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Tel: (850)878-3994

TestAmerica Job ID: 640-41179-1

Client Project/Site: Agrico

For:

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317

Attn: Mr. Jeff Wagner



Authorized for release by:
12/18/2012 10:02:41 AM

Tim Preston
Project Manager II
timothy.preston@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

Job ID: 640-41179-1

Laboratory: TestAmerica Tallahassee

Narrative

Job Narrative 640-41179-1

Comments

No additional comments.

Receipt

The samples were received on 11/9/2012 5:47 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C.

Field Service / Mobile Lab

No analytical or quality issues were noted.

General Chemistry

No analytical or quality issues were noted.

Subcontract non-Sister

No analytical or quality issues were noted.

Subcontract Work

Methods Radium 226 by EPA Method 903.1, Radium 228 by EPA Method 904.0: These methods were subcontracted to TestAmerica Richland. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.

Detection Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

Client Sample ID: EQ BLNK-1

Lab Sample ID: 640-41179-1

No Detections

Client Sample ID: AC-24D

Lab Sample ID: 640-41179-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	190		4.0		mg/L	4		300.0	Total/NA
Sulfate	78		2.0		mg/L	2		300.0	Total/NA
Fluoride	67		5.0		mg/L	50		340.2	Total/NA
Nitrate as N	5.5		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

General Chemistry

Client Sample ID: EQ BLNK-1

Date Collected: 11/09/12 07:35

Date Received: 11/09/12 17:47

Lab Sample ID: 640-41179-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			11/27/12 18:47	1
Sulfate	<1.0		1.0		mg/L			11/27/12 18:47	1
Fluoride	<0.10		0.10		mg/L			11/14/12 16:30	1
Nitrate as N	<0.010		0.010		mg/L			11/19/12 11:34	1

Client Sample ID: AC-24D

Date Collected: 11/09/12 10:03

Date Received: 11/09/12 17:47

Lab Sample ID: 640-41179-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	190		4.0		mg/L			11/27/12 19:12	4
Sulfate	78		2.0		mg/L			11/27/12 19:00	2
Fluoride	67		5.0		mg/L			11/14/12 16:30	50
Nitrate as N	5.5		0.010		mg/L			11/19/12 11:34	1

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-257866/7

Matrix: Water

Analysis Batch: 257866

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			11/27/12 13:24	1
Sulfate	<1.0		1.0		mg/L			11/27/12 13:24	1

Lab Sample ID: LCS 680-257866/8

Matrix: Water

Analysis Batch: 257866

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.0		mg/L		100	90 - 110
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 680-257866/9

Matrix: Water

Analysis Batch: 257866

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.0		mg/L		100	90 - 110	0	30
Sulfate	10.0	10.5		mg/L		105	90 - 110	1	30

Method: 340.2 - Fluoride

Lab Sample ID: MB 400-166840/1

Matrix: Water

Analysis Batch: 166840

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			11/14/12 16:30	1

Lab Sample ID: LCS 400-166840/2

Matrix: Water

Analysis Batch: 166840

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.08		mg/L		108	90 - 110

Lab Sample ID: 640-41179-2 DU

Matrix: Water

Analysis Batch: 166840

Client Sample ID: AC-24D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	67		67.7		mg/L		0.4	4

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAC	4	E81005	06-30-13
Louisiana	NELAC	6	30663	06-30-13
New Jersey	NELAC	2	FL012	06-30-13
Texas	NELAC	6	T104704459-11-2	03-31-13
USDA	Federal		P330-08-00158	08-05-14

Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-13
Arizona	State Program	9	AZ0710	01-11-13
Arkansas DEQ	State Program	6	88-0689	09-01-13
Florida	NELAC	4	E81010	06-30-13
Georgia	State Program	4	N/A	06-30-13
Illinois	NELAC	5	200041	10-09-13
Iowa	State Program	7	367	08-01-14
Kansas	NELAC	7	E-10253	10-31-13
Kentucky (UST)	State Program	4	53	07-05-13
Louisiana	NELAC	6	30976	06-30-13
Maryland	State Program	3	233	09-30-13
Massachusetts	State Program	1	M-FL094	06-30-13
Michigan	State Program	5	9912	06-30-13
New Hampshire	NELAC	1	2505	08-16-13
New Jersey	NELAC	2	FL006	06-30-13
North Carolina DENR	State Program	4	314	12-31-12
Oklahoma	State Program	6	9810	08-31-13
Pennsylvania	NELAC	3	68-00467	12-31-12
Rhode Island	State Program	1	LAO00307	12-30-12
South Carolina	State Program	4	96026	06-30-12
Tennessee	State Program	4	TN02907	06-30-13
Texas	NELAC	6	T104704286-12-5	09-30-13
USDA	Federal		P330-10-00407	12-10-13
Virginia	NELAC	3	460166	06-14-13
West Virginia DEP	State Program	3	136	06-30-13

Laboratory: TestAmerica Richland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA - LAP	IHLAP		187436	07-01-13
Arizona	State Program	9	AZ0709	07-02-13
California	NELAC	9	E87829	05-31-14
Colorado	State Program	8	N/A	09-30-13
Florida	NELAC	4	E87829	06-30-13
Hawaii	State Program	9	N/A	01-09-13
L-A-B	DoD ELAP		L2291	06-30-14
Nevada	State Program	9	WA00023	07-31-13
New Mexico	State Program	6	WA00023	01-09-13
Oregon	NELAC	10	WA100002	01-09-14
Pennsylvania	NELAC	3	68-04849	08-31-13
Tennessee	State Program	4	4011	01-09-13

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

Laboratory: TestAmerica Richland (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAC	6	T104704493-10-1	12-31-12
USDA	Federal		P330-11-00043	01-25-14
Utah	NELAC	8	QUAN8	01-09-13
Virginia	State Program	3	00100	06-30-13
Washington	State Program	10	WA01116	08-14-13
Washington (CLIA)	State Program	10	50D0661626	06-30-13

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

Method Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
340.2	Fluoride	MCAWW	TAL PEN
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL TAL
Rad 226-Method 903.1 (Richland)	RAD-226 (RCH)	NONE	TAL RCH
Rad 228-Method 904.0 (Richland)	RAD-228 (RCH)	NONE	TAL RCH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NONE = NONE

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

Sample Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41179-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
640-41179-1	EQ BLNK-1	Water	11/09/12 07:35	11/09/12 17:47
640-41179-2	AC-24D	Water	11/09/12 10:03	11/09/12 17:47

Analytical Data Package Prepared For
TestAmerica Tallahassee

Radiochemical Analysis By
TestAmerica

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 53945

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
46049		AC-24D(640-41179-2)	J2K190412-2	MXDVQ1AA	9MXDVQ10	2325039
		AC-24D(640-41179-2)	J2K190412-2	MXDVQ1AC	9MXDVQ10	2325040
		EQ BLNK-1(640-41179-1)	J2K190412-1	MXDVH1AA	9MXDVH10	2325039
		EQ BLNK-1(640-41179-1)	J2K190412-1	MXDVH1AC	9MXDVH10	2325040

Certificate of Analysis

December 11, 2012

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301

Attention: Tim Preston

Date Received by Lab	:	November 19, 2012
Sample Number/Matrix	:	Two (2) Waters
SDG Number	:	46049
Client	:	Cedar Bay
Project	:	Agrico
Project Number	:	640-41179-1

CASE NARRATIVE

I. Introduction

On November 19, 2012, two water samples were received at the TestAmerica Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package. The samples were assigned to Lot Number J2K190412.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analyses requested were:

Gas Proportional Counting
Radium-228 by method RL-RA-001
Alpha Scintillation Counting
Radium-226 by method RL-RA-001

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Gas Proportional Counting

Radium-228 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation Counting

Radium-226 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,...)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c Combined Uncertainty.</i>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \text{Sqrt}(2 * (\text{BkgndCnt}/\text{BkgndCntMin})/\text{SCntMin})) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \text{Sqrt}((\text{BkgndCnt}/\text{BkgndCntMin})/\text{SCntMin}) + 2.71/\text{SCntMin}) * (\text{ConvFct}/(\text{Eff} * \text{Yld} * \text{Abn} * \text{Vol}) * \text{IngrFct})$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{TPUs}^2 + \text{TPUd}^2)]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUd is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 11-Dec-12

TestAmerica TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 53945

SDG No: 46049

Batch	Client Id Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2325039	E903.0								
	AC-24D(640-41179-2)								
	MXDVQ1AA	RADIUM-226	1.48 +/- 0.42	V	pCi/L	81%	0.196	1.0	
	EQ BLNK-1(640-41179-1)								
	MXDVH1AA	RADIUM-226	0.0717 +/- 0.11	U	pCi/L	93%	0.212	1.0	
	EQ BLNK-1(640-41179-1) DUP								
	MXDVH1AD	RADIUM-226	-0.0232 +/- 0.097	U	pCi/L	88%	0.226	1.0	1.3
2325040	E904.0								
	AC-24D(640-41179-2)								
	MXDVQ1AC	RADIUM-228	10.9 +/- 1.5	V	pCi/L	76%	0.652	1.0	
	EQ BLNK-1(640-41179-1)								
	MXDVH1AC	RADIUM-228	0.162 +/- 0.22	U	pCi/L	85%	0.475	1.0	
	EQ BLNK-1(640-41179-1) DUP								
	MXDVH1AE	RADIUM-228	-0.0335 +/- 0.25	U	pCi/L	82%	0.604	1.0	1.2

No. of Results: 6

TestAmerica
rptSTLRchSaSum
mary2 V5.2.22
A2002

RER2 - Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{sq}(\text{TPUs})+\text{sq}(\text{TPUd}))]$ as defined by ICPT BOA.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V Qual - Detected.

QC Results Summary
TestAmerica TARL
 Ordered by Method, Batch No, QC Type,.

Date: 11-Dec-12

Report No. : 53945

SDG No.: 46056

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
E903.0									
	2325039	BLANK QC,							
	MXD3V1AA	RADIUM-226	0.0496 +/- 0.097	U	pCi/L	81%			0.19
	2325039	LCS,							
	MXD3V1AC	RADIUM-226	9.25 +/- 2.2	V	pCi/L	90%	93%	-0.1	0.162
E904.0									
	2325040	BLANK QC,							
	MXD3W1AA	RADIUM-228	0.238 +/- 0.34	U	pCi/L	74%			0.741
	2325040	LCS,							
	MXD3W1AC	RADIUM-228	10.7 +/- 1.5	V	pCi/L	83%	107%	0.1	0.579
No. of Results: 4									

TestAmerica rptSTLRchQcSummary V5.2.22 A2002	Bias - (Result/Expected)-1 as defined by ANSI N13.30. U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software. V Qual - Detected.
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FORM I

Date: 11-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K190412-2
 Client Sample ID: AC-24D(640-41179-2)

SDG: 46049
 Report No.: 53945
 COC No.: 640-54605.1

Collection Date: 11/9/2012 10:03:00 AM

Received Date: 11/19/2012 11:00:00 AM

Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2325039 E903.0												
RADIUM-226	1.48	V	0.26	0.42	0.196	pCi/L	81%	(7.5)	12/3/12 03:32 p		0.8825	ASCDMB
						0.084	1.0	(7.1)			L	
Batch: 2325040 E904.0												
RADIUM-228	10.9	V	0.88	1.5	0.652	pCi/L	76%	(16.7)	12/5/12 02:35 p		0.8825	GPC4B
						0.288	1.0	(14.1)			L	

No. of Results: 2 Comments:

FORM I

Date: 11-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica

SDG: 46049

Collection Date: 11/9/2012 7:35:00 AM

Lot-Sample No.: J2K190412-1

Report No.: 53945

Received Date: 11/19/2012 11:00:00 AM

Client Sample ID: EQ BLNK-1(640-41179-1)

COC No.: 640-54605.1

Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2325039 E903.0												
RADIUM-226	0.0717	U	0.11	0.11	0.212	pCi/L	93%	0.34	12/3/12 03:36 p		0.8713	ASCBMC
						0.093	1.0	(1.3)			L	
Batch: 2325040 E904.0												
RADIUM-228	0.162	U	0.21	0.22	0.475	pCi/L	85%	0.34	12/5/12 02:35 p		0.8713	GPC3D
						0.205	1.0	(1.5)			L	

No. of Results: 2 Comments:

FORM II

Date: 11-Dec-12

DUPLICATE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K190412-1
 Client Sample ID: EQ BLNK-1(640-41179-1) DUP

SDG: 46049
 Report No.: 53945
 COC No.: 640-54605.1

Collection Date: 11/9/2012 7:35:00 AM
 Received Date: 11/19/2012 11:00:00 AM
 Matrix: WATER W

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2325039	E903.0											
RADIUM-226	-0.0232	U	0.097	0.097	0.226	pCi/L	88%	-0.1	12/3/12 03:38 p		0.8973	ASCCSA
	0.0717	U	RER2 1.3			1.0		-0.48			L	

Batch: 2325040	E904.0											
RADIUM-228	-0.0335	U	0.25	0.25	0.604	pCi/L	82%	-0.06	12/5/12 02:35 p		0.8973	GPC4A
	0.162	U	RER2 1.2			1.0		-0.27			L	

No. of Results: 2 Comments:

TestAmerica RER2 - Replicate Error Ratio = $(S-D)/[\sqrt{\text{sq}(\text{TPUs}) + \text{sq}(\text{TPUd})}]$ as defined by ICPT BOA.
 rptSTLRchDupV5. MDC[MDA]_{Lc} - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.



FORM II

Date: 11-Dec-12

BLANK RESULTS

Lab Name: TestAmerica
Matrix: WATER

SDG: 46056
Report No.: 53945

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2325039 E903.0												
RADIUM-226	0.0496	U	0.097	0.097	0.19 0.0826	pCi/L 1.0	81%	0.26 (1.)	12/3/12 03:34 p		1.0008 L	ASCEHB
Batch: 2325040 E904.0												
RADIUM-228	0.238	U	0.33	0.34	0.741 0.337	pCi/L 3.0	74%	0.32 (1.4)	12/5/12 02:35 p		1.0008 L	GPC4C

No. of Results: 2 Comments:

FORM II

Date: 11-Dec-12

LCS RESULTS

Lab Name: TestAmerica
Matrix: WATER

SDG: 46056
Report No.: 53945

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prop Date	Aliquot Size	Primary Detector
Batch: 2325039 E903.0													
Work Order: MXD3V1AC Report DB ID: MXD3V1CS													
RADIUM-226	9.25	V	0.54	2.2	0.162	pCi/L	90%	9.90	0.1	93%	12/3/12 03:40 p	1.001	ASCFAC
							Rec Limits:	70	130	-0.1		L	
Batch: 2325040 E904.0													
Work Order: MXD3W1AC Report DB ID: MXD3W1CS													
RADIUM-228	10.7	V	0.79	1.5	0.579	pCi/L	83%	9.97	0.11	107%	12/5/12 02:35 p	1.001	GPC4D
							Rec Limits:	70	130	0.1		L	
No. of Results: 2 Comments:													

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Phone (850) 878-3994 Fax (850) 878-9504

Chain of Custody Record



Client Information (Sub Contract Lab)				Lab Pk: Presion, Tim		Carrier Tracking No(s):		COC No: 640-54605.1	
Client Contact Shipping/Receiving				E-Mail: timothy.preston@testamericainc.com		Page: Page 1 of 1		Job #: 640-41179-1	
Company: TestAmerica Laboratories, Inc.				Due Date Requested: 11/21/2012		TAT Requested (days):		Analysis Requested	
Address: 2800 George Washington Way, Richland State, Zip: WA, 99352				PO #:		WO #:		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 L - EDA Z - other (specify) Other:	
Phone: 509-375-3131(Tel) 509-375-5590(Fax)				Project #: 64000434		SSOW#:		Total Number of Containers	
Email:				Field Filtered Sample (Yes or No)		SUBCONTRACT/ Rad 228-Method 904.0 (Richland)		SUBCONTRACT/ Rad 228-Method 903.1 (Richland)	
Project Name: Agrico				Matrix (W=water, S=solid, C=water/oil)		Sample Type (C=comp, G=grab)		Sample Time	
Site:				Sample Date		Sample Time		Special Instructions/Note:	
Sample Identification - Client ID (Lab ID)				EQ BLNK-1 (640-41179-1)		AC-24D (640-41179-2)		MXDSNH	
526190412				506-46049		Due 12-17-12		MXDNQ	
J2K190412				Possible Hazard Identification		Unconfirmed		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
Deliverable Requested: I, II, III, IV, Other (specify)				Empty Kit Relinquished by:		Relinquished by:		Relinquished by:	
Date:				Date:		Date:		Date:	
Company:				Company:		Company:		Company:	
Date/Time:				Date/Time:		Date/Time:		Date/Time:	
Date/Time:				Date/Time:		Date/Time:		Date/Time:	
Date/Time:				Date/Time:		Date/Time:		Date/Time:	
Custody Seals Intact:				Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		Company:	
Δ Yes Δ No				Δ Yes Δ No		Δ Yes Δ No		Δ Yes Δ No	

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Chain of Custody Record

TestAmerica

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

[illegible]

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41179-1

Login Number: 41179

List Source: TestAmerica Tallahassee

List Number: 1

Creator: Delp, Eric

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41179-1

Login Number: 41179

List Source: TestAmerica Pensacola

List Number: 1

List Creation: 11/13/12 02:13 PM

Creator: Crawford, Lauren E

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.1°C
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41179-1

Login Number: 41179

List Source: TestAmerica Savannah

List Number: 1

List Creation: 11/13/12 02:28 PM

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Tel: (850)878-3994

TestAmerica Job ID: 640-41191-1

Client Project/Site: Agrico

For:

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317

Attn: Mr. Jeff Wagner



Authorized for release by:
12/18/2012 10:04:53 AM

Tim Preston
Project Manager II
timothy.preston@testamericainc.com

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results through

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Job ID: 640-41191-1

Laboratory: TestAmerica Tallahassee

Narrative

Job Narrative 640-41191-1

Comments

No additional comments.

Receipt

The samples were received on 11/13/2012 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.6° C.

Except:

The following sample was received at the laboratory without a sample collection time documented on the chain of custody: AC28D

Field Service / Mobile Lab

No analytical or quality issues were noted.

General Chemistry

Method 353.2: Due to the high concentration of nitrate, the matrix spike / matrix spike duplicate (MS/MSD) for batch 256564 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

No other analytical or quality issues were noted.

Subcontract non-Sister

No analytical or quality issues were noted.

Subcontract Work

Methods Radium 226 by EPA Method 903.1, Radium 228 by EPA Method 904.0: These methods were subcontracted to TestAmerica Richland. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.

Detection Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Client Sample ID: AC-9D2

Lab Sample ID: 640-41191-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	43		1.0		mg/L	1		300.0	Total/NA
Sulfate	260		10		mg/L	10		300.0	Total/NA
Fluoride	36		2.0		mg/L	20		340.2	Total/NA
Nitrate as N	13		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-28D

Lab Sample ID: 640-41191-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	30		1.0		mg/L	1		300.0	Total/NA
Sulfate	74		2.0		mg/L	2		300.0	Total/NA
Fluoride	9.5		1.0		mg/L	10		340.2	Total/NA
Nitrate as N	6.4		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

General Chemistry

Client Sample ID: AC-9D2
Date Collected: 11/12/12 14:21
Date Received: 11/13/12 09:00

Lab Sample ID: 640-41191-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	43		1.0		mg/L			11/25/12 16:39	1
Sulfate	260		10		mg/L			11/29/12 13:00	10
Fluoride	36		2.0		mg/L			11/16/12 14:20	20
Nitrate as N	13		0.010		mg/L			11/26/12 08:42	1

Client Sample ID: AC-28D
Date Collected: 11/12/12 00:00
Date Received: 11/13/12 09:00

Lab Sample ID: 640-41191-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	30		1.0		mg/L			11/25/12 16:51	1
Sulfate	74		2.0		mg/L			11/27/12 19:37	2
Fluoride	9.5		1.0		mg/L			11/16/12 14:20	10
Nitrate as N	6.4		0.010		mg/L			11/26/12 08:42	1

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-257616/2

Matrix: Water

Analysis Batch: 257616

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			11/25/12 14:47	1

Lab Sample ID: LCS 680-257616/3

Matrix: Water

Analysis Batch: 257616

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.1		mg/L		101	90 - 110

Lab Sample ID: LCSD 680-257616/4

Matrix: Water

Analysis Batch: 257616

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.1		mg/L		101	90 - 110	0	30

Lab Sample ID: MB 680-257866/7

Matrix: Water

Analysis Batch: 257866

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			11/27/12 13:24	1

Lab Sample ID: LCS 680-257866/8

Matrix: Water

Analysis Batch: 257866

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 680-257866/9

Matrix: Water

Analysis Batch: 257866

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.5		mg/L		105	90 - 110	1	30

Lab Sample ID: 640-41191-2 MS

Matrix: Water

Analysis Batch: 257866

Client Sample ID: AC-28D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	74		20.0	91.8		mg/L		90	90 - 110

Lab Sample ID: MB 680-258123/2

Matrix: Water

Analysis Batch: 258123

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			11/29/12 10:18	1

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Lab Sample ID: LCS 680-258123/3
Matrix: Water
Analysis Batch: 258123

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 680-258123/4
Matrix: Water
Analysis Batch: 258123

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	10.3		mg/L		103	90 - 110	0	30

Method: 340.2 - Fluoride

Lab Sample ID: MB 400-166992/1
Matrix: Water
Analysis Batch: 166992

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			11/16/12 14:20	1

Lab Sample ID: LCS 400-166992/2
Matrix: Water
Analysis Batch: 166992

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.05		mg/L		105	90 - 110

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAC	4	E81005	06-30-13
Louisiana	NELAC	6	30663	06-30-13
New Jersey	NELAC	2	FL012	06-30-13
Texas	NELAC	6	T104704459-11-2	03-31-13
USDA	Federal		P330-08-00158	08-05-14

Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-13
Arizona	State Program	9	AZ0710	01-11-13
Arkansas DEQ	State Program	6	88-0689	09-01-13
Florida	NELAC	4	E81010	06-30-13
Georgia	State Program	4	N/A	06-30-13
Illinois	NELAC	5	200041	10-09-13
Iowa	State Program	7	367	08-01-14
Kansas	NELAC	7	E-10253	10-31-13
Kentucky (UST)	State Program	4	53	07-05-13
Louisiana	NELAC	6	30976	06-30-13
Maryland	State Program	3	233	09-30-13
Massachusetts	State Program	1	M-FL094	06-30-13
Michigan	State Program	5	9912	06-30-13
New Hampshire	NELAC	1	2505	08-16-13
New Jersey	NELAC	2	FL006	06-30-13
North Carolina DENR	State Program	4	314	12-31-12
Oklahoma	State Program	6	9810	08-31-13
Pennsylvania	NELAC	3	68-00467	12-31-12
Rhode Island	State Program	1	LAO00307	12-30-12
South Carolina	State Program	4	96026	06-30-12
Tennessee	State Program	4	TN02907	06-30-13
Texas	NELAC	6	T104704286-12-5	09-30-13
USDA	Federal		P330-10-00407	12-10-13
Virginia	NELAC	3	460166	06-14-13
West Virginia DEP	State Program	3	136	06-30-13

Laboratory: TestAmerica Richland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA - LAP	IHLAP		187436	07-01-13
Arizona	State Program	9	AZ0709	07-02-13
California	NELAC	9	E87829	05-31-14
Colorado	State Program	8	N/A	09-30-13
Florida	NELAC	4	E87829	06-30-13
Hawaii	State Program	9	N/A	01-09-13
L-A-B	DoD ELAP		L2291	06-30-14
Nevada	State Program	9	WA00023	07-31-13
New Mexico	State Program	6	WA00023	01-09-13
Oregon	NELAC	10	WA100002	01-09-14
Pennsylvania	NELAC	3	68-04849	08-31-13
Tennessee	State Program	4	4011	01-09-13

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Laboratory: TestAmerica Richland (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAC	6	T104704493-10-1	12-31-12
USDA	Federal		P330-11-00043	01-25-14
Utah	NELAC	8	QUAN8	01-09-13
Virginia	State Program	3	00100	06-30-13
Washington	State Program	10	WA01116	08-14-13
Washington (CLIA)	State Program	10	50D0661626	06-30-13

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAC	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAC	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAC	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAC	6	30690	06-30-13
Louisiana	NELAC	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAC	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAC	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAC	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAC	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Virginia	NELAC	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

Method Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
340.2	Fluoride	MCAWW	TAL PEN
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL TAL
Rad 226-Method 903.1 (Richland)	RAD-226 (RCH)	NONE	TAL RCH
Rad 228-Method 904.0 (Richland)	RAD-228 (RCH)	NONE	TAL RCH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

NONE = NONE

SM = "Standard Methods For The Examination Of Water And Wastewater",

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994

Sample Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41191-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
640-41191-1	AC-9D2	Water	11/12/12 14:21	11/13/12 09:00
640-41191-2	AC-28D	Water	11/12/12 00:00	11/13/12 09:00

Analytical Data Package Prepared For
TestAmerica Tallahassee

Radiochemical Analysis By

TestAmerica

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 53946

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
46056		AC-28D (640-41191-2)	J2K200435-2	MXD881AA	9MXD8810	2325039
		AC-28D (640-41191-2)	J2K200435-2	MXD881AC	9MXD8810	2325040
		AC-9D2 (640-41191-1)	J2K200435-1	MXD861AA	9MXD8610	2325039
		AC-9D2 (640-41191-1)	J2K200435-1	MXD861AC	9MXD8610	2325040

Certificate of Analysis

December 11, 2012

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301

Attention: Tim Preston

Date Received by Lab	:	November 20, 2012
Sample Number/Matrix	:	Two (2) Waters
SDG Number	:	46056
Client	:	Cedar Bay
Project	:	Agrico
Project Number	:	640-41191-1

CASE NARRATIVE

I. Introduction

On November 20, 2012, two water samples were received at the TestAmerica Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package. The samples were assigned to Lot Number J2K200435.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analyses requested were:

Gas Proportional Counting

Radium-228 by method RL-RA-001

Alpha Scintillation Counting

Radium-226 by method RL-RA-001

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Gas Proportional Counting

Radium-228 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation Counting

Radium-226 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,...)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c - Combined Uncertainty.</i>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (BkgrndCnt / BkgrndCntMin) / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC[MDA]	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{(BkgrndCnt / BkgrndCntMin) / SCntMin}) + 2.71 / SCntMin * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D) / [\sqrt{TPUs^2 + TPUD^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUD is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 11-Dec-12

TestAmerica TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 53946

SDG No: 46056

Batch	Client Id Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2325039	E903.0								
	AC-28D (640-41191-2)								
	MXD881AA	RADIUM-226	3.48 +/- 0.99	V	pCi/L	93%	0.265	1.0	
	AC-9D2 (640-41191-1)								
	MXD861AA	RADIUM-226	1.34 +/- 0.35	V	pCi/L	100%	0.155	1.0	
	EQ BLNK-1(640-41179-1) DUP								
	MXDVH1AD	RADIUM-226	-0.0232 +/- 0.097	U	pCi/L	88%	0.226	1.0	1.3
2325040	E904.0								
	AC-28D (640-41191-2)								
	MXD881AC	RADIUM-228	10.3 +/- 1.4	V	pCi/L	86%	0.614	1.0	
	AC-9D2 (640-41191-1)								
	MXD861AC	RADIUM-228	8.28 +/- 1.1	V	pCi/L	88%	0.654	1.0	
	EQ BLNK-1(640-41179-1) DUP								
	MXDVH1AE	RADIUM-228	-0.0335 +/- 0.25	U	pCi/L	82%	0.604	1.0	1.2
No. of Results: 6									

TestAmerica

rptSTLRchSaSum
mary2 V5.2.22
A2002

RER2 - Replicate Error Ratio = $(S-D)/[\sqrt{sq(TPU_s)+sq(TPU_d)}]$ as defined by ICPT BOA.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

V Qual - Detected.

QC Results Summary
TestAmerica TARL
 Ordered by Method, Batch No, QC Type,.

Date: 11-Dec-12

Report No. : 53946

SDG No.: 46056

Batch	Work Order	Parameter	Result +- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
E903.0									
	2325039	BLANK QC,							
	MXD3V1AA	RADIUM-226	0.0496 +- 0.097	U	pCi/L	81%			0.19
	2325039	LCS,							
	MXD3V1AC	RADIUM-226	9.25 +- 2.2	V	pCi/L	90%	93%	-0.1	0.162
E904.0									
	2325040	BLANK QC,							
	MXD3W1AA	RADIUM-228	0.238 +- 0.34	U	pCi/L	74%			0.741
	2325040	LCS,							
	MXD3W1AC	RADIUM-228	10.7 +- 1.5	V	pCi/L	83%	107%	0.1	0.579
No. of Results: 4									

TestAmerica
 rptSTLRchQcSummary V5.2.22
 A2002

Bias - (Result/Expected)-I as defined by ANSI N13.30.
 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.

FORM I

Date: 11-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K200435-2
 Client Sample ID: AC-28D (640-41191-2)
 SDG: 46056
 Report No.: 53946
 COC No.:
 Collection Date: 11/12/2012 2:21:00 PM
 Received Date: 11/20/2012 10:15:00 AM
 Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert (2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2325039 E903.0 RADIUM-226												
Work Order: MXD881AA Report DB ID: 9MXD8810												
	3.48	V	0.42	0.99	0.265 pCi/L	0.117	93%	(13.1)	12/3/12 03:36 p		0.8921 L	ASCHSB
Batch: 2325040 E904.0 RADIUM-228												
Work Order: MXD881AC Report DB ID: 9MXD8810												
	10.3	V	0.71	1.4	0.614 pCi/L	0.282	86%	(16.8)	12/5/12 02:35 p		0.8921 L	GPC5B

No. of Results: 2 Comments:



FORM I

Date: 11-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K200435-1
 Client Sample ID: AC-9D2 (640-41191-1)

SDG: 46056
 Report No.: 53946
 COC No.:

Collection Date: 11/12/2012 2:21:00 PM
 Received Date: 11/20/2012 10:15:00 AM
 Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2325039 E903.0												
RADIUM-226	1.34	V	0.23	0.35	0.155	pCi/L	100%	(8.6)	12/3/12 03:41 p	0.8774	L	ASCGAB
Work Order: MXD861AA Report DB ID: 9MXD8610												
						0.0657	1.0	(7.6)				
Batch: 2325040 E904.0												
RADIUM-228	8.28	V	0.66	1.1	0.654	pCi/L	88%	(12.7)	12/5/12 02:35 p	0.8774	L	GPC5A
Work Order: MXD861AC Report DB ID: 9MXD8610												
						0.302	1.0	(14.7)				

No. of Results: 2 Comments:

FORM II

Date: 11-Dec-12

DUPLICATE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K190412-1
 Client Sample ID: EQ BLNK-1(640-41179-1) DUP

SDG: 46049
 Report No.: 53946
 COC No.: 640-54605.1

Collection Date: 11/9/2012 7:35:00 AM
 Received Date: 11/19/2012 11:00:00 AM
 Matrix: WATER W

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2325039	E903.0								Orig Sa DB ID: 9MXDVBH10			
RADIUM-226	-0.0232	U	0.097	0.097	0.226	pCi/L	88%	-0.1	12/3/12 03:38 p		0.8973	ASCCSA
	0.0717	U	RER2 1.3			1.0		-0.48			L	
Batch: 2325040	E904.0								Orig Sa DB ID: 9MXDVBH10			
RADIUM-228	-0.0335	U	0.25	0.25	0.604	pCi/L	82%	-0.06	12/5/12 02:35 p		0.8973	GPC4A
	0.162	U	RER2 1.2			1.0		-0.27			L	

No. of Results: 2 Comments:

TestAmerica RER2 - Replicate Error Ratio = $(S-D)/[\sqrt{\text{sq}(\text{TPUs}) - \text{sq}(\text{TPUd})}]$ as defined by ICPT BOA.
 rptSTLRehDupV5. MDC[MDA]Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.



FORM II

Date: 11-Dec-12

BLANK RESULTS

Lab Name: TestAmerica
Matrix: WATER

SDG: 46056

Report No.: 53946

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2325039												
E903.0												
RADIUM-226												
	0.0496	U	0.097	0.097	0.19	pCi/L	81%	0.26	12/3/12 03:34 p		1.0008	ASCEHB
					0.0826	1.0		(1.)			L	
Batch: 2325040												
E904.0												
RADIUM-228												
	0.238	U	0.33	0.34	0.741	pCi/L	74%	0.32	12/5/12 02:35 p		1.0008	GPC4C
					0.337	3.0		(1.4)			L	

No. of Results: 2 Comments:

FORM II

Date: 11-Dec-12

LCS RESULTS

Lab Name: TestAmerica

SDG: 46056

Matrix: WATER

Report No.: 53946

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2325039 E903.0													
Work Order: MXD3V1AC Report DB ID: MXD3V1CS													
RADIUM-226	9.25	V	0.54	2.2	0.162	pCi/L	90%	9.90	0.1	93%	12/3/12 03:40 p	1.001	ASCFAC
Rec Limits: 70 130 -0.1													
Batch: 2325040 E904.0													
Work Order: MXD3W1AC Report DB ID: MXD3W1CS													
RADIUM-228	10.7	V	0.79	1.5	0.579	pCi/L	83%	9.97	0.11	107%	12/5/12 02:35 p	1.001	GPC4D
Rec Limits: 70 130 0.1													

No. of Results: 2 Comments:

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.

V Qual - Detected.

rptSTLRchLcs
V5.2.22 A2002

Chain of Custody Record

TestAmerica

THE UNIVERSITY OF CHICAGO

[illegible]

Chain of Custody Record

Client Information Client Contact: <u>Mr. Jeff Wagner</u> Company: <u>URS Corporation</u> Address: <u>1525 Summit Lake Drive Suite 200</u> City: <u>Tallahassee</u> State, Zip: <u>FL 32317</u> Phone: <u>18005661280 ext 900000</u> Email: <u>jeffry_wagner@urscorp.com</u> Project Name: <u>Agrico Annual</u> Site: <u>Pensacola, FL</u>		Sampler: <u>Eric Mann</u> Phone: <u>850 251 6585</u> E-Mail: <u>timothy.preston@testamerica.com</u>		Lab PM: <u>Tim</u> Carrier Tracking Note:		COC No: <u>640-35431-6826.2</u> Page: <u>2 of 4</u> Job #: <u>410-41191</u>	
Due Date Requested: TAT Requested (days):		Analysis Requested					
Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>		Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/>					
340.2 - Fluoride (Pensacola)		SUBCONTRACT - Rad 226-Method 903.1 (Richland)					
SUBCONTRACT - Rad 228-Method 904.0 (Richland)		353.2 - Nitrate as N					
300.0_28D - Chloride, Sulfate		SM4500_NO2_B - Nitrate as N					
6010B - Arsenic		Total Number of containers: <u>1</u>					
Special Instructions/Note:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDTA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4.5 Z - other (Specify)					
Sample Identification		Sample Date <u>11/12/12</u>	Sample Time <u>1421</u>	Sample Type (C=comp, G=grab) <u>G</u>	Matrix (W=water, S=solid, O=volatile) <u>N</u>	Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/>	
<u>AC-9DA</u>		<u>11/12/12</u>		<u>G</u>	<u>N</u>	SUBCONTRACT - Rad 226-Method 903.1 (Richland)	
<u>AC-28D</u>		<u>11/12/12</u>		<u>G</u>	<u>N</u>	SUBCONTRACT - Rad 228-Method 904.0 (Richland)	
						353.2 - Nitrate as N	
						300.0_28D - Chloride, Sulfate	
						SM4500_NO2_B - Nitrate as N	
						6010B - Arsenic	
						Total Number of containers: <u>1</u>	
						Special Instructions/Note:	
						Preservation Codes:	
						A - HCL	
						B - NaOH	
						C - Zn Acetate	
						D - Nitric Acid	
						E - NaHSO4	
						F - MeOH	
						G - Amchlor	
						H - Ascorbic Acid	
						I - Ice	
						J - DI Water	
						K - EDTA	
						L - EDTA	
						M - Hexane	
						N - None	
						O - AsNaO2	
						P - Na2O4S	
						Q - Na2SO3	
						R - Na2S2O3	
						S - H2SO4	
						T - TSP Dodecylhydrate	
						U - Acetone	
						V - MCAA	
						W - pH 4.5	
						Z - other (Specify)	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <u>12</u> Months					
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:					
Empty Kit Relinquished by: <u>Jeff Wagner</u>		Date: <u>12/30/12</u>		Time: <u>11:45</u>		Method of Shipment:	
Relinquished by: <u>Jeff Wagner</u>		Date/Time: <u>11/12/12 1700</u>		Company:		Received by: <u>Jeff Wagner</u>	
Relinquished by:		Date/Time:		Company:		Received by:	
Relinquished by:		Date/Time:		Company:		Received by:	
Custody Seals Intact: <u>Yes</u>		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: <u>0-6°</u>			

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41191-1

Login Number: 41191

List Source: TestAmerica Tallahassee

List Number: 1

Creator: Mitchell, Travis X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41191-1

Login Number: 41191

List Source: TestAmerica Pensacola

List Number: 1

List Creation: 11/14/12 05:54 PM

Creator: Serratore, Maria

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2°C., IR2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41191-1

Login Number: 41191

List Source: TestAmerica Savannah

List Number: 1

List Creation: 11/14/12 01:33 PM

Creator: Barnett, Eddie T

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Tel: (850)878-3994

TestAmerica Job ID: 640-41202-1

Client Project/Site: Agrico

For:

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317

Attn: Mr. Jeff Wagner



Authorized for release by:
12/20/2012 2:03:45 PM

Tim Preston
Project Manager II
timothy.preston@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Job ID: 640-41202-1

Laboratory: TestAmerica Tallahassee

Narrative

Job Narrative 640-41202-1

Comments

No additional comments.

Receipt

The samples were received on 11/14/2012 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7° C.

Metals

No analytical or quality issues were noted.

Field Service / Mobile Lab

No analytical or quality issues were noted.

General Chemistry

No analytical or quality issues were noted.

Subcontract non-Sister

No analytical or quality issues were noted.

Subcontract Work

Methods Radium 226 by EPA Method 903.1, Radium 228 by EPA Method 904.0: These methods were subcontracted to TestAmerica Richland. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.

Detection Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Client Sample ID: PIP-D

Lab Sample ID: 640-41202-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.1		1.0		mg/L	1		300.0	Total/NA
Sulfate	4.4		1.0		mg/L	1		300.0	Total/NA
Nitrate as N	3.5		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-29D

Lab Sample ID: 640-41202-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	52		2.0		mg/L	2		300.0	Total/NA
Sulfate	230		5.0		mg/L	5		300.0	Total/NA
Fluoride	35		2.5		mg/L	25		340.2	Total/NA
Nitrate as N	10		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-3D

Lab Sample ID: 640-41202-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	20		1.0		mg/L	1		300.0	Total/NA
Sulfate	140		4.0		mg/L	4		300.0	Total/NA
Fluoride	16		1.0		mg/L	10		340.2	Total/NA
Nitrate as N	7.2		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-3S

Lab Sample ID: 640-41202-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.9		1.0		mg/L	1		300.0	Total/NA
Sulfate	21		1.0		mg/L	1		300.0	Total/NA
Nitrate as N	1.7		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Method: 6010B - Metals (ICP) - Total Recoverable

Client Sample ID: AC-3S

Date Collected: 11/13/12 15:50

Date Received: 11/14/12 09:00

Lab Sample ID: 640-41202-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.010		0.010		mg/L		11/19/12 17:53	11/21/12 08:58	1

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

General Chemistry

Client Sample ID: PIP-D

Date Collected: 11/13/12 09:43

Date Received: 11/14/12 09:00

Lab Sample ID: 640-41202-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.1		1.0		mg/L			11/26/12 22:45	1
Sulfate	4.4		1.0		mg/L			11/26/12 22:45	1
Fluoride	<0.10		0.10		mg/L			11/16/12 14:20	1
Nitrate as N	3.5		0.010		mg/L			11/26/12 08:42	1

Client Sample ID: AC-29D

Date Collected: 11/13/12 11:36

Date Received: 11/14/12 09:00

Lab Sample ID: 640-41202-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	52		2.0		mg/L			11/27/12 21:41	2
Sulfate	230		5.0		mg/L			11/27/12 21:53	5
Fluoride	35		2.5		mg/L			11/16/12 14:20	25
Nitrate as N	10		0.010		mg/L			11/26/12 08:42	1

Client Sample ID: AC-3D

Date Collected: 11/13/12 14:30

Date Received: 11/14/12 09:00

Lab Sample ID: 640-41202-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20		1.0		mg/L			11/27/12 22:06	1
Sulfate	140		4.0		mg/L			11/27/12 22:18	4
Fluoride	16		1.0		mg/L			11/16/12 14:20	10
Nitrate as N	7.2		0.010		mg/L			11/26/12 08:42	1

Client Sample ID: AC-3S

Date Collected: 11/13/12 15:50

Date Received: 11/14/12 09:00

Lab Sample ID: 640-41202-4

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.9		1.0		mg/L			11/27/12 22:31	1
Sulfate	21		1.0		mg/L			11/27/12 22:31	1
Fluoride	<0.10		0.10		mg/L			11/16/12 14:20	1
Nitrate as N	1.7		0.010		mg/L			11/26/12 08:42	1

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 660-131643/1-A
Matrix: Water
Analysis Batch: 131707

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 131643

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.010		0.010		mg/L		11/19/12 17:53	11/21/12 08:19	1

Lab Sample ID: LCS 660-131643/2-A
Matrix: Water
Analysis Batch: 131707

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 131643

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.996		mg/L		100	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-257771/7
Matrix: Water
Analysis Batch: 257771

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			11/26/12 20:28	1
Sulfate	<1.0		1.0		mg/L			11/26/12 20:28	1

Lab Sample ID: LCS 680-257771/9
Matrix: Water
Analysis Batch: 257771

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.1		mg/L		101	90 - 110
Sulfate	10.0	10.4		mg/L		104	90 - 110

Lab Sample ID: LCSD 680-257771/10
Matrix: Water
Analysis Batch: 257771

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.2		mg/L		102	90 - 110	1	30
Sulfate	10.0	10.4		mg/L		104	90 - 110	0	30

Lab Sample ID: 640-41202-1 MS
Matrix: Water
Analysis Batch: 257771

Client Sample ID: PIP-D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	9.1		10.0	19.5		mg/L		105	90 - 110
Sulfate	4.4		10.0	15.1		mg/L		107	90 - 110

Lab Sample ID: 640-41202-1 MSD
Matrix: Water
Analysis Batch: 257771

Client Sample ID: PIP-D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	9.1		10.0	19.5		mg/L		104	90 - 110	0	30

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 640-41202-1 MSD

Matrix: Water

Analysis Batch: 257771

Client Sample ID: PIP-D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	4.4		10.0	15.1		mg/L		107	90 - 110	0	30

Lab Sample ID: MB 680-257871/2

Matrix: Water

Analysis Batch: 257871

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			11/27/12 20:14	1
Sulfate	<1.0		1.0		mg/L			11/27/12 20:14	1

Lab Sample ID: LCS 680-257871/3

Matrix: Water

Analysis Batch: 257871

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.1		mg/L		101	90 - 110
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 680-257871/4

Matrix: Water

Analysis Batch: 257871

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.1		mg/L		101	90 - 110	0	30
Sulfate	10.0	10.4		mg/L		104	90 - 110	0	30

Lab Sample ID: 640-41202-4 MS

Matrix: Water

Analysis Batch: 257871

Client Sample ID: AC-3S

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.9		10.0	12.9		mg/L		100	90 - 110
Sulfate	21		10.0	30.3		mg/L		95	90 - 110

Lab Sample ID: 640-41202-4 MSD

Matrix: Water

Analysis Batch: 257871

Client Sample ID: AC-3S

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.9		10.0	13.0		mg/L		101	90 - 110	0	30
Sulfate	21		10.0	30.3		mg/L		95	90 - 110	0	30

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Method: 340.2 - Fluoride

Lab Sample ID: MB 400-166992/1
Matrix: Water
Analysis Batch: 166992

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			11/16/12 14:20	1

Lab Sample ID: LCS 400-166992/2
Matrix: Water
Analysis Batch: 166992

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.05		mg/L		105	90 - 110

Lab Sample ID: 640-41202-2 DU
Matrix: Water
Analysis Batch: 166992

Client Sample ID: AC-29D
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Fluoride	35		35.5		mg/L		0.7	4

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E81005	06-30-13
Louisiana	NELAP	6	30663	06-30-13
New Jersey	NELAP	2	FL012	06-30-13
Texas	NELAP	6	T104704459-11-2	03-31-13
USDA	Federal		P330-08-00158	08-05-14

Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-13
Arizona	State Program	9	AZ0710	01-11-13
Arkansas DEQ	State Program	6	88-0689	09-01-13
Florida	NELAP	4	E81010	06-30-13
Georgia	State Program	4	N/A	06-30-13
Illinois	NELAP	5	200041	10-09-13
Iowa	State Program	7	367	08-01-14
Kansas	NELAP	7	E-10253	10-31-13
Kentucky (UST)	State Program	4	53	07-05-13
Louisiana	NELAP	6	30976	06-30-13
Maryland	State Program	3	233	09-30-13
Massachusetts	State Program	1	M-FL094	06-30-13
Michigan	State Program	5	9912	06-30-13
New Hampshire	NELAP	1	2505	08-16-13
New Jersey	NELAP	2	FL006	06-30-13
North Carolina DENR	State Program	4	314	12-31-12
Oklahoma	State Program	6	9810	08-31-13
Pennsylvania	NELAP	3	68-00467	12-31-12
Rhode Island	State Program	1	LAO00307	12-30-12
South Carolina	State Program	4	96026	06-30-12
Tennessee	State Program	4	TN02907	06-30-13
Texas	NELAP	6	T104704286-12-5	09-30-13
USDA	Federal		P330-10-00407	12-10-13
Virginia	NELAP	3	460166	06-14-13
West Virginia DEP	State Program	3	136	06-30-13

Laboratory: TestAmerica Richland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA - LAP	IHLAP		187436	07-01-13
Arizona	State Program	9	AZ0709	07-02-13
California	NELAP	9	E87829	05-31-14
Colorado	State Program	8	N/A	09-30-13
Florida	NELAP	4	E87829	06-30-13
Hawaii	State Program	9	N/A	01-09-13
L-A-B	DoD ELAP		L2291	06-30-14
Nevada	State Program	9	WA00023	07-31-13
New Mexico	State Program	6	WA00023	01-09-13
Oregon	NELAP	10	WA100002	01-09-14
Pennsylvania	NELAP	3	68-04849	08-31-13
Tennessee	State Program	4	4011	01-09-13

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Laboratory: TestAmerica Richland (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAP	6	T104704493-10-1	12-31-12
USDA	Federal		P330-11-00043	01-25-14
Utah	NELAP	8	QUAN8	01-09-13
Virginia	State Program	3	00100	06-30-13
Washington	State Program	10	WA01116	08-14-13
Washington (CLIA)	State Program	10	50D0661626	06-30-13

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAP	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAP	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAP	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAP	6	30690	06-30-13
Louisiana	NELAP	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAP	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAP	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAP	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAP	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Virginia	NELAP	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

Laboratory: TestAmerica Tampa

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40610	06-30-13
Florida	NELAP	4	E84282	06-30-13
Georgia	State Program	4	905	06-30-13
USDA	Federal		P330-11-00177	04-20-14

Method Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL TAM
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
340.2	Fluoride	MCAWW	TAL PEN
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL TAL
Rad 226-Method 903.1 (Richland)	RAD-226 (RCH)	NONE	TAL RCH
Rad 228-Method 904.0 (Richland)	RAD-228 (RCH)	NONE	TAL RCH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
NONE = NONE
SM = "Standard Methods For The Examination Of Water And Wastewater",
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001
TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131
TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858
TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994
TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Sample Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41202-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
640-41202-1	PIP-D	Water	11/13/12 09:43	11/14/12 09:00
640-41202-2	AC-29D	Water	11/13/12 11:36	11/14/12 09:00
640-41202-3	AC-3D	Water	11/13/12 14:30	11/14/12 09:00
640-41202-4	AC-3S	Water	11/13/12 15:50	11/14/12 09:00

Analytical Data Package Prepared For
TestAmerica Tallahassee

Radiochemical Analysis By

TestAmerica

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 54031

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
46071		AC-29D(640-41202-2)	J2K260423-2	MXE4H1AA	9MXE4H10	2332034
		AC-29D(640-41202-2)	J2K260423-2	MXE4H1AC	9MXE4H10	2332036
		AC-3D(640-41202-3)	J2K260423-3	MXE4J1AA	9MXE4J10	2332034
		AC-3D(640-41202-3)	J2K260423-3	MXE4J1AC	9MXE4J10	2332036
		AC-3S(640-41202-4)	J2K260423-4	MXE4K1AA	9MXE4K10	2332034
		AC-3S(640-41202-4)	J2K260423-4	MXE4K1AC	9MXE4K10	2332036
		PIP-D(640-41202-1)	J2K260423-1	MXE4G1AA	9MXE4G10	2332034
		PIP-D(640-41202-1)	J2K260423-1	MXE4G1AC	9MXE4G10	2332036

Certificate of Analysis

December 19, 2012

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301

Attention: Tim Preston

Date Received by Lab	:	November 20, 2012
Sample Number/Matrix	:	Four (4) Waters
SDG Number	:	46071
Client	:	Cedar Bay
Project	:	Agrico
Project Number	:	640-54646-1

CASE NARRATIVE

I. Introduction

On November 20, 2012, four water samples were received at the TestAmerica Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package. The samples were assigned to Lot Number J2K260423.

II. Sample Receipt

The samples were received in good condition and no anomalies were noted during check-in.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analyses requested were:

Gas Proportional Counting

Radium-228 by method RL-RA-001

Alpha Scintillation Counting

Radium-226 by method RL-RA-001

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Gas Proportional Counting

Radium-228 by method RL-RA-001:

The analytical batch was re-milked to verify sample activities. The re-milk results confirm the initial run. The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation Counting

Radium-226 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,...)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c - Combined Uncertainty.</i>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor CRDL (RL)	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations. Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (BkgrndCnt / BkgrndCntMin) / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{(BkgrndCnt / BkgrndCntMin) / SCntMin}) + 2.71 / SCntMin * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S - D) / [\sqrt{TPUs^2 + TPUD^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUD is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 19-Dec-12

TestAmerica TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 54031

SDG No: 46071

Batch	Client Id Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2332034	E903.0								
	AC-29D(640-41202-2)								
	MXE4H1AA RADIUM-226		1.08 +/- 0.30	V	pCi/L	88%	0.201	1.0	
	AC-3D(640-41202-3)								
	MXE4J1AA RADIUM-226		1.38 +/- 0.39	V	pCi/L	93%	0.204	1.0	
	AC-3S(640-41202-4)								
	MXE4K1AA RADIUM-226		0.266 +/- 0.18	J	pCi/L	81%	0.264	1.0	
	EQ BLNK-2 (640-41247-1) DUP								
	MXEWA1AD RADIUM-226		0.0923 +/- 0.11	U	pCi/L	100%	0.193	1.0	0.9
	PIP-D(640-41202-1)								
	MXE4G1AA RADIUM-226		0.957 +/- 0.31	J	pCi/L	87%	0.294	1.0	
2332036	E904.0								
	AC-29D(640-41202-2)								
	MXE4H1AC RADIUM-228		15.9 +/- 2.1	V	pCi/L	81%	0.523	1.0	
	AC-3D(640-41202-3)								
	MXE4J1AC RADIUM-228		12.7 +/- 1.7	V	pCi/L	86%	0.552	1.0	
	AC-3S(640-41202-4)								
	MXE4K1AC RADIUM-228		0.798 +/- 0.37	J	pCi/L	76%	0.679	1.0	
	EQ BLNK-2 (640-41247-1) DUP								
	MXEWA1AE RADIUM-228		0.604 +/- 0.35	U	pCi/L	92%	0.694	1.0	1.6
	PIP-D(640-41202-1)								
	MXE4G1AC RADIUM-228		2.07 +/- 0.48	V	pCi/L	79%	0.573	1.0	
No. of Results: 10									

TestAmerica
rptSTLRchSaSum
mary2 V5.2.22
A2002

RER2 - Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{sq}(\text{TPUs})+\text{sq}(\text{TPUD}))]$ as defined by ICPT BOA.

J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

V Qual - Detected.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

QC Results Summary
TestAmerica TARL
 Ordered by Method, Batch No, QC Type,.

Date: 19-Dec-12

Report No. : 54031

SDG No.: 46071

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
E903.0									
2332034 BLANK QC,									
	MXE651AA	RADIUM-226	-0.0658 +/- 0.074	U	pCi/L	94%			0.184
2332034 LCS,									
	MXE651AC	RADIUM-226	11.2 +/- 2.6	V	pCi/L	84%	113%	0.1	0.156
E904.0									
2332036 BLANK QC,									
	MXE671AA	RADIUM-228	0.385 +/- 0.25	U	pCi/L	83%			0.484
2332036 LCS,									
	MXE671AC	RADIUM-228	10.8 +/- 1.5	V	pCi/L	80%	108%	0.1	0.742
No. of Results: 4									

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.
 rptSTLRchQcSummary V5.2.22 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or
 A2002 not identified by gamma scan software.
 V Qual - Detected.

FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K260423-2
 Client Sample ID: AC-29D(640-41202-2)

SDG: 46071
 Report No.: 54031
 COC No.: 640-54646.1

Collection Date: 11/13/2012 11:36:00 AM
 Received Date: 11/20/2012 10:30:00 AM
 Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
Work Order: MXE4H1AA Report DB ID: 9MXE4H10												
RADIUM-226	1.08	V	0.22	0.30	0.201	pCi/L	88%	(5.4)	12/5/12 04:52 p		0.884	ASCASA
						0.0888	1.0	(7.1)			L	
Batch: 2332036 E904.0												
Work Order: MXE4H1AC Report DB ID: 9MXE4H10												
RADIUM-228	15.9	V	0.98	2.1	0.523	pCi/L	81%	(30.4)	12/12/12 03:11 p		0.884	GPC3C
						0.228	1.0	(15.3)			L	

No. of Results: 2 Comments:

TestAmerica MDC[MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V5.2.22 A2002 V Qual - Detected.

FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica

SDG: 46071

Collection Date: 11/13/2012 2:30:00 PM

Lot-Sample No.: J2K260423-3

Report No.: 54031

Received Date: 11/20/2012 10:30:00 AM

Client Sample ID: AC-3D(640-41202-3)

COC No.: 640-54646.1

Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
Work Order: MXE4J1AA Report DB ID: 9MXE4J10												
RADIUM-226	1.38	V	0.24	0.39	0.204	pCi/L	93%	(6.8)	12/10/12 03:34 p		0.8666	ASC3RC
						0.0902	1.0	(7.1)			L	
Batch: 2332036 E904.0												
Work Order: MXE4J1AC Report DB ID: 9MXE4J10												
RADIUM-228	12.7	V	0.87	1.7	0.552	pCi/L	86%	(23.1)	12/12/12 03:11 p		0.8666	GPC3D
						0.244	1.0	(15.1)			L	

No. of Results: 2 Comments:

TestAmerica MDC\MDA\Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rpt\TLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc\Mda\Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V5.2.22 A2002 V Qual - Detected.



FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica

SDG: 46071

Collection Date: 11/13/2012 3:50:00 PM

Lot-Sample No.: J2K260423-4

Report No.: 54031

Received Date: 11/20/2012 10:30:00 AM

Client Sample ID: AC-3S(640-41202-4)

COC No.: 640-54646.1

Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
Work Order: MXE4K1AA Report DB ID: 9MXE4K10												
RADIUM-226	0.266	J	0.18	0.18	0.264	pCi/L	81%	(1.)	12/5/12 04:53 p		0.9017	ASCCSD
							0.109	1.0	(2.9)		L	
Batch: 2332036 E904.0												
Work Order: MXE4K1AC Report DB ID: 9MXE4K10												
RADIUM-228	0.798	J	0.35	0.37	0.679	pCi/L	76%	(1.2)	12/12/12 03:11 p		0.9017	GPC4A
							0.304	1.0	(4.3)		L	

No. of Results: 2 Comments:

TestAmerica MDCIMDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No UI< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.

FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica

SDG: 46071

Collection Date: 11/13/2012 9:43:00 AM

Lot-Sample No.: J2K260423-1

Report No.: 54031

Received Date: 11/20/2012 10:30:00 AM

Client Sample ID: PIP-D(640-41202-1)

COC No.: 640-54646.1

Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcent	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
RADIUM-226	0.957	J	0.25	0.31	0.294	pCi/L	87%	(3.3)	12/5/12 04:53 p	0.8745	L	ASC9RA
Batch: 2332036 E904.0												
RADIUM-228	2.07	V	0.42	0.48	0.573	pCi/L	79%	(3.6)	12/12/12 03:11 p	0.8745	L	GPC3B

No. of Results: 2 Comments:

TestAmerica MDCI/MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.

FORM II

Date: 19-Dec-12

DUPLICATE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K260406-1
 Client Sample ID: EQ BLNK-2 (640-41247-1) DUP

SDG: 46068
 Report No.: 54031
 COC No.: 640-54698.1

Collection Date: 11/15/2012 7:05:00 AM
 Received Date: 11/26/2012 10:50:00 AM
 Matrix: WATER W

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034	E903.0								Orig Sa DB ID: 9MXEWA10			
RADIUM-226	0.0923	U	0.11	0.11	0.193	pCi/L	100%	0.48	12/5/12 04:33 p		0.8447	ASC2RC
	0.0357	U	RER2 0.9			1.0		(1.7)			L	
Batch: 2332036	E904.0								Orig Sa DB ID: 9MXEWA10			
RADIUM-228	0.604	U	0.32	0.35	0.694	pCi/L	92%	0.87	12/12/12 03:15 p		0.8447	GPC1B
	0.196	U	RER2 1.6			1.0		(3.5)			L	

No. of Results: 2 Comments:

TestAmerica RER2 - Replicate Error Ratio = $(S-D)/[\sqrt{(sq(TPU_s)+sq(TPU_d))}]$ as defined by ICPT BOA.

MDC[MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.



FORM II

Date: 19-Dec-12

BLANK RESULTS

Lab Name: TestAmerica
Matrix: WATER

SDG: 46071
Report No.: 54031

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
RADIUM-226	-0.0658	U	0.073	0.074	0.184 0.0816	pCi/L 1.0	94%	-0.36 -(1.8)	12/5/12 04:53 p		1.0014 L	ASCDMB
Batch: 2332036 E904.0												
RADIUM-228	0.385	U	0.23	0.25	0.484 0.212	pCi/L 1.0	83%	0.8 (3.1)	12/12/12 03:11 p		1.0014 L	GPC4B

No. of Results: 2 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchBlank U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V5.2.22 A2002



FORM II LCS RESULTS

Date: 19-Dec-12

Lab Name: TestAmerica

Matrix: WATER

SDG: 46071

Report No.: 54031

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2332034 E903.0													
Work Order: MXE651AC Report DB ID: MXE651CS													
RADIUM-226	11.2	V	0.62	2.6	0.156	pCi/L	84%	9.92	0.1	113%	12/5/12 04:54 p	1.0027	ASCEHB
Rec Limits: 75 125 0.1													
Batch: 2332036 E904.0													
Work Order: MXE671AC Report DB ID: MXE671CS													
RADIUM-228	10.8	V	0.81	1.5	0.742	pCi/L	80%	9.96	0.11	108%	12/12/12 03:11 p	1.0027	GPC4C
Rec Limits: 70 130 0.1													

No. of Results: 2 Comments:

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchlcs V Qual - Detected.

V5.2.22 A2002



Chain of Custody Record

Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 5102 LaRoche Avenue, City: Savannah State, Zip: GA, 31404 Phone: 912-354-7858(Tel) 912-352-0165(Fax) Email: Project Name: Agrico Site: 		Sampler: Lab PM: Preston, Tim E-Mail: timothy.preston@testamericainc.com Phone: 	Carrier Tracking No(s): COC No: 640-54646.1 Page: Page 1 of 1 Job #: 640-41202-1
Analysis Requested Due Date Requested: 11/27/2012 TAT Requested (days): PO #: WO #: Project #: 64000434 SSOW#:		Preservation Codes: A - HCl B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: 	
Sample Identification - Client ID (Lab ID) PIP-D (640-41202-1) MK445 AC-29D (640-41202-2) MK444 AC-3D (640-41202-3) MK445 AC-3S (640-41202-4) MK446 SAK260423 SDG-4601 Due 12-18-12		Matrix (W=water, S=solid, O=oil, A=acid) Sample Type (C=comp, G=grab) Sample Date Sample Time Preservation Code 	
Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 3532 Pres		Total Number of Containers Special Instructions/Note:	
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/QC Requirements:		Empty Kit Relinquished by: Relinquished by: Relinquished by: Relinquished by: Custody Seals Intact: Δ Yes Δ No	
Date/Time: 11/14/12 1330 Date/Time: Date/Time: Date/Time: Custody Seal No.:		Date: Date/Time: Date/Time: Date/Time: Cooler Temperature(s) °C and Other Remarks:	

Sample Check-in List

Date/Time Received: 11-20-12 1030 Container GM Screen Result: (Airlock) .04 Initials [W]
Sample GM Screen Result (Sample Receiving) .03 Initials [W]

Client: STL-T SDG #: _____ NA [] SAF #: _____ NA []

Lot Number: 52K260423

Chain of Custody # 640-54646.1

Shipping Container ID: _____ NA [] Air Bill Number: _____ NA []

Samples received inside shipping container/cooler/box Yes [] Continue with 1 through 4. Initial appropriate response.

No [] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes [CH] No [] No Custody Seal []

2. Custody Seals dated and signed? Yes [] No [CH] No Custody Seal []

3. Cooler temperature: _____ °C NA []

4. Vermiculite/packing materials is NA [] Wet [] Dry []

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes [] No []

6. Number of samples received (Each sample may contain multiple bottles): 4

7. Containers received: 4 11-21-12 8 x LP

8. Sample holding times exceeded? NA [] Yes [] No []

9. Samples have:
_____ tape _____ hazard labels
_____ custody seals [] appropriate sample labels

10. Matrix:
_____ A (FLT, Wipe, Solid, Soil) [] I (Water)
_____ S (Air, Niosh 7400) [] T (Biological, Ni-63)

11. Samples:
[] are in good condition _____ are leaking
_____ are broken _____ have air bubbles (Only for samples requiring no head space)
_____ Other

12. Sample pH appropriate for analysis requested Yes [] No [] NA []
(If acidification is necessary, then document sample ID, initial pH, amount of HNO₃ added and pH after addition on table overleaf)

RPL ID # of preservative used: _____

13. Were any anomalies identified in sample receipt? Yes [] No []

14. Description of anomalies (include sample numbers): all samples - 2 bottles of ea. received. Coc States only 1 bottle per sample 11-26-12

16. Additional Information: _____

Sample Custodian: L. W. B. B. Date: 11-26-12

☒ No action necessary; process as is

Project Manager Christa Hayes Date 11-27-12

SAMPLE ID	Initial pH	Acid Amt	Final pH	SAMPLE ID	Initial pH	Acid Amt	Final pH
<i>Blank</i> <i>11-26-12</i>				<i>Blank</i> <i>11-26-12</i>			

TestAmerica Tallahassee

2946 Industrial Plaza Drive
Tallahassee, FL 32301
Phone (850) 878-3994 Fax (850) 878-9504

Chain of Custody Record

TestAmerica
10000 W. Highway 90, Suite 115, Fort Myers, FL 33904
Phone (813) 435-1111 Fax (813) 435-1112

Client Information		Sampler: <u>Eric Mann</u>		Lab PM: <u>Preston, Tim</u>		Carrier Tracking No(s):	
Client Contact: <u>Mr. Jeff Wagner</u>		Phone: <u>850 351 6585</u>		E-Mail: <u>timothy.preston@testamericainc.com</u>		OOC No: <u>640-3543-1-6826.2</u>	
Company: <u>URS Corporation</u>		Due Date Requested:		Analysis Requested		Page: <u>2 of 4</u>	
Address: <u>1625 Summit Lake Drive Suite 200</u>		TAT Requested (days):		PO #:		Job #: <u>640-41202</u>	
City: <u>Tallahassee</u>		State, Zip: <u>FL, 32317</u>		WO #:		Preservation Codes:	
Phone:		Email: <u>jeffry_wagner@urscorp.com</u>		Project #:		A - HCL	
Project Name: <u>AgriCo Annual</u>		SSOW#: <u>64000434</u>		Field Filtered Sample (Yes or No):		B - NaOH	
Site: <u>Pensacola, FL</u>		Sample Date		Sample Time		C - Zn Acetate	
Sample Identification		Sample Type (C=Comp, G=grab, or Tissue, Ash)		Matrix (V=water, S=solid, O=volatile)		D - Nitric Acid	
AC-29D		11/3/12 0743		G W		E - NaHSO4	
AC-3D		1430		↑		F - MeOH	
AC-35		1550		↑		G - Anchor	
						H - Ascorbic Acid	
						I - Ice	
						J - DI Water	
						K - EDTA	
						L - EDA	
						M - Hexane	
						N - None	
						O - AsNaO2	
						P - Na2O4S	
						Q - Na2SO3	
						R - Na2S2O3	
						S - H2SO4	
						T - TSP Dodecalhydrate	
						U - Acetone	
						V - MCA4	
						W - pH 4.5	
						Z - other (specify)	
						Special Instructions/Note:	
						Total Number of containers	
						Perform MS/MSD (Yes or No)	
						340.2 - Fluoride (Pensacola)	
						SUBCONTRACT - Rad 226-Method 903.1 (Richland)	
						SUBCONTRACT - Rad 228-Method 904.0 (Richland)	
						353.2 - Nitrate as N	
						300.0_28D - Chloride, Sulfate	
						SM4500_NO2_B - Nitrate as N	
						6010B - Arsenic	
						Possible Hazard Identification	
						<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological	
						Deliverable Requested: I, II, III, IV, Other (specify)	
						Empty Kit Relinquished by: <u>22.11.12</u> Date: <u>12/30/12</u> Time: <u>11:45</u> Method of Shipment:	
						Relinquished by: <u>11/13/12</u> Date/Time: <u>1700</u> Company:	
						Relinquished by: <u>11/13/12</u> Date/Time: <u>1700</u> Company:	
						Custody Seals Intact: <u>Δ Yes Δ No</u> Custody Seal No.: <u>1.71</u>	
						Cooler Temperature(s) °C and Other Remarks:	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41202-1

Login Number: 41202

List Source: TestAmerica Tallahassee

List Number: 1

Creator: Mitchell, Travis X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41202-1

Login Number: 41202

List Source: TestAmerica Pensacola

List Number: 1

List Creation: 11/15/12 03:28 PM

Creator: Crawford, Lauren E

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.3°C, 2.1°C IR-5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41202-1

Login Number: 41202

List Source: TestAmerica Savannah

List Number: 1

List Creation: 11/15/12 04:38 PM

Creator: Barnett, Eddie T

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41202-1

Login Number: 41202

List Number: 1

Creator: McNulty, Carol

List Source: TestAmerica Tampa

List Creation: 11/15/12 11:21 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Tel: (850)878-3994

TestAmerica Job ID: 640-41231-1

Client Project/Site: Agrico

For:

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317

Attn: Mr. Jeff Wagner



Authorized for release by:
12/20/2012 2:09:22 PM

Tim Preston
Project Manager II
timothy.preston@testamericainc.com

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Job ID: 640-41231-1

Laboratory: TestAmerica Tallahassee

Narrative

Job Narrative 640-41231-1

Comments

No additional comments.

Receipt

The samples were received on 11/15/2012 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3° C.

Metals

No analytical or quality issues were noted.

Field Service / Mobile Lab

No analytical or quality issues were noted.

General Chemistry

Method 353.2: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for batch 257284 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

No other analytical or quality issues were noted.

Subcontract non-Sister

No analytical or quality issues were noted.

Subcontract Work

Methods Radium 226 by EPA Method 903.1, Radium 228 by EPA Method 904.0: These methods were subcontracted to TestAmerica Richland. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.

Detection Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Client Sample ID: AC-2D

Lab Sample ID: 640-41231-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.9		1.0		mg/L	1		300.0	Total/NA
Sulfate	17		1.0		mg/L	1		300.0	Total/NA
Fluoride	2.2		0.20		mg/L	2		340.2	Total/NA
Nitrate as N	2.1		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-2S

Lab Sample ID: 640-41231-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.016		0.010		mg/L	1		6010B	Total Recoverable
Chloride	4.3		2.0		mg/L	2		300.0	Total/NA
Sulfate	62		2.0		mg/L	2		300.0	Total/NA
Fluoride	43		5.0		mg/L	50		340.2	Total/NA
Nitrate as N	4.6		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: DUP-2

Lab Sample ID: 640-41231-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.017		0.010		mg/L	1		6010B	Total Recoverable
Chloride	4.3		2.0		mg/L	2		300.0	Total/NA
Sulfate	63		2.0		mg/L	2		300.0	Total/NA
Fluoride	43		5.0		mg/L	50		340.2	Total/NA
Nitrate as N	4.6		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-30D

Lab Sample ID: 640-41231-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	18		1.0		mg/L	1		300.0	Total/NA
Sulfate	64		2.0		mg/L	2		300.0	Total/NA
Fluoride	8.0		1.0		mg/L	10		340.2	Total/NA
Nitrate as N	5.5		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample ID: AC-25D

Lab Sample ID: 640-41231-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	370		10		mg/L	10		300.0	Total/NA
Sulfate	94		10		mg/L	10		300.0	Total/NA
Fluoride	100		10		mg/L	100		340.2	Total/NA
Nitrate as N	4.2		0.010		mg/L	1		Nitrate by calc	Total/NA

TestAmerica Tallahassee

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Method: 6010B - Metals (ICP) - Total Recoverable

Client Sample ID: AC-2S

Date Collected: 11/14/12 09:45

Date Received: 11/15/12 09:00

Lab Sample ID: 640-41231-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.016		0.010		mg/L		11/19/12 18:04	11/20/12 18:46	1

Client Sample ID: DUP-2

Date Collected: 11/14/12 00:00

Date Received: 11/15/12 09:00

Lab Sample ID: 640-41231-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.017		0.010		mg/L		11/19/12 18:04	11/20/12 18:49	1

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

General Chemistry

Client Sample ID: AC-2D
Date Collected: 11/14/12 08:27
Date Received: 11/15/12 09:00

Lab Sample ID: 640-41231-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.9		1.0		mg/L			12/01/12 16:09	1
Sulfate	17		1.0		mg/L			12/01/12 16:09	1
Fluoride	2.2		0.20		mg/L			11/17/12 13:00	2
Nitrate as N	2.1		0.010		mg/L			11/26/12 08:42	1

Client Sample ID: AC-2S
Date Collected: 11/14/12 09:45
Date Received: 11/15/12 09:00

Lab Sample ID: 640-41231-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.3		2.0		mg/L			12/01/12 16:22	2
Sulfate	62		2.0		mg/L			12/01/12 16:22	2
Fluoride	43		5.0		mg/L			11/17/12 13:00	50
Nitrate as N	4.6		0.010		mg/L			11/26/12 08:42	1

Client Sample ID: DUP-2
Date Collected: 11/14/12 00:00
Date Received: 11/15/12 09:00

Lab Sample ID: 640-41231-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.3		2.0		mg/L			12/01/12 16:34	2
Sulfate	63		2.0		mg/L			12/01/12 16:34	2
Fluoride	43		5.0		mg/L			11/17/12 13:00	50
Nitrate as N	4.6		0.010		mg/L			11/26/12 08:42	1

Client Sample ID: AC-30D
Date Collected: 11/14/12 12:53
Date Received: 11/15/12 09:00

Lab Sample ID: 640-41231-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18		1.0		mg/L			12/01/12 16:46	1
Sulfate	64		2.0		mg/L			12/02/12 16:42	2
Fluoride	8.0		1.0		mg/L			11/17/12 13:00	10
Nitrate as N	5.5		0.010		mg/L			11/26/12 08:42	1

Client Sample ID: AC-25D
Date Collected: 11/14/12 15:16
Date Received: 11/15/12 09:00

Lab Sample ID: 640-41231-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	370		10		mg/L			12/01/12 16:59	10
Sulfate	94		10		mg/L			12/01/12 16:59	10
Fluoride	100		10		mg/L			11/17/12 13:00	100
Nitrate as N	4.2		0.010		mg/L			11/26/12 08:42	1

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 660-131644/1-A
Matrix: Water
Analysis Batch: 131664

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 131644

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.010		0.010		mg/L		11/19/12 18:04	11/20/12 17:46	1

Lab Sample ID: LCS 660-131644/2-A
Matrix: Water
Analysis Batch: 131664

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 131644

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.02		mg/L		102	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-258408/2
Matrix: Water
Analysis Batch: 258408

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			12/01/12 14:18	1
Sulfate	<1.0		1.0		mg/L			12/01/12 14:18	1

Lab Sample ID: LCS 680-258408/3
Matrix: Water
Analysis Batch: 258408

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.85		mg/L		98	90 - 110
Sulfate	10.0	10.6		mg/L		106	90 - 110

Lab Sample ID: LCSD 680-258408/4
Matrix: Water
Analysis Batch: 258408

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.87		mg/L		99	90 - 110	0	30
Sulfate	10.0	10.6		mg/L		106	90 - 110	0	30

Lab Sample ID: MB 680-258411/7
Matrix: Water
Analysis Batch: 258411

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.0		1.0		mg/L			12/02/12 14:51	1

Lab Sample ID: LCS 680-258411/8
Matrix: Water
Analysis Batch: 258411

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.9		mg/L		109	90 - 110

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 680-258411/9

Matrix: Water

Analysis Batch: 258411

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	10.0	11.0		mg/L		110	90 - 110	1	30

Method: 340.2 - Fluoride

Lab Sample ID: MB 400-166994/1

Matrix: Water

Analysis Batch: 166994

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			11/17/12 13:00	1

Lab Sample ID: LCS 400-166994/2

Matrix: Water

Analysis Batch: 166994

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	1.00	1.07		mg/L		107	90 - 110		

Lab Sample ID: 640-41231-1 MS

Matrix: Water

Analysis Batch: 166994

Client Sample ID: AC-2D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Fluoride	2.2		1.60	3.84		mg/L		100	74 - 125		

Lab Sample ID: 640-41231-1 MSD

Matrix: Water

Analysis Batch: 166994

Client Sample ID: AC-2D

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	2.2		1.60	3.90		mg/L		104	74 - 125	2	4

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E81005	06-30-13
Louisiana	NELAP	6	30663	06-30-13
New Jersey	NELAP	2	FL012	06-30-13
Texas	NELAP	6	T104704459-11-2	03-31-13
USDA	Federal		P330-08-00158	08-05-14

Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-13
Arizona	State Program	9	AZ0710	01-11-13
Arkansas DEQ	State Program	6	88-0689	09-01-13
Florida	NELAP	4	E81010	06-30-13
Georgia	State Program	4	N/A	06-30-13
Illinois	NELAP	5	200041	10-09-13
Iowa	State Program	7	367	08-01-14
Kansas	NELAP	7	E-10253	10-31-13
Kentucky (UST)	State Program	4	53	07-05-13
Louisiana	NELAP	6	30976	06-30-13
Maryland	State Program	3	233	09-30-13
Massachusetts	State Program	1	M-FL094	06-30-13
Michigan	State Program	5	9912	06-30-13
New Hampshire	NELAP	1	2505	08-16-13
New Jersey	NELAP	2	FL006	06-30-13
North Carolina DENR	State Program	4	314	12-31-12
Oklahoma	State Program	6	9810	08-31-13
Pennsylvania	NELAP	3	68-00467	12-31-12
Rhode Island	State Program	1	LAO00307	12-30-12
South Carolina	State Program	4	96026	06-30-12
Tennessee	State Program	4	TN02907	06-30-13
Texas	NELAP	6	T104704286-12-5	09-30-13
USDA	Federal		P330-10-00407	12-10-13
Virginia	NELAP	3	460166	06-14-13
West Virginia DEP	State Program	3	136	06-30-13

Laboratory: TestAmerica Richland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA - LAP	IHLAP		187436	07-01-13
Arizona	State Program	9	AZ0709	07-02-13
California	NELAP	9	E87829	05-31-14
Colorado	State Program	8	N/A	09-30-13
Florida	NELAP	4	E87829	06-30-13
Hawaii	State Program	9	N/A	01-09-13
L-A-B	DoD ELAP		L2291	06-30-14
Nevada	State Program	9	WA00023	07-31-13
New Mexico	State Program	6	WA00023	01-09-13
Oregon	NELAP	10	WA100002	01-09-14
Pennsylvania	NELAP	3	68-04849	08-31-13
Tennessee	State Program	4	4011	01-09-13

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Laboratory: TestAmerica Richland (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAP	6	T104704493-10-1	12-31-12
USDA	Federal		P330-11-00043	01-25-14
Utah	NELAP	8	QUAN8	01-09-13
Virginia	State Program	3	00100	06-30-13
Washington	State Program	10	WA01116	08-14-13
Washington (CLIA)	State Program	10	50D0661626	06-30-13

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAP	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAP	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAP	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAP	6	30690	06-30-13
Louisiana	NELAP	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAP	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAP	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAP	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAP	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Virginia	NELAP	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

Laboratory: TestAmerica Tampa

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40610	06-30-13
Florida	NELAP	4	E84282	06-30-13
Georgia	State Program	4	905	06-30-13
USDA	Federal		P330-11-00177	04-20-14

Method Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL TAM
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
340.2	Fluoride	MCAWW	TAL PEN
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL TAL
Rad 226-Method 903.1 (Richland)	RAD-226 (RCH)	NONE	TAL RCH
Rad 228-Method 904.0 (Richland)	RAD-228 (RCH)	NONE	TAL RCH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
NONE = NONE
SM = "Standard Methods For The Examination Of Water And Wastewater",
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001
TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131
TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858
TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994
TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Sample Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41231-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
640-41231-1	AC-2D	Water	11/14/12 08:27	11/15/12 09:00
640-41231-2	AC-2S	Water	11/14/12 09:45	11/15/12 09:00
640-41231-3	DUP-2	Water	11/14/12 00:00	11/15/12 09:00
640-41231-4	AC-30D	Water	11/14/12 12:53	11/15/12 09:00
640-41231-5	AC-25D	Water	11/14/12 15:16	11/15/12 09:00

Analytical Data Package Prepared For

TestAmerica Tallahassee

Radiochemical Analysis By

TestAmerica

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 54033

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
46069	46069	AC-25D(640-41231-5)	J2K260414-5	MXEXN1AA	9MXEXN10	2332034
		AC-25D(640-41231-5)	J2K260414-5	MXEXN1AC	9MXEXN10	2332036
		AC-2D(640-41231-1)	J2K260414-1	MXEXJ1AA	9MXEXJ10	2332034
		AC-2D(640-41231-1)	J2K260414-1	MXEXJ1AC	9MXEXJ10	2332036
		AC-2S(640-41231-2)	J2K260414-2	MXEXK1AA	9MXEXK10	2332034
		AC-2S(640-41231-2)	J2K260414-2	MXEXK1AC	9MXEXK10	2332036
		AC-30D(640-41231-4)	J2K260414-4	MXEXM1AA	9MXEXM10	2332034
		AC-30D(640-41231-4)	J2K260414-4	MXEXM1AC	9MXEXM10	2332036
		DUP-2(640-41231-3)	J2K260414-3	MXEXL1AA	9MXEXL10	2332034
		DUP-2(640-41231-3)	J2K260414-3	MXEXL1AC	9MXEXL10	2332036

Certificate of Analysis

December 19, 2012

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301

Attention: Tim Preston

Date Received by Lab	:	November 26, 2012
Sample Number/Matrix	:	Five (5) Waters
SDG Number	:	46069
Client	:	Cedar Bay
Project	:	Agrico
Project Number	:	640-41231-1

CASE NARRATIVE

I. Introduction

On November 26, 2012, five water samples were received at the TestAmerica Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package. The samples were assigned to Lot Number J2K260414.

II. Sample Receipt

The samples had slightly leaked during transport. The coolers were surveyed and no contamination was detected. There was enough volume to proceed.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analyses requested were:

Gas Proportional Counting
Radium-228 by method RL-RA-001
Alpha Scintillation Counting
Radium-226 by method RL-RA-001

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Gas Proportional Counting

Radium-228 by method RL-RA-001:

The analytical batch was re-milked to verify sample activities. The re-milk results confirm the initial run. The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation Counting

Radium-226 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x, y, z, \dots)$. The components (x, y, z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1, 2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c - Combined Uncertainty.</i>	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c the combined uncertainty</i> . The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations.
CRDL (RL)	Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (BkgrndCnt / BkgrndCntMin) / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{(BkgrndCnt / BkgrndCntMin) / SCntMin}) + 2.71 / SCntMin * (ConvFct / (Eff * Yld * Abn * Vol)) * IngrFct$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S - D) / [\sqrt{TPUs^2 + TPUD^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUD is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 19-Dec-12

TestAmerica TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 54033

SDG No: 46069

Batch	Client Id Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2332034	E903.0								
	AC-25D(640-41231-5)								
	MXEXN1AA	RADIUM-226	2.38 +/- 0.55	V	pCi/L	98%	0.201	1.0	
	AC-2D(640-41231-1)								
	MXEXJ1AA	RADIUM-226	0.744 +/- 0.27	J	pCi/L	88%	0.3	1.0	
	AC-2S(640-41231-2)								
	MXEXK1AA	RADIUM-226	0.0957 +/- 0.16	U	pCi/L	94%	0.297	1.0	
	AC-30D(640-41231-4)								
	MXEXM1AA	RADIUM-226	2.00 +/- 0.55	V	pCi/L	93%	0.256	1.0	
	DUP-2(640-41231-3)								
	MXEXL1AA	RADIUM-226	-0.00918 +/- 0.11	U	pCi/L	95%	0.234	1.0	
	EQ BLNK-2 (640-41247-1) DUP								
	MXEWA1AD	RADIUM-226	0.0923 +/- 0.11	U	pCi/L	100%	0.193	1.0	0.9
2332036	E904.0								
	AC-25D(640-41231-5)								
	MXEXN1AC	RADIUM-228	5.50 +/- 0.85	V	pCi/L	91%	0.495	1.0	
	AC-2D(640-41231-1)								
	MXEXJ1AC	RADIUM-228	1.94 +/- 0.54	V	pCi/L	82%	0.861	1.0	
	AC-2S(640-41231-2)								
	MXEXK1AC	RADIUM-228	0.118 +/- 0.24	U	pCi/L	85%	0.56	1.0	
	AC-30D(640-41231-4)								
	MXEXM1AC	RADIUM-228	8.21 +/- 1.2	V	pCi/L	87%	0.536	1.0	
	DUP-2(640-41231-3)								
	MXEXL1AC	RADIUM-228	0.158 +/- 0.26	U	pCi/L	88%	0.592	1.0	
	EQ BLNK-2 (640-41247-1) DUP								
	MXEWA1AE	RADIUM-228	0.604 +/- 0.35	U	pCi/L	92%	0.694	1.0	1.6
No. of Results: 12									

TestAmerica

rptSTLRchSaSum
mary2 V5.2.22
A2002

RER2 - Replicate Error Ratio = (S-D)/[sqrt(sq(TPUs)+sq(TPUD))] as defined by ICPT BOA.

J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

V Qual - Detected.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

QC Results Summary

Date: 19-Dec-12

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 54033

SDG No.: 46071

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
E903.0									
2332034	BLANK QC,								
	MXE651AA	RADIUM-226	-0.0658 +/- 0.074	U	pCi/L	94%			0.184
2332034	LCS,								
	MXE651AC	RADIUM-226	11.2 +/- 2.6	V	pCi/L	84%	113%	0.1	0.156
E904.0									
2332036	BLANK QC,								
	MXE671AA	RADIUM-228	0.385 +/- 0.25	U	pCi/L	83%			0.484
2332036	LCS,								
	MXE671AC	RADIUM-228	10.8 +/- 1.5	V	pCi/L	80%	108%	0.1	0.742
No. of Results: 4									

TestAmerica

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

rptSTLRchQcSummary V5.2.22
A2002

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V Qual - Detected.

FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K260414-5
 Client Sample ID: AC-25D(640-41231-5)
 SDG: 46069
 Report No.: 54033
 COC No.: 640-54688.1
 Collection Date: 11/14/2012 3:16:00 PM
 Received Date: 11/26/2012 10:50:00 AM
 Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
Work Order: MXEXN1AA Report DB ID: 9MXEXN10												
RADIUM-226	2.38	V	0.31	0.55	0.201 pCi/L	0.0883	98%	(11.9)	12/5/12 04:28 p		0.9208	ASC8HD
							1.0	(8.7)			L	
Batch: 2332036 E904.0												
Work Order: MXEXN1AC Report DB ID: 9MXEXN10												
RADIUM-228	5.50	V	0.56	0.85	0.495 pCi/L	0.218	91%	(11.1)	12/12/12 03:11 p		0.9208	GPC3A
							1.0	(13.)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.



FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K260414-1
 Client Sample ID: AC-2D(640-41231-1)

SDG: 46069
 Report No.: 54033
 COC No.: 640-54688.1

Collection Date: 11/14/2012 8:27:00 AM
 Received Date: 11/26/2012 10:50:00 AM
 Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
RADIUM-226												
	0.744	J	0.22	0.27	0.3	pCi/L	88%	(2.5)	12/5/12 04:26 p		0.838	ASC4HB
						0.137	1.0	(5.5)			L	
Batch: 2332036 E904.0												
RADIUM-228												
	1.94	V	0.48	0.54	0.861	pCi/L	82%	(2.3)	12/12/12 03:15 p		0.838	GPC1D
						0.4	1.0	(7.2)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA|Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 J Qual - No U|< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.

FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K260414-2
 Client Sample ID: AC-2S(640-41231-2)

SDG: 46069
 Report No.: 54033
 COC No.: 640-54688.1

Collection Date: 11/14/2012 9:45:00 AM
 Received Date: 11/26/2012 10:50:00 AM
 Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
RADIUM-226												
	0.0957	U	0.15	0.16	0.297	pCi/L	94%	0.32	12/5/12 04:35 p		0.8693	ASC5HA
						0.135	1.0	(1.2)			L	
Batch: 2332036 E904.0												
RADIUM-228												
	0.118	U	0.22	0.24	0.56	pCi/L	85%	0.21	12/12/12 03:15 p		0.8693	GPC2B
						0.246	1.0	0.97			L	

No. of Results: 2 Comments:

TestAmerica MDC(MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.



FORM I

Date: 19-Dec-12

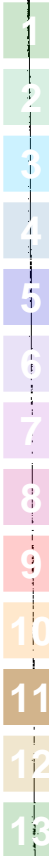
SAMPLE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K260414-4
 Client Sample ID: AC-30D(640-41231-4)
 SDG: 46069
 Report No.: 54033
 COC No.: 640-54688.1
 Collection Date: 11/14/2012 12:53:00 PM
 Received Date: 11/26/2012 10:50:00 AM
 Matrix: WATER W
 Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
RADIUM-226												
	2.00	V	0.31	0.55	0.256	pCi/L	93%	(7.8)	12/5/12 04:28 p		0.8277	ASC7HA
						0.115	1.0	(7.2)			L	
Batch: 2332036 E904.0												
RADIUM-228												
	8.21	V	0.74	1.2	0.536	pCi/L	87%	(15.3)	12/12/12 03:15 p		0.8277	GPC2D
						0.232	1.0	(13.6)			L	

No. of Results: 2 Comments:

TestAmerica MDCIMDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTLRchSample J Qual - No UJ< qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.
 V5.2.22 A2002 U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V Qual - Detected.



FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica

SDG: 46069

Collection Date: 11/14/2012 9:45:00 AM

Lot-Sample No.: J2K260414-3

Report No.: 54033

Received Date: 11/26/2012 10:50:00 AM

Client Sample ID: DUP-2(640-41231-3)

COC No.: 640-54688.1

Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
Work Order: MXEXL1AA					Report DB ID: 9MXEXL10							
RADIUM-226	-0.00918	U	0.11	0.11	0.234	pCi/L	95%	-0.04	12/5/12 04:36 p		0.8812	ASC6RA
						0.105	1.0	-0.17			L	
Batch: 2332036 E904.0												
Work Order: MXEXL1AC					Report DB ID: 9MXEXL10							
RADIUM-228	0.158	U	0.24	0.26	0.592	pCi/L	88%	0.27	12/12/12 03:15 p		0.8812	GPC2C
						0.262	1.0	(1.2)			L	

No. of Results: 2 Comments:

TestAmerica MDC/MDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

J Qual - No U/L - qualifier has been assigned and the result is below the Reporting Limit, RL (CRDL) or Report Value is Estimated.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

V Qual - Detected.



FORM II

Date: 19-Dec-12

DUPLICATE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K260406-1
 Client Sample ID: EQ BLNK-2 (640-41247-1) DUP

SDG: 46068
 Report No.: 54033
 COC No.: 640-54698.1

Collection Date: 11/15/2012 7:05:00 AM
 Received Date: 11/26/2012 10:50:00 AM
 Matrix: WATER W

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034	E903.0								Orig Sa DB ID: 9MXEWA10			
RADIUM-226	0.0923	U	0.11	0.11	0.193	pCi/L	100%	0.48	12/5/12 04:33 p		0.8447	ASC2RC
	0.0357	U	RER2 0.9			1.0		(1.7)			L	

Batch: 2332036	E904.0								Orig Sa DB ID: 9MXEWA10			
RADIUM-228	0.604	U	0.32	0.35	0.694	pCi/L	92%	0.87	12/12/12 03:15 p		0.8447	GPC1B
	0.196	U	RER2 1.6			1.0		(3.5)			L	

No. of Results: 2 Comments:

TestAmerica RER2 - Replicate Error Ratio = $(S-D)/[\sqrt{(sq(TPU_s)+sq(TPU_d))}]$ as defined by ICPT BOA.

MDC(MDA), Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.



FORM II

Date: 19-Dec-12

BLANK RESULTS

Lab Name: TestAmerica

SDG: 46071

Matrix: WATER

Report No.: 54033

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
Work Order: MXE651AA Report DB ID: MXE651AB												
RADIUM-226	-0.0658	U	0.073	0.074	0.184	pCi/L	94%	-0.36	12/5/12 04:53 p	1.0014	L	ASCDMB
					0.0816	1.0		-(1.8)				
Batch: 2332036 E904.0												
Work Order: MXE671AA Report DB ID: MXE671AB												
RADIUM-228	0.385	U	0.23	0.25	0.484	pCi/L	83%	0.8	12/12/12 03:11 p	1.0014	L	GPC4B
					0.212	1.0		(3.1)				

No. of Results: 2 Comments:



FORM II

Date: 19-Dec-12

LCS RESULTS

Lab Name: TestAmerica

SDG: 46071

Matrix: WATER

Report No. : 54033

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2332034 E903.0													
RADIUM-226	11.2	V	0.62	2.6	0.156	pCi/L	84%	9.92	0.1	113%	12/5/12 04:54 p	1.0027	ASCEHB
Work Order: MXE651AC							Rec Limits:	75	125	0.1			
Batch: 2332036 E904.0													
RADIUM-228	10.8	V	0.81	1.5	0.742	pCi/L	80%	9.96	0.11	108%	12/12/12 03:11 p	1.0027	GPC4C
Work Order: MXE671AC							Rec Limits:	70	130	0.1			

No. of Results: 2 Comments:

Sample Check-in List

Date/Time Received: 11-26-12 / 1050 Container GM Screen Result: (Airlock) .04 Initials [B]
Sample GM Screen Result (Sample Receiving) .06 Initials [B]

Client: STL-T SDG #: 44069 NA ☐ SAF #: NA ☒

Lot Number: 521260414

Chain of Custody # 640-54688.1

Shipping Container ID: NA ☒ Air Bill Number: NA ☒

Samples received inside shipping container/cooler/box Yes ☒] Continue with 1 through 4. Initial appropriate response.

No ☐] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes ☒] No ☐] No Custody Seal ☐]

2. Custody Seals dated and signed? Yes ☐] No ☒] No Custody Seal ☐]

3. Cooler temperature: °C NA ☒]

4. Vermiculite/packing materials is NA ☐] Wet ☒] Dry ☐]

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes ☒] No ☐]

6. Number of samples received (Each sample may contain multiple bottles): 5

7. Containers received: 10 x LP

8. Sample holding times exceeded? NA ☐] Yes ☐] No ☒]

9. Samples have:
 tape hazard labels
 custody seals ☒ appropriate sample labels

10. Matrix:
 A (FLT, Wipe, Solid, Soil) ☒ I (Water)
 S (Air, Niosh 7400) T (Biological, Ni-63)

11. Samples:
☒ are in good condition ☒ are leaking
 are broken have air bubbles (Only for samples requiring no head space)
 Other

12. Sample pH appropriate for analysis requested Yes ☒] No ☐] NA ☐]
(If acidification is necessary, then document sample ID, initial pH, amount of HNO₃ added and pH after addition on table overleaf)

RPL ID # of preservative used :

13. Were any anomalies identified in sample receipt? Yes ☐] No ☒]

14. Description of anomalies (include sample numbers): NA ☒

- 12/20/2012

2845 Industrial Plaza Drive
Tallahassee, FL 32301
Phone (850) 878-3994 Fax (850) 878-9504

Chain of Custody Record

TestAmerica
THE LEADER OF ENVIRONMENTAL TESTING

Client Information		Sample #	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Mr. Jeff Wagner		Phone: 850 251 6585	Preston, Tim		640-35431-8826 2
Company: URS Corporation		E-Mail: timothy.preston@testamerica.com			Page 2 of 4
Address: 1625 Summit Lake Drive Suite 200 City: Tallahassee State: FL 32317 Phone:		Due Date Requested:	Analysis Requested		
Email: jeffry_wagner@urscorp.com		PO #: 4280565-12806149, 000000	Job #: 640-41231		
Project Name: Agrico Annual		Project #: 64000434	Preservation Codes:		
Site: Pensacola, FL		SSOW#: 64000434	A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2OAS E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecylhydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4.5 L - EDTA Z - other (specify) Other:		
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=organic, A=air)
AC-20	11/14/12	0837	G	W	N
AC-23	11/14/12	0715	G	W	N
AC-22	11/14/12	1253	G	W	N
AC-30D	11/14/12	1516	G	W	N
AC-25D	11/14/12	1516	G	W	N
Possible Hazard Identification		Field Filtered Sample (Yes or No)			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Perform MS/MSD (Yes or No)			
Deliverable Requested: I, II, III, IV, Other (specify)		340.2 - Fluoride (Pensacola) SUBCONTRACT - Rad 226-Method 903.1 (Richland) SUBCONTRACT - Rad 228-Method 904.0 (Richland) 353.2 - Nitrate as N 300.0_28D - Chloride, Sulfate SM4500_NO2_B - Nitrate as N 6010B - Arsenic			
Empty Kit Relinquished by: [Signature]		Total Number of containers			
Relinquished by: [Signature]		Special Instructions/Note:			
Relinquished by: [Signature]		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/DOC Requirements:			
Date: 12/30/12		Time: 11:45			
Date/Time: 11/14/12 1700		Date/Time: 11/14/12 900			
Company: [Blank]		Company: [Blank]			
Received by: [Signature]		Received by: [Signature]			
Date/Time: [Blank]		Date/Time: [Blank]			
Cooler Temperature(s) °C and Other Remarks: 2.3					

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41231-1

Login Number: 41231

List Source: TestAmerica Tallahassee

List Number: 1

Creator: Mitchell, Travis X

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41231-1

Login Number: 41231

List Source: TestAmerica Pensacola

List Number: 1

List Creation: 11/16/12 07:10 PM

Creator: Crawford, Lauren E

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8°C IR-2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41231-1

Login Number: 41231

List Source: TestAmerica Savannah

List Number: 1

List Creation: 11/16/12 12:37 PM

Creator: Barnett, Eddie T

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41231-1

Login Number: 41231

List Number: 1

Creator: McNulty, Carol

List Source: TestAmerica Tampa

List Creation: 11/16/12 10:17 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301
Tel: (850)878-3994

TestAmerica Job ID: 640-41247-1

Client Project/Site: Agrico

For:

URS Corporation
1625 Summit Lake Drive
Suite 200
Tallahassee, Florida 32317

Attn: Mr. Jeff Wagner



Authorized for release by:
12/20/2012 2:10:22 PM

Tim Preston
Project Manager II
timothy.preston@testamericainc.com

LINKS

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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
☼	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
DL, RA, RE, IN	Indicates a Dilution, Reanalysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
EDL	Estimated Detection Limit
EPA	United States Environmental Protection Agency
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Job ID: 640-41247-1

Laboratory: TestAmerica Tallahassee

Narrative

Job Narrative
640-41247-1

Comments

No additional comments.

Receipt

The samples were received on 11/15/2012 3:14 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3° C.

Metals

No analytical or quality issues were noted.

Field Service / Mobile Lab

No analytical or quality issues were noted.

General Chemistry

No analytical or quality issues were noted.

Subcontract non-Sister

No analytical or quality issues were noted.

Subcontract Work

Methods Radium 226 by EPA Method 903.1, Radium 228 by EPA Method 904.0: These methods were subcontracted to TestAmerica Richland. The subcontract certifications are different from those listed on the TestAmerica cover page of this final report.

Detection Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Client Sample ID: EQ BLNK-2

Lab Sample ID: 640-41247-1

No Detections

Client Sample ID: AC-35D

Lab Sample ID: 640-41247-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	350		10		mg/L	10		300.0	Total/NA
Sulfate	200		10		mg/L	10		300.0	Total/NA
Fluoride	130		10		mg/L	100		340.2	Total/NA
Nitrate as N	9.6		0.010		mg/L	1		Nitrate by calc	Total/NA

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Method: 6010B - Metals (ICP) - Total Recoverable

Client Sample ID: EQ BLNK-2

Date Collected: 11/15/12 07:05

Date Received: 11/15/12 15:14

Lab Sample ID: 640-41247-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.010		0.010		mg/L		11/19/12 18:04	11/20/12 19:22	1

Client Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

General Chemistry

Client Sample ID: EQ BLNK-2

Date Collected: 11/15/12 07:05

Date Received: 11/15/12 15:14

Lab Sample ID: 640-41247-1

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			12/01/12 19:03	1
Sulfate	<1.0		1.0		mg/L			12/01/12 19:03	1
Fluoride	<0.10		0.10		mg/L			11/17/12 13:00	1
Nitrate as N	<0.010		0.010		mg/L			11/26/12 08:42	1

Client Sample ID: AC-35D

Date Collected: 11/15/12 08:24

Date Received: 11/15/12 15:14

Lab Sample ID: 640-41247-2

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	350		10		mg/L			12/01/12 19:15	10
Sulfate	200		10		mg/L			12/01/12 19:15	10
Fluoride	130		10		mg/L			11/17/12 13:00	100
Nitrate as N	9.6		0.010		mg/L			11/26/12 08:43	1

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 660-131644/1-A
Matrix: Water
Analysis Batch: 131664

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 131644

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.010		0.010		mg/L		11/19/12 18:04	11/20/12 17:46	1

Lab Sample ID: LCS 660-131644/2-A
Matrix: Water
Analysis Batch: 131664

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 131644

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.02		mg/L		102	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 680-258408/2
Matrix: Water
Analysis Batch: 258408

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.0		1.0		mg/L			12/01/12 14:18	1
Sulfate	<1.0		1.0		mg/L			12/01/12 14:18	1

Lab Sample ID: LCS 680-258408/3
Matrix: Water
Analysis Batch: 258408

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.85		mg/L		98	90 - 110
Sulfate	10.0	10.6		mg/L		106	90 - 110

Lab Sample ID: LCSD 680-258408/4
Matrix: Water
Analysis Batch: 258408

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.87		mg/L		99	90 - 110	0	30
Sulfate	10.0	10.6		mg/L		106	90 - 110	0	30

Method: 340.2 - Fluoride

Lab Sample ID: MB 400-166994/1
Matrix: Water
Analysis Batch: 166994

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.10		0.10		mg/L			11/17/12 13:00	1

TestAmerica Tallahassee

QC Sample Results

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Method: 340.2 - Fluoride (Continued)

Lab Sample ID: LCS 400-166994/2

Matrix: Water

Analysis Batch: 166994

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.00	1.07		mg/L		107	90 - 110

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Laboratory: TestAmerica Tallahassee

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Florida	NELAP	4	E81005	06-30-13
Louisiana	NELAP	6	30663	06-30-13
New Jersey	NELAP	2	FL012	06-30-13
Texas	NELAP	6	T104704459-11-2	03-31-13
USDA	Federal		P330-08-00158	08-05-14

Laboratory: TestAmerica Pensacola

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-13
Arizona	State Program	9	AZ0710	01-11-13
Arkansas DEQ	State Program	6	88-0689	09-01-13
Florida	NELAP	4	E81010	06-30-13
Georgia	State Program	4	N/A	06-30-13
Illinois	NELAP	5	200041	10-09-13
Iowa	State Program	7	367	08-01-14
Kansas	NELAP	7	E-10253	10-31-13
Kentucky (UST)	State Program	4	53	07-05-13
Louisiana	NELAP	6	30976	06-30-13
Maryland	State Program	3	233	09-30-13
Massachusetts	State Program	1	M-FL094	06-30-13
Michigan	State Program	5	9912	06-30-13
New Hampshire	NELAP	1	2505	08-16-13
New Jersey	NELAP	2	FL006	06-30-13
North Carolina DENR	State Program	4	314	12-31-12
Oklahoma	State Program	6	9810	08-31-13
Pennsylvania	NELAP	3	68-00467	12-31-12
Rhode Island	State Program	1	LAO00307	12-30-12
South Carolina	State Program	4	96026	06-30-12
Tennessee	State Program	4	TN02907	06-30-13
Texas	NELAP	6	T104704286-12-5	09-30-13
USDA	Federal		P330-10-00407	12-10-13
Virginia	NELAP	3	460166	06-14-13
West Virginia DEP	State Program	3	136	06-30-13

Laboratory: TestAmerica Richland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
AIHA - LAP	IHLAP		187436	07-01-13
Arizona	State Program	9	AZ0709	07-02-13
California	NELAP	9	E87829	05-31-14
Colorado	State Program	8	N/A	09-30-13
Florida	NELAP	4	E87829	06-30-13
Hawaii	State Program	9	N/A	01-09-13
L-A-B	DoD ELAP		L2291	06-30-14
Nevada	State Program	9	WA00023	07-31-13
New Mexico	State Program	6	WA00023	01-09-13
Oregon	NELAP	10	WA100002	01-09-14
Pennsylvania	NELAP	3	68-04849	08-31-13
Tennessee	State Program	4	4011	01-09-13

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Laboratory: TestAmerica Richland (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Texas	NELAP	6	T104704493-10-1	12-31-12
USDA	Federal		P330-11-00043	01-25-14
Utah	NELAP	8	QUAN8	01-09-13
Virginia	State Program	3	00100	06-30-13
Washington	State Program	10	WA01116	08-14-13
Washington (CLIA)	State Program	10	50D0661626	06-30-13

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		0399-01	02-28-13
A2LA	ISO/IEC 17025		399.01	02-28-13
Alabama	State Program	4	41450	06-30-13
Alaska (UST)	State Program	10	UST-104	06-19-13
Arkansas DEQ	State Program	6	88-0692	02-01-13
California	NELAP	9	3217CA	07-31-13
Colorado	State Program	8	N/A	12-31-12
Connecticut	State Program	1	PH-0161	03-31-13
Florida	NELAP	4	E87052	06-30-13
GA Dept. of Agriculture	State Program	4	N/A	12-31-12
Georgia	State Program	4	N/A	06-30-13
Georgia	State Program	4	803	06-30-13
Guam	State Program	9	09-005r	04-17-13
Hawaii	State Program	9	N/A	06-30-13
Illinois	NELAP	5	200022	11-30-12
Indiana	State Program	5	N/A	06-30-13
Iowa	State Program	7	353	07-01-13
Kentucky	State Program	4	90084	12-31-12
Kentucky (UST)	State Program	4	18	02-28-13
Louisiana	NELAP	6	30690	06-30-13
Louisiana	NELAP	6	LA100015	12-31-12
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-12
Massachusetts	State Program	1	M-GA006	06-30-13
Michigan	State Program	5	9925	06-30-13
Mississippi	State Program	4	N/A	06-30-13
Montana	State Program	8	CERT0081	12-31-12
Nebraska	State Program	7	TestAmerica-Savannah	06-30-13
New Jersey	NELAP	2	GA769	06-30-13
New Mexico	State Program	6	N/A	06-30-13
New York	NELAP	2	10842	04-01-13
North Carolina DENR	State Program	4	269	12-31-13
North Carolina DHHS	State Program	4	13701	07-31-13
Oklahoma	State Program	6	9984	08-31-13
Pennsylvania	NELAP	3	68-00474	06-30-13
Puerto Rico	State Program	2	GA00006	01-01-13
Rhode Island	State Program	1	LAO00244	12-30-12
South Carolina	State Program	4	98001	06-30-13
Tennessee	State Program	4	TN02961	06-30-13
Texas	NELAP	6	T104704185-08-TX	11-30-13
USDA	Federal		SAV 3-04	04-07-14

TestAmerica Tallahassee

Certification Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Laboratory: TestAmerica Savannah (Continued)

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Virginia	NELAP	3	460161	06-14-13
Washington	State Program	10	C1794	06-10-13
West Virginia	State Program	3	9950C	12-31-12
West Virginia DEP	State Program	3	94	06-30-13
Wisconsin	State Program	5	999819810	08-31-13
Wyoming	State Program	8	8TMS-Q	06-30-13

Laboratory: TestAmerica Tampa

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40610	06-30-13
Florida	NELAP	4	E84282	06-30-13
Georgia	State Program	4	905	06-30-13
USDA	Federal		P330-11-00177	04-20-14

Method Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL TAM
300.0	Anions, Ion Chromatography	MCAWW	TAL SAV
340.2	Fluoride	MCAWW	TAL PEN
Nitrate by calc	Nitrogen, Nitrate-Nitrite	SM	TAL TAL
Rad 226-Method 903.1 (Richland)	RAD-226 (RCH)	NONE	TAL RCH
Rad 228-Method 904.0 (Richland)	RAD-228 (RCH)	NONE	TAL RCH

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
NONE = NONE
SM = "Standard Methods For The Examination Of Water And Wastewater",
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001
TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131
TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858
TAL TAL = TestAmerica Tallahassee, 2846 Industrial Plaza Drive, Tallahassee, FL 32301, TEL (850)878-3994
TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Sample Summary

Client: URS Corporation
Project/Site: Agrico

TestAmerica Job ID: 640-41247-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
640-41247-1	EQ BLNK-2	Water	11/15/12 07:05	11/15/12 15:14
640-41247-2	AC-35D	Water	11/15/12 08:24	11/15/12 15:14

Analytical Data Package Prepared For
TestAmerica Tallahassee

Radiochemical Analysis By
TestAmerica

2800 G.W. Way, Richland Wa, 99354, (509)-375-3131.

Assigned Laboratory Code: TARL

Data Package Contains _____ Pages

Report No.: 54032

Results in this report relate only to the sample(s) analyzed.

SDG No.	Order No.	Client Sample ID (List Order)	Lot-Sa No.	Work Order	Report DB ID	Batch No.
46068	46068	AC-35D (640-41247-2)	J2K260406-2	MXEWN1AA	9MXEWN10	2332034
		AC-35D (640-41247-2)	J2K260406-2	MXEWN1AC	9MXEWN10	2332036
		EQ BLNK-2 (640-41247-1)	J2K260406-1	MXEWA1AA	9MXEWA10	2332034
		EQ BLNK-2 (640-41247-1)	J2K260406-1	MXEWA1AC	9MXEWA10	2332036

Certificate of Analysis

December 19, 2012

TestAmerica Tallahassee
2846 Industrial Plaza Drive
Tallahassee, FL 32301

Attention: Tim Preston

Date Received by Lab	:	November 26, 2012
Sample Number/Matrix	:	Two (2) Waters
SDG Number	:	46068
Client	:	Cedar Bay
Project	:	Agrico
Project Number	:	640-41247-1

CASE NARRATIVE

I. Introduction

On November 26, 2012, two water samples were received at the TestAmerica Richland laboratory for radiochemical analysis. Upon receipt, the samples were assigned the TestAmerica identification numbers as described on the cover page of the Analytical Data Package. The samples were assigned to Lot Number J2K260406.

II. Sample Receipt

The samples had slightly leaked during transport. The coolers were surveyed and no contamination was detected. There was enough volume to proceed.

III. Analytical Results/Methodology

The analytical results for this report are presented by laboratory sample ID. Each set of data includes sample identification information; analytical results and the appropriate associated statistical uncertainties.

The analyses requested were:

Gas Proportional Counting
Radium-228 by method RL-RA-001
Alpha Scintillation Counting
Radium-226 by method RL-RA-001

IV. Quality Control

The analytical result for each analysis performed includes a minimum of one laboratory control sample (LCS), and one reagent blank sample analysis. Any exceptions have been noted in the "Comments" section.

V. Comments

Gas Proportional Counting

Radium-228 by method RL-RA-001:

The analytical batch was re-milked to verify sample activities. The re-milk results confirm the initial run. The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

Alpha Scintillation Counting

Radium-226 by method RL-RA-001:

The LCS, batch blank, sample and sample duplicate results are within acceptance limits.

I certify that this Certificate of Analysis is in compliance with the SOW and/or NELAC, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:

Erika Jordan
Customer Service Manager

Drinking Water Method Cross References

DRINKING WATER ASTM METHOD CROSS REFERENCES		
Referenced Method	Isotope(s)	TestAmerica Richland's SOP No.
EPA 901.1	Cs-134, I-131	RL-GAM-001
EPA 900.0	Alpha & Beta	RL-GPC-001
EPA 00-02	Gross Alpha (Coprecipitation)	RL-GPC-002
EPA 903.0	Total Alpha Radium (Ra-226)	RL-RA-002
EPA 903.1	Ra-226	RL-RA-001
EPA 904.0	Ra-228	RL-RA-001
EPA 905.0	Sr-89/90	RL-GPC-003
ASTM D5174	Uranium	RL-KPA-003
EPA 906.0	Tritium	RL-LSC-005

Results in this report relate only to the sample(s) analyzed.

Uncertainty Estimation

TestAmerica Richland has adopted the internationally accepted approach to estimating uncertainties described in "NIST Technical Note 1297, 1994 Edition". The approach, "Law of Propagation of Errors", involves the identification of all variables in an analytical method which are used to derive a result. These variables are related to the analytical result (R) by some functional relationship, $R = \text{constants} * f(x,y,z,...)$. The components (x,y,z) are evaluated to determine their contribution to the overall method uncertainty. The individual component uncertainties (u_i) are then combined using a statistical model that provides the most probable overall uncertainty value. All component uncertainties are categorized as type A, evaluated by statistical methods, or type B, evaluated by other means. Uncertainties not included in the components, such as sample homogeneity, are combined with the component uncertainty as the square root of the sum-of-the-squares of the individual uncertainties. The uncertainty associated with the derived result is the combined uncertainty (u_c) multiplied by the coverage factor (1,2, or 3).

When three or more sample replicates are used to derive the analytical result, the type A uncertainty is the standard deviation of the mean value (S/\sqrt{n}), where S is the standard deviation of the derived results. The type B uncertainties are all other random or non-random components that are not included in the standard deviation.

The derivation of the general "Law of Propagation of Errors" equations and specific example are available on request.

Report Definitions

Action Lev	An agreed upon activity level used to trigger some action when the final result is greater than or equal to the Action Level. Often the Action Level is related to the Decision Limit.
Batch	The QC preparation batch number that relates laboratory samples to QC samples that were prepared and analyzed together.
Bias	Defined by the equation (Result/Expected)-1 as defined by ANSI N13.30.
COC No	Chain of Custody Number assigned by the Client or TestAmerica.
Count Error (#s)	Poisson counting statistics of the gross sample count and background. The uncertainty is absolute and in the same units as the result. For Liquid Scintillation Counting (LSC) the batch blank count is the background.
Total Uncert (#s) <i>u_c</i> - Combined Uncertainty.	All known uncertainties associated with the preparation and analysis of the sample are propagated to give a measure of the uncertainty associated with the result, <i>u_c</i> the combined uncertainty. The uncertainty is absolute and in the same units as the result.
(#s), Coverage Factor CRDL (RL)	The coverage factor defines the width of the confidence interval, 1, 2 or 3 standard deviations. Contractual Required Detection Limit as defined in the Client's Statement Of Work or TestAmerica "default" nominal detection limit. Often referred to the reporting level (RL)
Lc	Decision Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume associated with the sample. The Type I error probability is approximately 5%. $Lc = (1.645 * \sqrt{2 * (BkgrndCnt / BkgrndCntMin) / SCntMin}) * (ConvFct / (Eff * Yld * Abn * Vol) * IngrFct)$. For LSC methods the batch blank is used as a measure of the background variability. Lc cannot be calculated when the background count is zero.
Lot-Sample No	The number assigned by the LIMS software to track samples received on the same day for a given client. The sample number is a sequential number assigned to each sample in the Lot.
MDC MDA	Detection Level based on instrument background or blank, adjusted by the Efficiency, Chemical Yield, and Volume with a Type I and II error probability of approximately 5%. $MDC = (4.65 * \sqrt{(BkgrndCnt / BkgrndCntMin) / SCntMin} + 2.71 / SCntMin) * (ConvFct / (Eff * Yld * Abn * Vol) * IngrFct)$. For LSC methods the batch blank is used as a measure of the background variability.
Primary Detector	The instrument identifier associated with the analysis of the sample aliquot.
Ratio U-234/U-238	The U-234 result divided by the U-238 result. The U-234/U-238 ratio for natural uranium in NIST SRM 4321C is 1.038.
Rst/MDC	Ratio of the Result to the MDC. A value greater than 1 may indicate activity above background at a high level of confidence. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Rst/TotUcert	Ratio of the Result to the Total Uncertainty. If the uncertainty has a coverage factor of 2 a value greater than 1 may indicate activity above background at approximately the 95% level of confidence assuming a two-sided confidence interval. Caution should be used when applying this factor and it should be used in concert with the qualifiers associated with the result.
Report DB No	Sample Identifier used by the report system. The number is based upon the first five digits of the Work Order Number.
RER	The equation Replicate Error Ratio = $(S-D) / [\sqrt{TPUs^2 + TPUD^2}]$ as defined by ICPT BOA where S is the original sample result, D is the result of the duplicate, TPUs is the total uncertainty of the original sample and TPUD is the total uncertainty of the duplicate sample.
SDG	Sample Delivery Group Number assigned by the Client or assigned by TestAmerica upon sample receipt.
Sum Rpt Alpha Spec Rst(s)	The sum of the reported alpha spec results for tests derived from the same sample excluding duplicate result where the results are in the same units.
Work Order	The LIMS software assign test specific identifier.
Yield	The recovery of the tracer added to the sample such as Pu-242 used to trace a Pu-239/40 method.

Sample Results Summary

Date: 19-Dec-12

TestAmerica TARL

Ordered by Method, Batch No., Client Sample ID.

Report No. : 54032

SDG No: 46068

Batch	Client Id Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	MDL	CRDL	RER2
2332034	E903.0								
	AC-35D (640-41247-2)								
	MXEWN1AA RADIUM-226		1.91 +/- 0.51	V	pCi/L	95%	0.269	1.0	
	EQ BLNK-2 (640-41247-1)								
	MXEWA1AA RADIUM-226		0.0357 +/- 0.072	U	pCi/L	100%	0.142	1.0	
	EQ BLNK-2 (640-41247-1) DUP								
	MXEWA1AD RADIUM-226		0.0923 +/- 0.11	U	pCi/L	100%	0.193	1.0	0.9
2332036	E904.0								
	AC-35D (640-41247-2)								
	MXEWN1A RADIUM-228		6.45 +/- 0.98	V	pCi/L	87%	0.815	1.0	
	EQ BLNK-2 (640-41247-1)								
	MXEWA1AC RADIUM-228		0.196 +/- 0.36	U	pCi/L	93%	0.791	1.0	
	EQ BLNK-2 (640-41247-1) DUP								
	MXEWA1AE RADIUM-228		0.604 +/- 0.35	U	pCi/L	92%	0.694	1.0	1.6
No. of Results: 6									

TestAmerica
rptSTLRchSaSum
mary2 V5.2.22
A2002

RER2 - Replicate Error Ratio = $(S-D)/[\text{sqrt}(\text{sq}(\text{TPUs})+\text{sq}(\text{TPUd}))]$ as defined by ICPT BOA.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

V Qual - Detected.

QC Results Summary

Date: 19-Dec-12

TestAmerica TARL

Ordered by Method, Batch No, QC Type,.

Report No. : 54032

SDG No.: 46071

Batch	Work Order	Parameter	Result +/- Uncertainty (2s)	Qual	Units	Tracer Yield	LCS Recovery	Bias	MDL
E903.0									
2332034	BLANK QC,								
	MXE651AA	RADIUM-226	-0.0658 +/- 0.074	U	pCi/L	94%			0.184
2332034	LCS,								
	MXE651AC	RADIUM-226	11.2 +/- 2.6	V	pCi/L	84%	113%	0.1	0.156
E904.0									
2332036	BLANK QC,								
	MXE671AA	RADIUM-228	0.385 +/- 0.25	U	pCi/L	83%			0.484
2332036	LCS,								
	MXE671AC	RADIUM-228	10.8 +/- 1.5	V	pCi/L	80%	108%	0.1	0.742
No. of Results: 4									

TestAmerica

rptSTLRchQcSummary V5.2.22
A2002

Bias - (Result/Expected)-1 as defined by ANSI N13.30.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

V Qual - Detected.

FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica

SDG: 46068

Collection Date: 11/15/2012 8:24:00 AM

Lot-Sample No.: J2K260406-2

Report No.: 54032

Received Date: 11/26/2012 10:50:00 AM

Client Sample ID: AC-35D (640-41247-2)

COC No.: 640-54698.1

Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 232034 E903.0												
RADIUM-226												
	1.91	V	0.29	0.51	0.269	pCi/L	95%	(7.1)	12/5/12 04:32 p		0.8775	ASC3HA
						0.122	1.0	(7.5)			L	
Batch: 232036 E904.0												
RADIUM-228												
	6.45	V	0.65	0.98	0.815	pCi/L	87%	(7.9)	12/12/12 03:15 p		0.8775	GPC1C
						0.379	1.0	(13.2)			L	

No. of Results: 2 Comments:

TestAmerica MDC|MDA\Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
 rptSTL.RchSample U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
 V5.2.22 A2002 V Qual - Detected.

FORM I

Date: 19-Dec-12

SAMPLE RESULTS

Lab Name: TestAmerica

SDG: 46068

Collection Date: 11/15/2012 7:05:00 AM

Lot-Sample No.: J2K260406-1

Report No.: 54032

Received Date: 11/26/2012 10:50:00 AM

Client Sample ID: EQ BLNK-2 (640-41247-1)

COC No.: 640-54698.1

Matrix: WATER W

Ordered by Client Sample ID, Batch No.

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, Lc	Yield CRDL(RL)	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034 E903.0												
Work Order: MXEWA1AA Report DB ID: 9MXEWA10												
RADIUM-226	0.0357	U	0.071	0.072	0.142	pCi/L	100%	0.25	12/5/12 04:33 p		0.8518	ASC1MB
						0.0587	1.0	0.99			L	
Batch: 2332036 E904.0												
Work Order: MXEWA1AC Report DB ID: 9MXEWA10												
RADIUM-228	0.196	U	0.35	0.36	0.791	pCi/L	93%	0.25	12/12/12 03:15 p		0.8518	GPC1A
						0.369	1.0	(1.1)			L	

No. of Results: 2 Comments:

TestAmerica
rptSTLRchSample
V5.2.22 A2002MDCIMDA,Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.
V Qual - Detected.

FORM II

Date: 19-Dec-12

DUPLICATE RESULTS

Lab Name: TestAmerica
 Lot-Sample No.: J2K260406-1
 Client Sample ID: EQ BLNK-2 (640-41247-1) DUP

SDG: 46068
 Report No.: 54032
 COC No.: 640-54698.1

Collection Date: 11/15/2012 7:05:00 AM
 Received Date: 11/26/2012 10:50:00 AM
 Matrix: WATER W

Parameter	Result, Orig Rst	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Action Lev	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUcert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034	E903.0								Orig Sa DB ID: 9MXEWA10			
RADIUM-226	0.0923	U	0.11	0.11	0.193	pCi/L	100%	0.48	12/5/12 04:33 p		0.8447	ASC2RC
	0.0357	U	RER2 0.9			1.0		(1.7)			L	
Batch: 2332036	E904.0								Orig Sa DB ID: 9MXEWA10			
RADIUM-228	0.604	U	0.32	0.35	0.694	pCi/L	92%	0.87	12/12/12 03:15 p		0.8447	GPC1B
	0.196	U	RER2 1.6			1.0		(3.5)			L	

No. of Results: 2 Comments:

TestAmerica RER2 - Replicate Error Ratio = $(S-D)/(\sqrt{(\text{sq}(\text{TPUs}) + \text{sq}(\text{TPUd}))})$ as defined by ICPT BOA.

MDC\MDA,Le - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.

U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

FORM II

Date: 19-Dec-12

BLANK RESULTS

Lab Name: TestAmerica
Matrix: WATER

SDG: 46071
Report No.: 54032

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL, Lc	Rpt Unit, CRDL	Yield	Rst/MDL, Rst/TotUncert	Analysis, Prep Date	Total Sa Size	Aliquot Size	Primary Detector
Batch: 2332034												
RADIUM-226	E903.0											
	-0.0658	U	0.073	0.074	0.184	pCi/L	94%	-0.36	12/5/12 04:53 p		1.0014	ASCDMB
					0.0816	1.0		-(1.8)			L	
Batch: 2332036												
RADIUM-228	E904.0											
	0.385	U	0.23	0.25	0.484	pCi/L	83%	0.8	12/12/12 03:11 p		1.0014	GPC4B
					0.212	1.0		(3.1)			L	

No. of Results: 2 Comments:

TestAmerica MDCIMDA, Lc - Detection, Decision Level based on instrument background or blank, adjusted by the sample Efficiency, Yield, and Volume.
U Qual - Analyzed for but not detected above limiting criteria. Limit criteria is less than the Mdc/Mda/Mdl, Total Uncert, CRDL, RDL or not identified by gamma scan software.

TestAmerica
rptSTLRchBlank
V5.2.22 AZ002



FORM II

Date: 19-Dec-12

LCS RESULTS

Lab Name: TestAmerica

SDG: 46071

Matrix: WATER

Report No.: 54032

Parameter	Result	Qual	Count Error (2 s)	Total Uncert(2 s)	MDL	Report Unit	Yield	Expected	Expected Uncert	Recovery, Bias	Analysis, Prep Date	Aliquot Size	Primary Detector
Batch: 2332034 E903.0													
RADIUM-226	11.2	V	0.62	2.6	0.156	pCi/L	84%	9.92	0.1	113%	12/5/12 04:54 p	1.0027	ASCEHB
							Report DB ID: MXE651CS						
							Rec Limits:	75	125	0.1			
Batch: 2332036 E904.0													
RADIUM-228	10.8	V	0.81	1.5	0.742	pCi/L	80%	9.96	0.11	108%	12/12/12 03:11 p	1.0027	GPC4C
							Report DB ID: MXE671CS						
							Rec Limits:	70	130	0.1			

No. of Results: 2 Comments:

TestAmerica Bias - (Result/Expected)-1 as defined by ANSI N13.30.

V Qual - Detected.


rptSTLRchlcs
V5.2.22 A2002

TestAmerica Tallahassee

2846 Industrial Plaza Drive
Tallahassee, FL 32301
Phone (850) 878-3994 Fax (850) 878-9504

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab) Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 2800 George Washington Way, City: Tallahassee State: FL Zip: 32301 Phone: (850) 878-3994 (Tel) 509-375-5590 (Fax) Email: Project Name: Agric Site:		Lab PM: Preston, Tim E-Mail: timothy.preston@testamericainc.com Carrier Tracking No(s): COC No: 640-54698.1 Page: Page 1 of 1 Job #: 640-41247-1	
Analysis Requested Due Date Requested: 11/28/2012 TAT Requested (days): PO #: WO #: Project #: 64000434 SSOW#:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (Specify)	
Sample Identification - Client ID (Lab ID) EQ BLNK-2 (640-41247-1) AC-35D (640-41247-2) SOL-46068 JAK-260406 Due 12-24-12 		Total Number of Containers SUBCONTRACT/ Rad 226-Method 904.0 (Richland) SUBCONTRACT/ Rad 226-Method 904.0 (Richland) Perform MS/MSD (Yes or No) Field Filled Sample (Yes or No) Matrix (W=water, S=solid, O=oil, A=air) Sample Type (C=Comp, G=grab) Sample Time Sample Date Preservation Code Water Water MXEWA MXEWA	
Possible Hazard Identification Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify) Empty Kit Relinquished by: Relinquished by: EDP Relinquished by: Relinquished by: Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Cooler Temperature(s) °C and Other Remarks:			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months Special Instructions/QC Requirements: Date: 11/15/12 1730 Received by: J. D. P. Date/Time: 11/15/12 1730 Company: JALC Date/Time: Company: Date/Time: Company:			

Sample Check-in List

Date/Time Received: 11-26-12 / 1050 Container GM Screen Result: (Airlock) .04 Initials JB
Sample GM Screen Result (Sample Receiving) .06 Initials JB

Client: STL-T SDG #: 46068 NA [] SAF #: NA JB

Lot Number: 22K260406

Chain of Custody # 640-54698.1

Shipping Container ID: NA JB Air Bill Number: NA []

Samples received inside shipping container/cooler/box Yes JB] Continue with 1 through 4. Initial appropriate response.
No [] Go to 5, add comment to #16.

1. Custody Seals on shipping container intact? Yes JB] No [] No Custody Seal []

2. Custody Seals dated and signed? Yes [] No JB] No Custody Seal []

3. Cooler temperature: NA JB] °C

4. Vermiculite/packing materials is NA [] Wet JB] Dry []

Item 5 through 16 for samples. Initial appropriate response.

5. Chain of Custody record present? Yes JB] No []

6. Number of samples received (Each sample may contain multiple bottles): 16 2 JB 11-26-12

7. Containers received: 25 x LP JB 11-26-12 4 x LP

8. Sample holding times exceeded? NA [] Yes [] No JB]

9. Samples have:
____ tape JB hazard labels
____ custody seals JB appropriate sample labels

10. Matrix:
____ A (FLT, Wipe, Solid, Soil) JB I (Water)
____ S (Air, Niosh 7400) JB T (Biological, Ni-63)

11. Samples:
JB are in good condition JB are leaking - some leaked
____ are broken JB have air bubbles (Only for samples requiring no head space)
____ Other

12. Sample pH appropriate for analysis requested Yes JB] No [] NA []
(If acidification is necessary, then document sample ID, initial pH, amount of HNO₃ added and pH after addition on table overleaf)

RPL ID # of preservative used: _____

13. Were any anomalies identified in sample receipt? Yes [] No JB]

14. Description of anomalies (include sample numbers): NA JB

16. Additional Information: Some of the samples had leaked just a little. Did a smear check - OK 13 11-20-12

☐ Client/Courier unpack cooler.

Date: 11-2-2012

[X] No action necessary; process as is

Christo Hayes Date 11-27-12

Chain of Custody Record

Client Information		Sample:	Lab PM:		Carrier Tracking No(s):		COC No:	
Client Contact:		Eric Mann	Preston, Tim				640-35431-6826.2	
Mr. Jeff Wagner		Phone:	E-Mail:				Page 2 of 4	
Company:		URS Corporation		timothy.preston@testamericainc.com		Job #:		640-41247
Address:		Due Date Requested:		Analysis Requested				
1625 Summit Lake Drive Suite 200								
City:		TAT Requested (days):						
Tallahassee								
State, Zip:								
FL, 32317								
Phone:								
Email:		PO #:						
jeffry_wagner@urscorp.com		4806661-12806149.00000						
Project Name:		WO #:						
Agrico Annual		64000434						
Site:		SSOW#:						
Pensacola, FL								
Sample Identification		Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=oil, A=air)	Field Filtered Sample (Yes or No)		
EQ BLNK-2		11/5/12	0705	G	W	Perform MS/MSD (Yes or No)		
AC-35D		0824	G	W	W	340.2 - Fluoride (Pensacola)		
						SUBCONTRACT - Rad 226-Method 903.1 (Richland)		
						SUBCONTRACT - Rad 228-Method 904.0 (Richland)		
						353.2 - Nitrate as N		
						300.0_28D - Chloride, Sulfate		
						SM4500_NO2_B - Nitrate as N		
						6010B - Arsenic		
						Total Number of Containers		
						Special Instructions/Note:		
						A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amelher H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2CO3 Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - pH 4.5 Z - other (specify)		
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)						
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months						
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:						
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:				
Relinquished by:		11/15/12	1230	URS				
Relinquished by:		11/15/12	1415	URS				
Relinquished by:		11/15/12	1514	URS				
Custody Seal Intact:		Cooler Temperature(s) °C and Other Remarks:						
Δ Yes Δ No		13						

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41247-1

Login Number: 41247

List Source: TestAmerica Tallahassee

List Number: 1

Creator: Delp, Eric

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41247-1

Login Number: 41247

List Source: TestAmerica Pensacola

List Number: 1

List Creation: 11/16/12 07:09 PM

Creator: Crawford, Lauren E

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.8°C IR-2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41247-1

Login Number: 41247

List Source: TestAmerica Savannah

List Number: 1

List Creation: 11/16/12 12:37 PM

Creator: Barnett, Eddie T

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: URS Corporation

Job Number: 640-41247-1

Login Number: 41247

List Number: 1

Creator: McNulty, Carol

List Source: TestAmerica Tampa

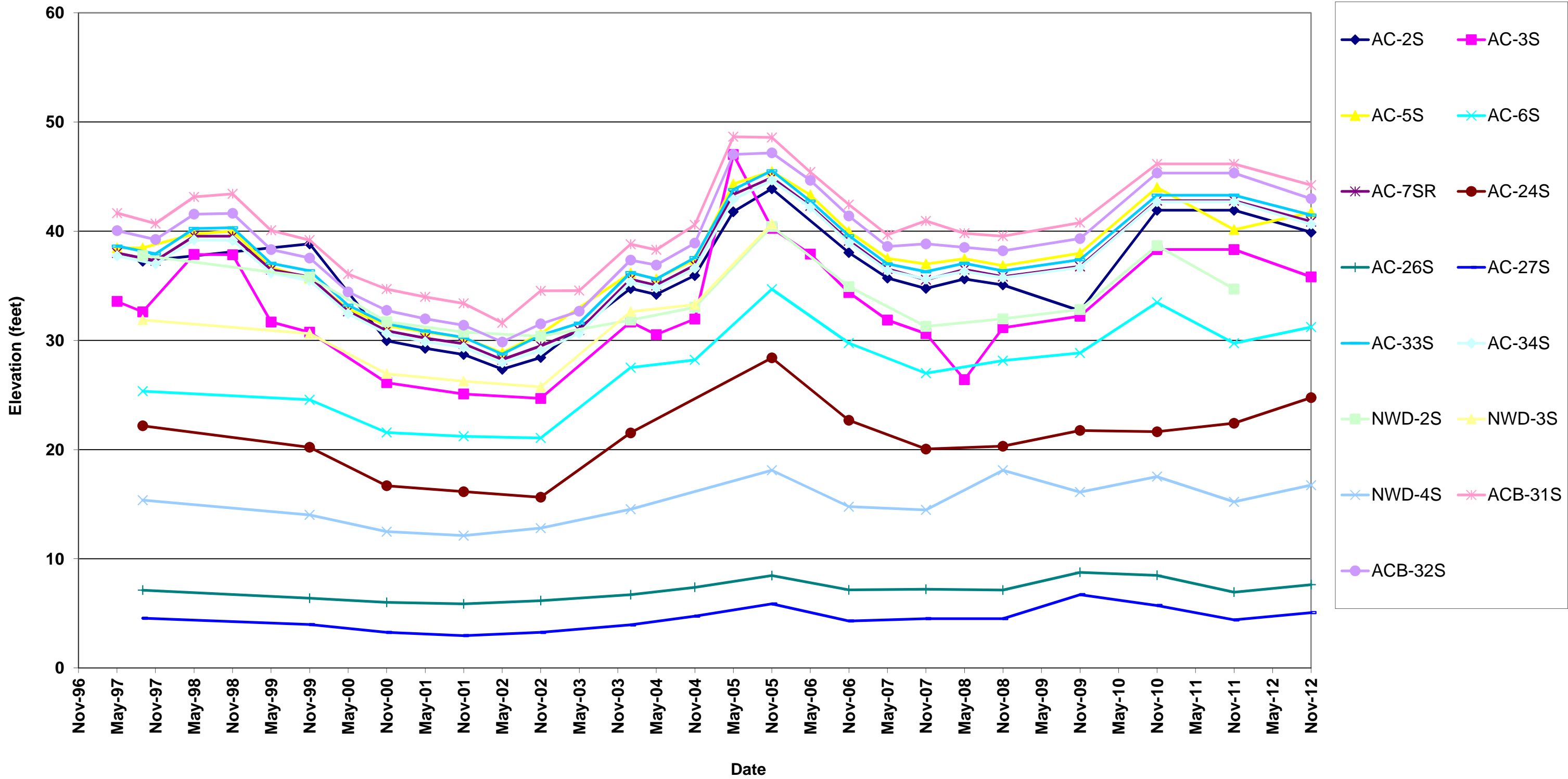
List Creation: 11/16/12 10:17 AM

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	True	

APPENDIX B

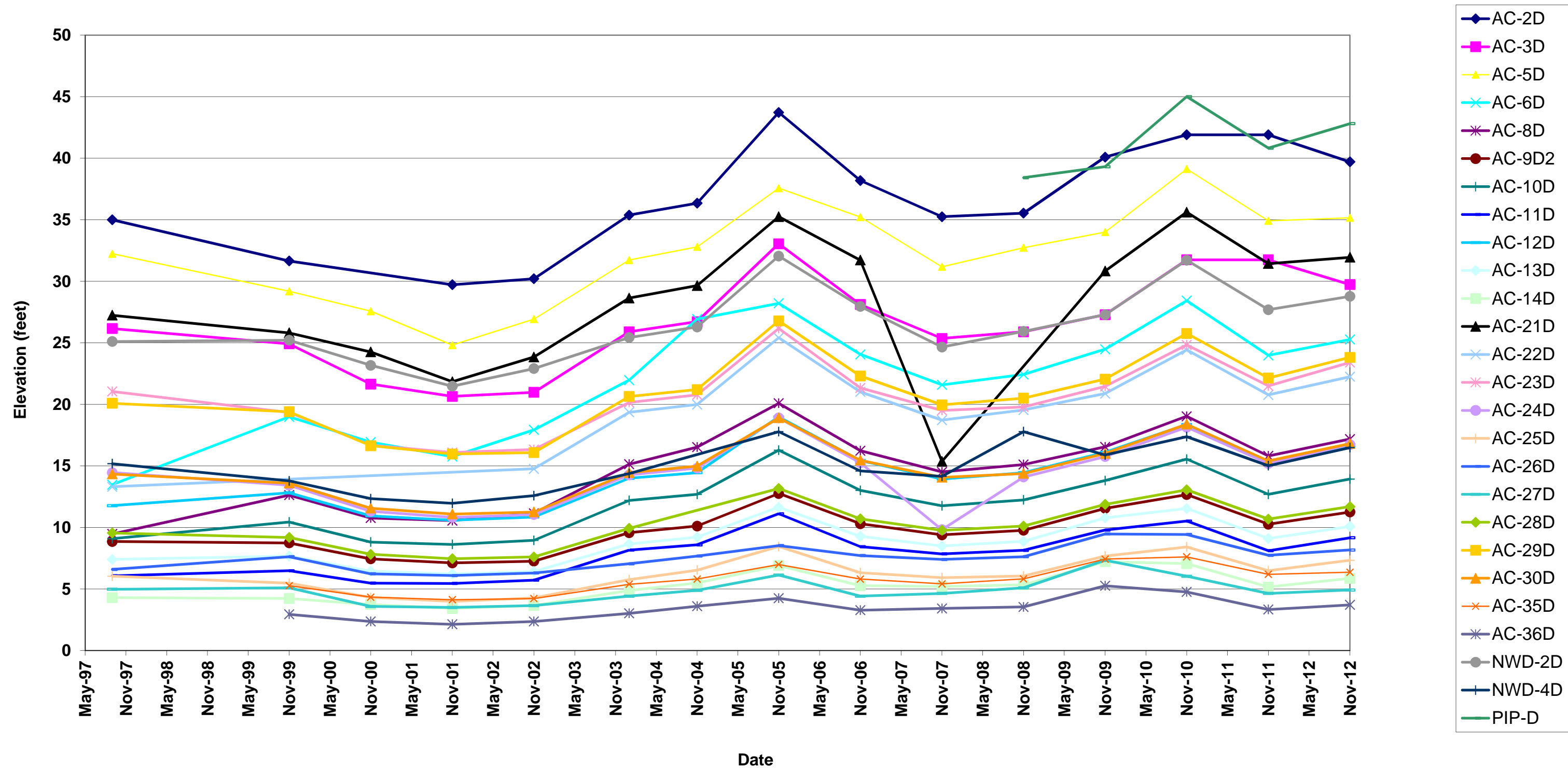
Groundwater Elevation Trend in Surficial Zone

Agrico Site
Pensacola, FL



Groundwater Elevation Trend in Main Producing Zone

Agrico Site
Pensacola, FL



APPENDIX C

1940 Aerial



1951 Aerial



1958 Aerial





FORMER AGRICO SITE
PENSACOLA, FLORIDA

URS

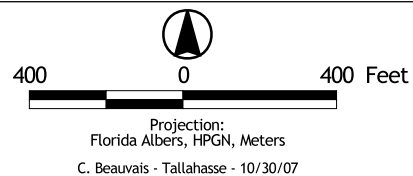


FIGURE
5

AERIAL VIEW OF OPERATIONS
FOR SITE 348
1961

1970 Aerial



1981 Aerial



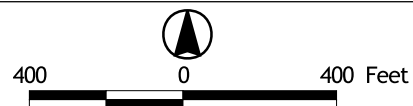
2004 Aerial





**FORMER AGRICO SITE
PENSACOLA, FLORIDA**

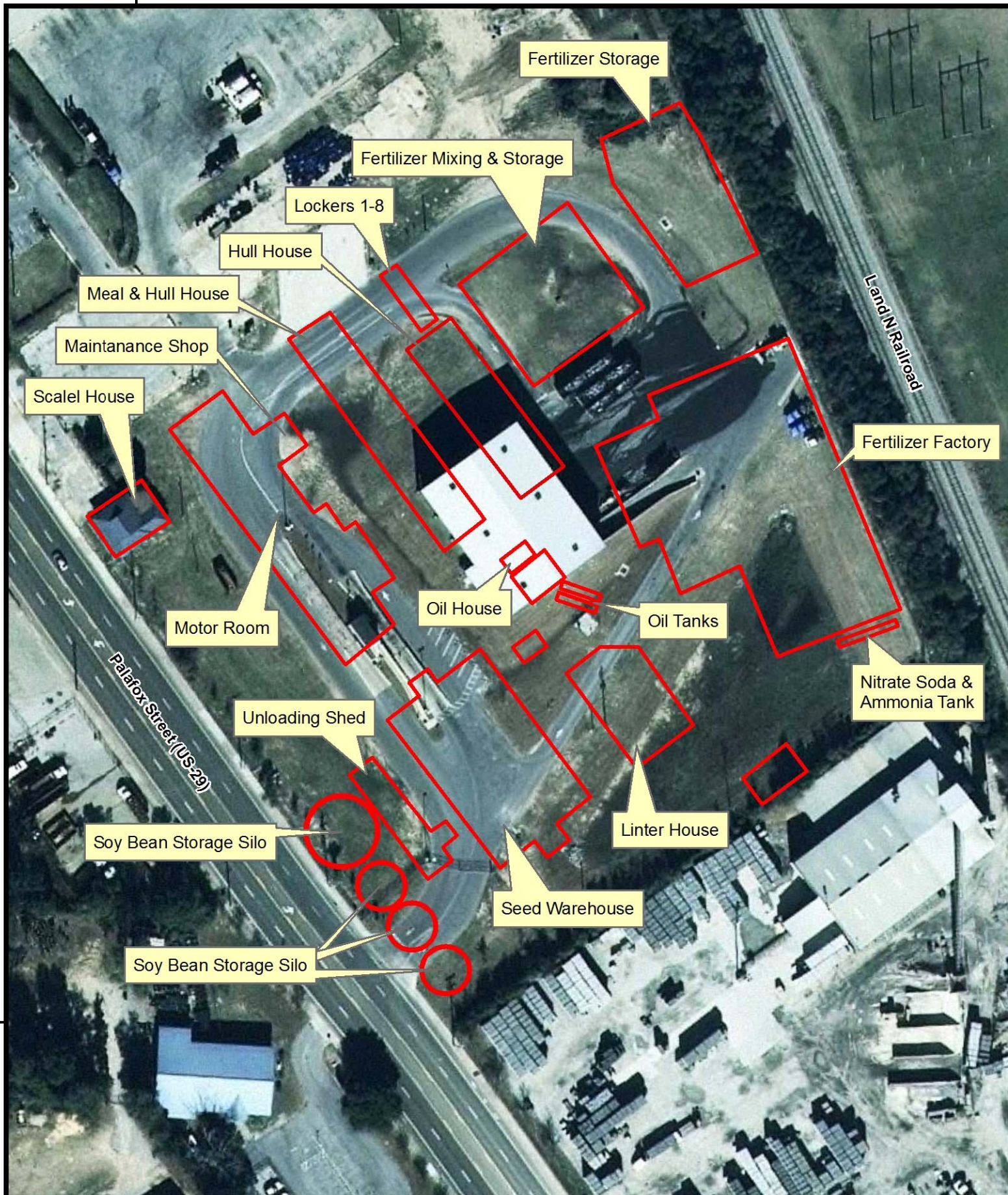
URS



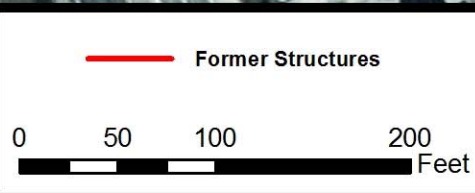
Projection:
Florida Albers, HPGN, Meters
C. Beauvais - Tallahassee - 10/30/07

**FIGURE
6**

**SITE 348
(NO REMEDIATION TO DATE)
2007**



Palafox Street & Texar Drive Ammonia Site
Site Map
 2910 North Palafox Street
 Pensacola, Escambia County, Florida 32503
 (Aerial Image 2010)
 Prepared by: B.K. McClain 11/17/2010



APPENDIX D

DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS

THIS DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS ("Covenant") is made by CONOCO INC. ("CONOCO"), and shall take effect as of the date set forth below. The purpose of this Covenant is to restrict and prohibit all surface and subsurface uses of the property described herein, in perpetuity, except as specifically set forth herein.

RECITALS

WHEREAS, CONOCO is the owner of real property lying and being in Escambia County, Florida; and

WHEREAS, the intent of CONOCO is that this Covenant apply to and be binding on all property owned by CONOCO as of the date of this document and which lies in the area bounded by North Palafox Street, Brent Lane, North Davis Highway, and Fairfield Drive (the "Property"), as more particularly described on Composite Exhibit "A" consisting of 4 pages, attached and made a part hereof; and

WHEREAS, a RCRA cap is located on the Property containing pollutants in excess of certain standards allowed by federal and state law, as more particularly described in the Record of Decision, Agrico Chemical Superfund Site, September 28, 1992; and

WHEREAS, the Record of Decision described above mandated that CONOCO perform remedial action and impose access and use restrictions on the Property; and

WHEREAS, CONOCO seeks by this Covenant to fully comply with the Record of Decision requirement to restrict access to and use of the Property;

NOW THEREFORE, in consideration of the acceptance by the United States Environmental Protection Agency of the remedial action conditions and limitations stated in the Record of Decision, and acknowledging that the same constituted good and valuable consideration, CONOCO does hereby impose on the Property, in perpetuity, the following reasonable and lawful access and use restrictions.

COVENANTS

1. Access to the Property is restricted (1) to those authorized CONOCO agents and governmental agents or their representatives and officials who must enter the Property to inspect, maintain, or repair fencing or other remedial action measures constructed pursuant to or to be maintained in connection with the Record of Decision, (2) to those persons entitled to exercise the personal servitude of passage

in accordance with and for the limited purposes stated in the Act of Servitude recorded in the Official Records of Escambia County at OR Book 3758, Page 0955, and (3) to those persons who must have access to the Property to service and maintain existing public utilities and electrical power lines.

2. The erection, construction, or placing of any road, parking lot, building, sign, billboard or other advertising, utilities (public or commercial), towers, antennas, or any other structure on or above the ground is prohibited, except (a) as such structures may be required for the purpose of maintaining the remedial measures as required by paragraph 1 herein, or (b) as Conoco, or its agents or assigns, may erect or construct on those portions of the Property on which is not located the RCRA cap and as will not interfere with the maintenance of the remedial measures.

3. Use of the Property for temporary or permanent storage of equipment, inventory, or materials is prohibited, except as the same may be necessary to maintain the remedial measures as required by paragraph 1 herein.

4. The dumping or placing of soil or other substance or material as landfill or the dumping or placing of trash, waste, or unsightly or offensive materials on the Property is prohibited.

5. The removal or harvesting for any commercial purpose of trees, shrubs, or other vegetation is prohibited.

6. The excavation, dredging, or removal of loam, peat, gravel, soil, rock, or other material substance on or under the Property is prohibited, except as may be necessary to maintain the remedial measures as required by paragraph 1 herein.

7. Any drilling, mining, or other removal of soil, water, minerals, gases, or other substances from the surface or subsurface of the Property is prohibited, except as required to comply with the Record of Decision.

8. Any other use of the Property contrary to the Record of Decision is prohibited even though not specifically enumerated herein.

9. The restrictions imposed herein are perpetual restrictions imposed by the lawful owner of the Property and will run with the land and be binding on all successor owners, lessees or other transferees of the Property, as well as all successors and assigns of CONOCO.

10. This Covenant may be enforced by CONOCO, any other Potentially Responsible Party with respect to the Property the United States Environmental Protection Agency or the Florida Department of Environmental Protection, or their successors and assigns.

11. Enforcement of this Covenant shall be by action against any person or persons violating or attempting to violate any provision herein, either in equity or in law.

12. Invalidation of any provision of this Covenant by judgment or court order shall in no way affect any other provision of this Covenant, which shall remain in full force and effect in perpetuity.

IN WITNESS WHEREOF, the Covenantor has executed this Declaration of Covenants, Conditions and Restrictions for the Property described herein, this 11th day of July, 1997.

Signed, sealed and delivered
in the presence of:

ANN LUNDSTROM

Name: Ann Lundstrom

DOROTHY AKERS

Name: Dorothy Akers

STATE OF TEXAS
COUNTY OF HARRIS

The foregoing instrument was acknowledged before me this 11th day of July, 1997, by Dennis R. Parker, as V.P. SHEA of CONOCO INC., a Delaware corporation, and who is personally known to me or who has produced U.S. Passport 131824098 as identification.

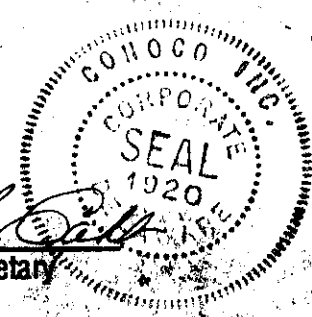
COVENANTOR:

CONOCO INC., a Delaware corporation

By: Dennis R. Parker (SEAL)
Dennis R. Parker
Its: Vice President, SHEA

Attest:

[Signature]
Assistant Secretary

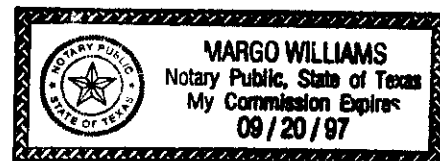


[Signature]
Notary Public

Commission No.: _____
My Commission Expires: 9-20-97

This instrument prepared by:

✓ Jesse W. Rigby, of
CLARK, PARTINGTON, HART, LARRY
BOND, STACKHOUSE & STONE
One Pensacola Plaza
125 W. Romana Street, Suite 800
Pensacola, Florida 32501



PARCEL 1:

Commence at the Northwest corner of Section 4, Township 2 South, Range 30 West, Escambia County, Florida; thence North 52°36'16" East along the South line of Section 5, Township 2 South, Range 30 West for a distance of 1194.20 feet to the Easterly R/W line of the Louisville and Nashville Railroad (100' R/W); thence North 24°26'14" West along said Easterly R/W line for a distance of 295.98 feet to the Northerly R/W line of Fairfield Drive (SR #289-A); thence North 52°33'46" East along said Northerly R/W for a distance of 76.08 feet; thence South 37°26'14" East along said R/W for a distance of 90.00 feet; thence North 57°38'32" East along said R/W for a distance of 451.36 feet; thence North 50°39'13" East along said R/W for a distance of 150.08 feet; thence North 37°26'14" West for a distance of 490.00 feet; thence North 52°33'46" East for a distance of 200.00 feet to a point which is the Point of Beginning. From said Point of Beginning, continue North 52°33'46" East for a distance of 200.00 feet; thence South 37°26'14" East for a distance of 400.00 feet to the R/W line of Fairfield Drive (SR #289-A); thence continue South 37°26'14" East along said R/W for a distance of 165.00 feet; thence South 82°26'14" East along said R/W for a distance of 35.36 feet; thence North 52°33'46" East along said R/W for a distance of 177.70 feet to the Westerly R/W line of Interstate Highway 110 (SR #8-A); thence North 16°26'14" West along said Westerly R/W line for a distance of 823.07 feet; thence South 52°39'08" West for a distance of 697.67 feet; thence South 37°26'14" East for a distance of 179.49 feet to the Point of Beginning, containing 7.0 acres, more or less, and lying and being in Section 5, Township 2 South, Range 30 West, Escambia County, Florida, and subject to a 100 foot wide Gulf Power Company Easement. [As recorded in OR Book 3767, Page 0377, Escambia County, Florida.]

PARCEL 2:

Commence at the Northwest corner of Section 4, Township 2 South, Range 30 West, Escambia County, Florida; thence North 52°36'16" East along the South line of Section 5, Township 2 South, Range 30 West for a distance of 1194.20 feet to the Easterly R/W line of the Louisville & Nashville Railroad (100' R/W); thence North 24°26'14" West along said Easterly R/W line for a distance of 295.98 feet to the Northerly R/W line of Fairfield Drive (SR #289-A); thence North 52°33'46" East along said Northerly R/W for a distance of 76.08 feet; thence South 37°26'14" East along said R/W for a distance of 90.00 feet; thence North 57°38'32" East along said R/W for a distance of 451.36 feet; thence North 50°39'13" East along said R/W for a distance of 150.08 feet; thence North 28°20'06" East along said R/W for a distance of 219.32 feet to the Point of Beginning; thence North 52°33'46" East along said R/W for a distance of 200.00 feet; thence North 37°26'14" West for a distance of 400.00 feet; thence South 52°33'46" West for a distance of 200.00 feet; thence South 37°26'14" East for a distance of 400.00 feet to the Point of Beginning, containing 1.84 acres more or less and all lying and being in Section 5, Township 2 South, Range 30 West, Escambia County, Florida. [As recorded in OR Book 3767, Page 0377, Escambia County, Florida.]

PARCEL 3:

A tract being 1,6769 acres in Section 5, Township 2 South, Range 30 West, Escambia County, Florida, being more particularly described as:

Commence at the Northwest Corner of Section 4, Township 2 South, Range 30 West of said Escambia County, Florida; thence North 52°36'16" East along the South line of Section 5, Township 2 South, Range 30 West for 1194.20 feet to the Easterly R/W line of the CSX Railroad (100 foot R/W); thence North 24°26'14" West along said Easterly R/W line for 295.98 feet to the Northerly R/W line of Fairfield Drive (SR #289-A); thence North 52°33'46" East along said Northerly R/W for 25.64 feet; thence North 24°26'14" West for 370.51 feet; thence North 14°47'54" West for 199.93 feet; thence North 52°39'08" East for 970.81 feet; thence North 24°20'24" West for 175.71 feet; thence North 52°38'15" East for 257.88 feet to the Westerly R/W line of a Gulf Power Company Easement (100 feet R/W) as recorded in O.R. Book 298 at Page 512 of the public records of said county and the Point of Beginning; thence along said Westerly R/W line North 18°04'37" West 38.40 feet; thence departing said Westerly R/W line North 75°28'00" East for 93.40 feet; thence South 52°38'15" West for 98.77 feet to the Westerly R/W line of the aforesaid Gulf Power Easement and the Point of Beginning, AND

Commence at the Northwest Corner of Section 4, Township 2 South, Range 30 West of said Escambia County, Florida; thence North 52°36'16" East along the South line of Section 5, Township 2 South, Range 30 West for 1194.20 feet to the Easterly R/W line of the CSX Railroad (100 foot R/W); thence North 24°26'14" West along said Easterly R/W line for 295.98 feet to the Northerly R/W line of Fairfield Drive (SR #289-A); thence North 52°33'46" East along said Northerly R/W for 25.64 feet; thence North 24°26'14" West for 370.51 feet; thence North 14°47'54" West for 199.93 feet; thence North 52°39'08" East for 970.81 feet for the Point of Beginning; thence continue North 52°39'08" East for 416.63 feet to the Westerly R/W of Interstate I-110 (R/W varies); thence along said Westerly R/W North 16°22'22" West for 43.75 feet to the point of curvature of a curve concave to the Northeast having a radius of 2969.83 feet; thence along the arc of said curve through a central angle of 01°33'56" for an arc distance of 108.46 feet (Chord Bearing North 26°08'39" West, Chord Distance 108.46 feet); thence departing said Westerly R/W South 75°29'00" West for 62.02 feet; thence South 52°38'15" West for 356.65 feet; thence South 24°20'24" East for 175.71 feet to the Point of Beginning. [As recorded in OR Book 3758, Page 0952, Escambia County, Florida.]

PARCEL 4:

A portion of Section 5, Township 2 South, Range 30 West, Escambia County, Florida, being more particularly described as follows:

Commence at the Northwest corner of Section 4, Township 2 South, Range 30 West of said Escambia County, Florida; thence North 52°36'16" East along the South line Section 5, Township 2 South, Range 30 West for 1194.20 feet to the Easterly R/W line of the CSX Railroad (100' R/W); thence North 24°26'14" West along said Easterly R/W for 295.98 feet to the Northerly R/W line of Fairfield Drive (SR #289-A); thence North 52°33'46" East along said Northerly R/W for 25.64 feet; thence North 24°26'14" West for 370.51 feet; thence North 14°47'54" West for 199.93 feet; thence North 52°39'08" East for 970.81 feet; thence North 24°20'24" West for 175.71 feet to the Point of Beginning; thence continue North 24°20'24" West for 140.43; thence North 75°28'00" East for 259.23 feet to the Westerly R/W line of a Gulf Power Company Easement (100' R/W) as recorded to O.R. Book 298 at page 512 of the Public Records of said county; thence along said Westerly R/W line South 18°04'37" East for 38.40 feet; thence departing said Westerly R/W line South 52°38'15" West for 257.88 feet to the Point of Beginning, containing 0.519 acres more or less.

PARCEL 5:

A portion of Section 5, Township 2 South, Range 30 West, Escambia County, Florida, being more particularly described as follows:

Commence at the Northwest corner of Section 4, Township 2 South, Range 30 West of said Escambia County, Florida; thence North 52°36'16" East along the South line Section 5, Township 2 South, Range 30 West for 1194.20 feet to the Easterly R/W line of the CSX Railroad (100' R/W); thence North 24°26'14" West along said Easterly R/W line for 295.98 feet to the Northerly R/W line of Fairfield Drive (SR #289-A); thence North 52°33'46" East along said Northerly R/W for 25.64 feet; thence North 24°26'14" West for 370.51 feet; thence North 14°47'54" West for 199.93 feet; thence North 52°39'08" East for 118.25 feet for the Point of Beginning; thence continue North 52°39'08" East for 852.56 feet; thence North 24°20'24" West for 636.38 feet; thence South 65°39'36" West for 480.00 feet; thence South 24°20'24" East for 466.12 feet; thence South 52°38'43" West for 218.02 feet; thence South 2°28'32" West for 350.75 feet to the Point of Beginning; containing 9.1316 acres more or less.

Being more particularly shown on plat of survey dated March 19, 1995 prepared by Paul F. McCartney, Professional Land Surveyor Number 3140, Carlan Consulting Group, Inc., P.O. Box 2518, Pensacola, Florida 32513, incorporated herein by reference.

Being a portion of the property acquired by The Louisville and Nashville Railroad Company, a predecessor of Grantor, from Louis Boley, et ux, by deed dated November 17, 1896, recorded among the Public Land Records of Escambia County, Florida, in Book 17, Page 86.

On December 29, 1982 The Louisville and Nashville Railroad Company merged into Seaboard Coast Line Railroad Company, and the name of the surviving corporation changed to Seaboard System Railroad, Inc. On July 1, 1986, Seaboard System Railroad, Inc. changed its name to CSX Transportation, Inc.

PARCEL 6:

Commence at the Northwest corner of Section 4, Township 2 South, Range 30 West, Escambia County, Florida; thence North 52°36'16" East along the South line of Section 5, Township 2 South, Range 30 West, for a distance of 1194.20 feet to the easterly R/W line of the Louisville and Nashville Railroad (100' R/W); thence North 24°26'14" West along said easterly R/W line for a distance of 295.98 feet to the northerly R/W line of Fairfield Drive (SR #298-A); thence North 52°33'46" East along said northerly R/W for a distance of 25.64 feet to the Point of Beginning; then continue North 52°33'46" East along said R/W for a distance of 50.44 feet; thence South 37°26'14" East along said R/W for a distance of 90.00 feet; thence North 57°38'32" East along said R/W for a distance of 451.36 feet; thence North 50°39'13" East along said R/W for a distance of 150.08 feet; thence North 37°26'14" West for a distance of 490.00 feet; thence North 52°33'46" East for a distance of 200.00 feet; thence run North 37°26'14" West for a distance of 179.49 feet; thence South 52°39'08" West for a distance of 689.92 feet; thence South 14°47'54" East for a distance of 199.93 feet; thence South 24°26'14" East parallel to said Railroad R/W for a distance of 370.51 feet to the Point of Beginning. Containing 9.67 acres, more or less, and lying and being in Section 5, Township 3 South, Range 30 West, Escambia County, Florida.

RCD Aug 07, 1997 12:39 pm
Escambia County, Florida

Ernie Lee Magaha
Clerk of the Circuit Court
INSTRUMENT 97-407567

Wagner, Jeffry

From: Tom Brown <Tom.Brown@nwfwmd.state.fl.us>
Sent: Tuesday, December 04, 2012 2:12 PM
To: Wagner, Jeffry
Cc: Kathleen Coates
Subject: FW: Moratorium- Well Construction- Escambia County

Jeff,

The Moratorium, as approved in 2001, is still in-place.

Thanks,

Tom

From: Kathleen Coates
Sent: Tuesday, December 04, 2012 1:26 PM
To: Tom Brown
Subject: FW: Moratorium- Well Construction- Escambia County

Tom – can you address this question?

From: Wagner, Jeffry [<mailto:jeffry.wagner@urs.com>]
Sent: Tuesday, December 04, 2012 1:19 PM
To: Kathleen Coates
Subject: Moratorium- Well Construction- Escambia County

Can you confirm that the District's Well Construction Moratorium is still in place in Escambia County for the Escambia Treating /Agrico Chemical defined areas.

Thanks,

Jeff Wagner, P.G.
Vice President
Environmental Group Manager
Senior Principal Hydrogeologist
URS Corporation
1625 Summit Lake Drive Suite 200
Tallahassee, Florida 32317
850-402-6409 (Direct)
850-251-7208 (mobile)
Jeffry.wagner@urs.com

From: Wagner, Jeffry
Sent: Tuesday, October 09, 2012 4:47 PM
To: 'guy.gowens@nwfwmd.state.fl.us'
Subject: Moratorium Well Construction Escambia County

Guy – just checking to see if the District's Well Construction Moratorium is still in place for the Escambia Treating /Agrico Chemical defined areas.

Thanks,
jeff

Jeff Wagner, P.G.,
Vice President
Environmental Group Manager
Senior Principal Hydrogeologist
URS Corporation
1625 Summit Lake Drive Suite 200
Tallahassee, Florida 32317
850-402-6409 (Direct)
850-251-7208 (mobile)
Jeffry.wagner@urs.com

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Wagner, Jeffry

From: Hagans, Alan <Alan.Hagans@dot.state.fl.us>
Sent: Wednesday, November 14, 2012 3:51 PM
To: Wagner, Jeffry
Cc: Scott Miller
Subject: RE: Annual Inquiry -Fairfield Drive (SR 727) at I-110 (SR 8-A) Roadway ID 48004000 Mile Marker 9.009 at Palafox to Mile Marker 9.490 at I-110 West Ramp

Jeffry,

I have reviewed the work program and do not see any intrusive work scheduled at this time for the upcoming year. If you need additional information do not hesitate to call.

Thanks,

*Alan Hagans
District Contamination Impacts Coordinator
Department Of Environmental Management (FDOT)
Ph: (850) 330-1511
alan.hagans@dot.state.fl.us*

From: Wagner, Jeffry [<mailto:jeffry.wagner@urs.com>]
Sent: Wednesday, November 14, 2012 12:11 PM
To: Hagans, Alan
Cc: Scott Miller
Subject: Annual Inquiry -Fairfield Drive (SR 727) at I-110 (SR 8-A) Roadway ID 48004000 Mile Marker 9.009 at Palafox to Mile Marker 9.490 at I-110 West Ramp

Jeff Wagner, P.G., V.P.
Senior Principal Hydrogeologist
URS Corporation
1625 Summit Lake Drive Suite 200
Tallahassee, Florida 32317
850-402-6409 (Direct)
850-251-7208 (mobile)
Jeffry.wagner@urs.com

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NORTHWEST FLORIDA WATER MANAGEMENT DISTRICT
GOVERNING BOARD MEETING MINUTES

District Headquarters
10 Miles West of Tallahassee
U.S. Highway 90

Thursday
February 22, 2001

Governing Board Members Present

Charles W. Roberts, Chair
Joyce Estes, Vice Chair
Judy Byrne Riley, Secretary/Treasurer
Wayne Bodie
Sharon T. Gaskin
L. E. McMullian, Jr.
John R. Middlemas, Jr.
J. Russell Price
NancyAnn M. Stuparich

Attendees

Bill Bartrick, Florida Department of Agriculture; Rick Fernandez, City of Tallahassee; Camilo Gaitan, Florida Department of Agriculture; Karl Kraka, Department of Environmental Protection; Robert A. Kromhout, League of Women Voters Coalition; Ann Roberts; Betty Roberts, C. W. Roberts Construction, Incorporated; Lorin Pratt, City of Tallahassee; Charlie Rosborough, Florida Department of Agriculture and Consumer Services/Office of Agricultural Water Policy; Elspeth D. Stowell, Sierra Club; Jeff Wagner, URS

1. Call to Order and Roll Call

Chairman Roberts called the meeting to order at 1:33 p.m., EST. The roll was called and a quorum declared present.

2. Pledge of Allegiance to the Flag

Chairman Roberts led the meeting in the Pledge of Allegiance to the Flag.

3. Introduction of Visitors

Chairman Roberts introduced visitors.

4. Additions, Deletions or Changes to the Agenda

There was one addition to the Governing Board Agenda. Mr. Douglas Barr requested that the presentation of plaques to Governing Board members Mr. Rob Middlemas, Ms. Judy Byrne Riley and Mr. Chuck Roberts be added to the agenda. The plaques are tokens of appreciation for their service to the District.

There were two deletions to the Agenda. Items 7.A. 7. and 7.A.10. were removed from the agenda.

Mr. Barr presented a plaque to each Board member and expressed his sincere appreciation for their years of dedicated service as Governing Board members. He said that Mr. Middlemas served for eight years with five years as the District Lands Committee Chairman, Ms. Riley served for four years with two years as Board Secretary/Treasurer and Mr. Roberts served for 12 years with eight years as Board Chairman, which is unprecedented amongst the management districts.

5. Approval of Minutes for January 25, 2001

MOTION BY MS. ESTES, SECONDED BY MS. RILEY, THAT THE GOVERNING BOARD APPROVE THE JANUARY 25, 2001, GOVERNING BOARD MINUTES. MOTION CARRIED.

8.C. Consideration of Agreement with the City of Tallahassee for Water Reuse Project

Mr. Barr presented the agreement between the District and the City of Tallahassee for a water reuse project. He said the agreement would provide \$300,000 in District funding for construction of an advanced Wastewater Treatment System and Reclaimed Water Distribution System to provide reuse water to the Southwood area. Mr. Barr recommended that the Governing Board approve the agreement between the District and the City of Tallahassee in the amount of \$300,000.

Mr. Barr introduced Mr. Rick Fernandez, Assistant City Manager for the City of Tallahassee.

Mr. Fernandez said that he was very pleased with the reuse project and thanked staff and the Board members for their assistance.

MOTION BY MR. PRICE, SECONDED BY MS. ESTES, THAT THE GOVERNING BOARD APPROVE THE AGREEMENT WITH THE CITY OF TALLAHASSEE FOR THE WATER REUSE PROJECT IN THE AMOUNT OF \$300,000. MOTION CARRIED.

7.A. Committee Reports – District Lands Committee

Mr. John Middlemas reported that the District Lands Committee met and has recommendations for Items 7.A.1., 7.A.2., 7.A.3.a., 7.A.3.c., 7.A.5., 7.A.6., 7.A.8., 7.A.9.a. and 7.A.9.c.

7.A.1. Consideration of Agreement Between Escambia County Board of County Commissioners and the District for Maintenance of Boat Landings

MOTION BY MS. RILEY, SECONDED BY MR. PRICE, THAT THE GOVERNING BOARD APPROVE THE MAINTENANCE AGREEMENT BETWEEN THE ESCAMBIA COUNTY BOARD OF COUNTY COMMISSIONERS AND THE DISTRICT FOR MAINTENANCE OF RECREATION FACILITIES ON DISTRICT LANDS. MOTION CARRIED WITH MS. STUPARICH ABSTAINING.

Ms. Stuparich registered a voting conflict regarding Item 7.A.1., due to being employed by Escambia County, who is a party to the maintenance agreement. She said she would abstain from voting on this item and submitted the appropriate form for the record.

7.A.2. Consideration of Resolution No. 480 to the Department of Environmental Protection for Disbursement of Payments in Lieu of Taxes

MOTION BY MS. ESTES, SECONDED BY MR. MCMULLIAN, THAT THE GOVERNING BOARD APPROVE AND ADOPT RESOLUTION NO. 480 TO THE DEPARTMENT OF ENVIRONMENTAL PROTECTION TO ALLOW PAYMENTS IN LIEU OF TAXES TO BAY, HOLMES, JACKSON, LIBERTY, OKALOOSA, WALTON AND WASHINGTON COUNTIES IN THE AMOUNT OF \$61,974.55. MOTION CARRIED.

Mr. McMullian requested that he be permitted to deliver Jackson County's payment in lieu of taxes when the funds become available.

7.A.3.a. Consideration of the Appraisals for the Davis Tracts: Blackwater River

MOTION BY MS. RILEY, SECONDED BY MS. ESTES, THAT THE GOVERNING BOARD APPROVE THE APPRAISALS PREPARED BY ASMAR APPRAISAL COMPANY AND CARLTON APPRAISAL COMPANY FOR THE DAVIS TRACTS, THE REVIEW APPRAISAL PREPARED BY SOUTHEAST APPRAISAL GROUP AND THE CONCLUSION OF THE REVIEW APPRAISER THAT THE APPRAISAL BY CARLTON APPRAISAL COMPANY IS BEST SUPPORTED. MOTION CARRIED.

7.A.3.c. Consideration of Release of Funds for the Boundary Map/Acreage Certification, Environmental Audit, Title Exam and Premium, Document Preparation and Recording Fees for the Davis Tracts: Blackwater River

MOTION BY MS. GASKIN, SECONDED BY MR. BODIE, THAT THE GOVERNING BOARD APPROVE THE RELEASE OF \$2,415 FOR THE BOUNDARY MAP/ACREAGE CERTIFICATION, RELEASE OF \$2,200 FOR THE ENVIRONMENTAL AUDIT, RELEASE OF \$2,875 FOR THE TITLE EXAMINATION AND PREMIUM, RELEASE OF \$175 FOR DOCUMENT PREPARATION AND THE RELEASE OF \$37.50 FOR RECORDING FEES FOR THE DAVIS TRACTS. MOTION CARRIED.

7.A.5. Consideration of Request for Fee Quotes for Appraisals. Review Appraisal and Timber Inventory for the Hobbs Pasture Tract; Econfina Creek/Deer Point Lake

MOTION BY MS. RILEY, SECONDED BY MR. MCMULLIAN, THAT THE GOVERNING BOARD APPROVE THE QUOTE SUBMITTED BY KETCHAM APPRAISAL GROUP AND ASMAR APPRAISAL COMPANY FOR \$3,000 AND \$3,175 RESPECTIVELY OF WHICH THE SELLERS WILL PAY ONE-HALF OR \$3,087.50 FOR THE APPRAISALS, APPROVAL OF THE QUOTE SUBMITTED BY APPRAISAL GROUP OF TALLAHASSEE, INC. FOR \$1,550 TO CONDUCT THE REVIEW APPRAISAL, AND APPROVAL OF THE QUOTE SUBMITTED BY F & W FORESTRY FOR \$8,400 TO CONDUCT THE FOREST INVENTORY/APPRaisal REPORT OF THE HOBBS PASTURE TRACT. MOTION CARRIED.

7.A.6. Consideration of Request for Fee Quotes for Appraisals and Review Appraisal for the Carpenter Conservation Easement; Spring Creek

MOTION BY MS. ESTES, SECONDED BY MS. RILEY, THAT THE GOVERNING BOARD APPROVE THE FEE QUOTES OF \$2,820 AND \$2,874 SUBMITTED BY RPA, INC. AND CARLTON APPRAISAL COMPANY, RESPECTIVELY TO CONDUCT THE APPRAISALS AND \$1,650 BY THE APPRAISAL GROUP OF TALLAHASSEE TO CONDUCT A FIELD REVIEW FOR THE CARPENTER TRACT IN WAKULLA COUNTY. MOTION CARRIED.

7.A.8. Consideration of Multi-Party Acquisition Agreement Between the District and The Nature Conservancy

MOTION BY MS. ESTES, SECONDED BY MR. PRICE, THAT THE GOVERNING BOARD APPROVE THE MULTI-PARTY ACQUISITION AGREEMENT WITH THE NATURE CONSERVANCY FOR THE INDIAN SPRINGS PROJECT. MOTION CARRIED.

7.A.9.a. Consideration of the Appraisals for the Indian Springs Tract; Yellow River

MOTION BY MS. RILEY, SECONDED BY MS. ESTES, THAT THE GOVERNING BOARD APPROVE THE APPRAISAL PREPARED BY M. EUGENE PRESLEY AND ASSOCIATES FOR THE INDIAN SPRINGS TRACT, SUBJECT TO THE APPRAISAL REVIEW BY SUNCOAST APPRAISERS ON THIS TRACT INDICATING THAT THE APPRAISAL REPORT COMPLIES WITH ALL APPLICABLE STANDARDS AND RULES AND THE PURCHASE PRICE FOR THE PROPERTY DOES NOT EXCEED THE DISTRICT'S APPROVED APPRAISED VALUE. MOTION CARRIED.

7.A.9.c. Consideration of Release of Funds for the Boundary Map/Acreage Certification, Environmental Audit, Title Exam and Premium, Document Preparation and Recording Fees for the Indian Springs Tract; Yellow River

MOTION BY MS. RILEY, SECONDED BY MS. ESTES, THAT THE GOVERNING BOARD APPROVE THE RELEASE OF \$1,260 FOR THE BOUNDARY MAP/ACREAGE CERTIFICATION, RELEASE OF \$875 FOR THE ENVIRONMENTAL AUDIT, RELEASE OF \$1,225 FOR THE TITLE EXAMINATION AND PREMIUM, RELEASE OF \$700 FOR DOCUMENT PREPARATION AND THE RELEASE OF \$78 FOR RECORDING FEES FOR THE INDIAN SPRINGS TRACT. MOTION CARRIED.

6.A. Public Hearing on Consideration of Regulatory Matters

Chairman Roberts called the public hearing to order at 1:50 p.m.

Mr. Recio presented the Consent Agenda which included three consumptive use permits, Items A-1 through A-3; three consumptive use permit modifications and/or renewals, Items B-1 through B-3; one temporary permit consumptive use extension, C-1; and three agricultural/forestry surface water management permits, Item AF-1 through AF-3.

MOTION BY MS. ESTES, SECONDED BY MR. MIDDLEMAS, THAT THE GOVERNING BOARD APPROVE THE CONSENT AGENDA PER THE RECOMMENDATIONS AND CONDITIONS OF THE STAFF REPORTS AND PER THE TERMS AND CONDITIONS OF THE PERMIT DOCUMENTS. MOTION CARRIED.

Mr. Recio presented enforcement logs found in the public hearing folder.

Chairman Roberts adjourned the public hearing at 2:05 p.m.

7.B. District Personnel Committee

Mr. Russell Price reported that the Personnel Committee met and has a recommendation for Item 7.B.1.

7.B.1. Consideration of Senior Management Class Retirement Benefit for Division Directors and Bureau Chiefs

MOTION BY MR. MIDDLEMAS, SECONDED BY MR. BODIE, THAT THE GOVERNING BOARD APPROVE CONVERSION OF ELIGIBLE DIVISION DIRECTORS AND BUREAU CHIEFS TO SENIOR MANAGEMENT RETIREMENT CLASS WITH A RETROACTIVE DATE OF JANUARY 1, 2001. MOTION CARRIED.

8.A. Consent Business Agenda

Mr. Larry Wright presented the Financial Report and Schedule of Disbursements for the month of January 2001.

MOTION BY MR. MIDDLEMAS, SECONDED BY MS. GASKIN, THAT THE GOVERNING BOARD APPROVE THE FINANCIAL REPORT AND SCHEDULE OF DISBURSEMENTS FOR THE MONTH OF JANUARY 2001. MOTION CARRIED.

8.B. Consideration of Renewal of Agreement for Employee Insurance

Mr. Wright said that the District's current employee insurance agreement, a dual option plan with Blue Cross/Blue Shield of Florida and Capital Health Plan of Tallahassee (an HMO), will expire on March 31. In accordance with the provisions of the initial agreement, the District may renew the existing agreement on a year-to-year basis subject to its acceptance of the negotiated premium rates for each subsequent year. The District has negotiated a renewal premium rate for the 2001/2002-contract year at an increased rate. He said that based on the current staffing and selected option mix the total current annualized cost (employee and employer contribution) for employee life, AD&D, health and dental insurance is \$445,607. After renewal, the total annualized costs will increase by 14.03 percent (\$62,514) to a total of \$508,121. Employees who select any one of the three dependent coverage options are required to contribute \$100 per month toward the premium costs. The District is also providing, for employees only, life and AD&D coverage. Also included in the renewal package is a managed care "dual option" plan available to employees in the satellite offices in Pensacola and Marianna and the Econfinia field office. Staff recommends approval of the renewal of policies for the dual-option medical insurance, the dental plan and the life and AD&D insurance coverages for the 12-month period from April 1, 2001, through March 31, 2002.

MOTION BY MS. RILEY, SECONDED BY MS. GASKIN, THAT THE GOVERNING BOARD APPROVE THE RENEWAL OF THE POLICIES AT THE INCREASED RATE FOR THE DUAL-OPTION MEDICAL INSURANCE, THE DENTAL PLAN AND THE LIFE AND AD&D INSURANCE COVERAGES FOR THE 12-MONTH PERIOD FROM APRIL 1, 2001, THROUGH MARCH 31, 2002. MOTION CARRIED.

6.B. Public Hearing on Consideration of Land Acquisition Matters

Chairman Roberts called the public hearing to order at 2:10 p.m.

Mr. Bill Cleckley referred the Board to a Purchase and Sale Agreement for the Davis property on the Blackwater River in Santa Rosa County. He said staff proposes to acquire the property which consists of eight distinct parcels within or adjacent to the lower floodplain of the Blackwater River/Pond Creek. Acquisition of these tracts will permanently protect over 2.2 miles of the east/west banks of the Blackwater River and approximately one-mile of the north bank of Pond Creek. Mr. Cleckley stated that the purchase price negotiated by staff on the Davis tracts is \$360,000 or \$1,325.96 per acre. The District shared 50/50 in the cost of both land appraisals of the Davis tracts. The cost of the land appraisal was \$8,576.76. Mr. Davis is requesting reimbursement of his 50 percent or \$4,288.38 at closing. The District paid for the review appraisal (field) in the amount of \$845. The District will order a boundary map/acreage certification for the property. The total cost of the boundary map/acreage certification is \$2,415. The environmental assessment will be borne by Purchaser. The cost of the 50-year chain of title and radius search shall not exceed \$2,200. The District will order the title examination and a commitment to insure title in the amount of the purchase price. The District will pay for the cost of the title examination and premium. The total cost of the examination and premium will be \$2,875. In addition, the District will pay for the cost of document preparation and recording fees in the amount of \$175 and \$37.50 respectively. The Davis family will pay for documentary stamps, cost of recording any corrective documents, ad valorem taxes to date of closing and any assessments to date of closing. He said that staff recommends approval of the Purchase and Sale Agreement for the acquisition of the Davis tracts for \$360,000, subject to the terms and conditions of the Agreement and approval by District legal counsel. Mr. Cleckley submitted documents regarding the acquisition into the record.

Chairman Roberts accepted the documents into the record and opened the floor to public comment. There was no public comment.

MOTION BY MR. MCMULLIAN, SECONDED BY MS. RILEY, THAT THE GOVERNING BOARD APPROVE THE PURCHASE AND SALE AGREEMENT FOR THE ACQUISITION OF THE DAVIS TRACTS FOR \$360,000, SUBJECT TO THE TERMS AND CONDITIONS OF THE AGREEMENT AND APPROVAL BY DISTRICT LEGAL COUNSEL. MOTION CARRIED WITH MR. PRICE CASTING THE DISSENTING VOTE.

Mr. Cleckley presented a Purchase and Sale Agreement for the Indian Springs tract. He said that staff proposes acquisition of approximately 77.5 acres otherwise known as the Indian Springs tract from Genesis Corporation, Urbantech Corporation, Investors Guaranty and Surety Group, Inc. and William Dailey. The Indian Springs tract consists primarily of longleaf pine/wiregrass uplands bisected by two small seepage streams. This parcel is adjacent to District lands on the south side. Staff feels this is an excellent opportunity to acquire this parcel which will buffer potential development and enhance protection of the Yellow River floodplain. The parcel also contains an east-west land management road, which will improve District access to adjacent property. Mr. Cleckley stated that the purchase price negotiated by The Nature Conservancy on behalf of the District on the Indian Springs tract is \$130,000 or approximately \$1,677.41 per acre. The boundary map/acreage certification will be borne by purchaser. The cost of the boundary map/acreage certification will be \$1,260. The environmental assessment will be borne by purchaser. The cost of the 50-year chain of title and radius search will not exceed \$875. The District will order the title examination and a commitment to insure title in the amount of the purchase price. The cost of the examination and premium shall be borne by purchaser and shall not exceed \$1,225. In addition, the District will pay for the cost of document preparation and recording fees in the amount of \$700 and \$78 respectively. The sellers will pay for documentary stamps, cost of recording and corrective documents, ad valorem taxes to date of closing, and any assessments to date of closing. The Purchase and Sale Agreement will be between The Nature Conservancy and the various owners of this tract. The District, by way of an assignment, will purchase this tract. He said that staff recommends approval of the Purchase and Sale Agreement and Assignment for the acquisition of the Indian Springs tract for \$130,000, subject to the terms and conditions of the Agreement and Assignment and approval by District legal counsel, the review appraisal indicating that the appraisal complies with all applicable standards and rules and the purchase price for the property does not exceed the District's approved appraised value and conveyance of Lot 45 to Urbantech Corporation. Mr. Cleckley submitted documents regarding the acquisition into the record.

Chairman Roberts accepted the documents into the record and opened the floor to public comment. There was no public comment.

MOTION BY MS. RILEY, SECONDED BY MR. MIDDLEMAS, THAT THE GOVERNING BOARD APPROVE THE PURCHASE AND SALE AGREEMENT AND ASSIGNMENT FOR THE ACQUISITION OF THE INDIAN SPRINGS TRACT FOR \$130,000, SUBJECT TO THE TERMS AND CONDITIONS OF THE AGREEMENT AND ASSIGNMENT, APPROVAL BY DISTRICT LEGAL COUNSEL, RECEIPT OF EXECUTED PURCHASE AND SALE AGREEMENTS FROM THE SELLERS, THE REVIEW APPRAISAL INDICATING THAT THE APPRAISAL COMPLIES WITH ALL APPLICABLE STANDARDS AND RULES AND THE PURCHASE PRICE FOR THE PROPERTY DOES NOT EXCEED THE DISTRICT'S APPROVED APPRAISED VALUE AND CONVEYANCE OF LOT 45 TO URBANTECH CORPORATION. MOTION CARRIED.

Chairman Roberts adjourned the public hearing at 2:30 p.m.

8.D. Consideration of the Florida Forever Program

Mr. Douglas Barr stated that at the January meeting the Board requested a listing projects by geographic area and types that would be eligible for Florida Forever funding in order to provide staff with direction in preparing the program workplan. The projects are listed in three groups generally in order of priority based on the level of expected improvement/restoration of the waterbody, the readiness of the project to move into construction, and some consideration of geographic location. He discussed each group of projects and requested direction from the Board on the framework of the program the Board wishes to develop.

There was considerable discussion concerning preparation of the plan, cost sharing of projects with local governments and prioritizing projects.

MOTION BY MS. RILEY, SECONDED BY MS. STUPARICH, THAT THE GOVERNING BOARD DIRECT STAFF TO USE 50 PERCENT OF THE FLORIDA FOREVER FUNDS FOR DISCRETIONARY PROJECTS TO INCLUDE STORMWATER TREATMENT PROJECTS, REUSE PROJECTS AND ALTERNATE WATER SUPPLY PROJECTS, PRIORITIZED AS RECOMMENDED BY STAFF AND APPROVED BY THE BOARD. MOTION CARRIED AFTER THE FOLLOWING AMENDMENT, WITH MR. MIDDLEMAS CASTING THE DISSENTING VOTE.

MOTION BY MS. RILEY, SECONDED BY MR. PRICE, TO AMEND THE ABOVE MOTION TO INCLUDE THAT THE GOVERNING BOARD DIRECT STAFF TO PROCEED IN THE DIRECTION OF WATER REUSE, ALTERNATIVE WATER SUPPLY, ENVIRONMENTAL RESTORATION AND STORMWATER TREATMENT FOR UP TO 50 PERCENT OF THE FLORIDA FOREVER FUNDS IN PREPARING THE WORKPLAN. AMENDMENT TO MOTION CARRIED WITH MR. MIDDLEMAS CASTING THE DISSENTING VOTE.

6. C. Public Hearing on Consideration of Regional Water Supply Plan for Santa Rosa, Okaloosa and Walton Counties

Chairman Roberts called the public hearing to order at 2:45 p.m.

Mr. Ron Bartel referred the Board to the public hearing folder for discussion on the Regional Water Supply Plan for Santa Rosa, Okaloosa and Walton counties. He said that in accordance with Section 373.0361, Florida Statutes, District staff have prepared a draft "Regional Water Supply Plan for Santa Rosa, Okaloosa and Walton Counties." Development of the plan entailed an evaluation of future water demands on the Floridan Aquifer, documentation of water supply development activities underway in the region, and examination of alternative sources of water to address future needs. The draft plan includes a number of recommendations for future action by the District, including completion of the ongoing Floridan Aquifer sustainability modeling project, further analysis of the Sand-and-Gravel Aquifer, reuse coordination and assistance, water supply planning and coordination, and analysis of other less traditional water supply alternatives such as Aquifer storage and recovery. Upon completion of the draft Regional Water Supply Plan, copies of the document were distributed to all utilities and local governments within the three-county region as well as to the Department of Environmental Protection (DEP) and the Governing Board. The draft plan was also placed on the District's Internet web site where it has been accessed numerous times in the past months. The plan was presented to the Technical Advisory Committee of the Walton/Okaloosa/Santa Rosa Regional Utility Authority at a meeting on November 15, 2000, and a Public Workshop was held on January 31, 2001, in Niceville. Both of these meetings were quite well attended by the respective target audiences. A number of written comments were received on the plan, many of which were constructive. Staff also explained the plan and answered many questions about the water resources of Region II at the public workshop. Mr. Bartel said that staff recommends approval of the Regional Water Supply Plan for Santa Rosa, Okaloosa and Walton Counties. The action being recommended entails approval of the draft Regional Water Supply Plan for Santa Rosa, Okaloosa, and Walton Counties which was previously distributed to the Governing Board, along with the recommended changes. Mr. Bartel submitted documents regarding the Regional Water Supply Plan into the record.

Chairman Roberts accepted the documents into the record and opened the floor to public comment. There was no public comment.

MOTION BY MS. RILEY, SECONDED BY MS. ESTES. THAT THE GOVERNING BOARD APPROVE THE DRAFT REGIONAL WATER SUPPLY PLAN FOR SANTA ROSA, OKALOOSA AND WALTON COUNTIES. MOTION CARRIED.

Chairman Roberts adjourned the public hearing at 3:15 p.m.

8.E. Consideration of Agreement with the City of Graceville, Jackson County, for the Plugging and Abandoning of two Floridan Aquifer Wells and Approval of Selected Bidder, Bid Number 01B-002

Mr. Alex Wood presented an agreement between the District and the City of Graceville for plugging and abandoning of two Floridan Aquifer wells. He said the District proposes to enter into a contractual agreement with the City of Graceville to share the cost of plugging two wells. The wells are not presently in service and are identified by the District as a threat to the groundwater resource. Mr. Wood stated that the funding agreement provides for a 50/50 cost sharing with the City of Graceville; and provides for the City of Graceville to reimburse the District up to \$5,850 of the estimated \$11,700 total project cost. Staff recommends approval of the funding agreement. Bids were sent to 85 water well contractors and Mr. Everette Leavins, of Leavins-Hughes Well Drilling was the low bidder at \$8,750 for plugging the wells and staff selected him as the recommended vendor. In addition, the contract provides an hourly rate of \$195 to the contractor for the removal and clearing of any obstructions from the wells and the drilling/washing out of the wells and \$100 per hour for standby time. The recommended contract is limited to a maximum total cost of \$11,700. Mr. Wood said staff recommends that the District's Executive Director be authorized to execute the well abandonment funding agreement with the City of Graceville, Jackson County. Staff also recommends contingent upon approval of the funding agreement by the City of Graceville, that Mr. Everette Leavins be awarded the bid for plugging two Floridan Aquifer wells in the City of Graceville with the maximum compensation for the contract not to exceed \$11,700.

MOTION BY MS. RILEY, SECONDED BY MR. MCMULLIAN. THAT THE GOVERNING BOARD AUTHORIZE THE EXECUTIVE DIRECTOR TO EXECUTE THE WELL ABANDONMENT FUNDING AGREEMENT WITH THE CITY OF GRACEVILLE, JACKSON COUNTY. STAFF

ALSO RECOMMENDS, CONTINGENT UPON APPROVAL OF THE FUNDING AGREEMENT BY THE CITY OF GRACEVILLE, THAT MR. EVERETTE LEAVINS BE AWARDED THE BID FOR THE DESCRIBED PROJECT AND APPROVAL FOR THE DISTRICT TO ENTER INTO A FINAL CONTRACT AGREEMENT (NOTICE TO PROCEED) WITH MR. EVERETTE LEAVINS FOR THE PLUGGING OF TWO FLORIDAN AQUIFER WELLS IN THE CITY OF GRACEVILLE, JACKSON COUNTY, WITH THE MAXIMUM COMPENSATION FOR THE CONTRACT NOT TO EXCEED \$11,700. MOTION CARRIED.

8.F. Consideration of Agreement with City of Lynn Haven, Bay County, for the Plugging and Abandoning of one Floridan Aquifer Well and Approval of Selected Bidder. Bid Number 01B-003

Mr. Alex Wood presented an agreement between the District and the City of Lynn Haven for plugging and abandoning of one Floridan Aquifer well. He said the District proposes to enter into a contractual agreement with the City of Lynn Haven to share the cost of plugging one well. The well is not presently in service and is identified by the District as a threat to the groundwater resource. Mr. Wood said that the funding agreement provides for 50/50 cost sharing with the City of Lynn Haven; and provides for the city to reimburse the District up to \$5,142.50 of the estimated \$10,258.00 total project cost. Staff recommends approval of the funding agreement. Bids were sent to 99 water well contractors and Mr. Everette Leavins, of Leavins-Hughes Well Drilling was the low bidder at \$7,925.00 for plugging the well and staff selected him as the recommended vendor. In addition, the contract provides an hourly rate of \$195 to the contractor for the removal and clearing of any obstructions from the well and the drilling/washing out of this well and \$100 per hour for standby time. The recommended contract is limited to a maximum total cost of \$10,285.00. Mr. Wood said staff recommends that the District's Executive Director be authorized to execute the well abandonment funding agreement with the City of Lynn Haven, Bay County. Staff also recommends, contingent upon approval of the funding agreement by the City of Lynn Haven, that Mr. Everette Leavins be awarded the bid for plugging one well in the City of Lynn Haven, with the maximum compensation for the contract not to exceed \$10,285.00.

MOTION BY MS. RILEY, SECONDED BY MR. MCMULLIAN, THAT THE GOVERNING BOARD AUTHORIZE THE EXECUTIVE DIRECTOR TO EXECUTE THE WELL ABANDONMENT FUNDING AGREEMENT WITH THE CITY OF LYNN HAVEN, BAY COUNTY. ALSO CONTINGENT UPON APPROVAL OF THE FUNDING AGREEMENT BY THE CITY OF LYNN HAVEN, THAT MR. EVERETTE LEAVINS BE AWARDED THE BID FOR THE DESCRIBED PROJECT AND APPROVAL FOR THE DISTRICT TO ENTER INTO A FINAL CONTRACT AGREEMENT (NOTICE TO PROCEED) WITH MR. EVERETTE LEAVINS FOR PLUGGING ONE FLORIDAN AQUIFER WELL IN THE CITY OF LYNN HAVEN, BAY COUNTY, WITH THE MAXIMUM COMPENSATION FOR THE CONTRACT NOT TO EXCEED \$10,285.00. MOTION CARRIED.

9. Information Regarding Permitting of Wells in Delineated Areas of Southern Escambia County

Mr. Barr stated that the Department of Environmental Protection has delineated a portion of Escambia County as an area of potential groundwater contamination. The delineation was based on the existence of numerous contamination sites within the area. Among the sites are the Agrico Chemical and Escambia Treating sites. The District has not issued any permits for the construction of domestic potable supply wells within the area affected by the Agrico and Escambia Treating contamination. Over the last 10 years the District issued about 51 construction permits in this area and all 51 were for non-potable purposes. Based on the last five years, approximately two to three permits are issued annually. The majority of these permits are for landscape irrigation wells for individuals who would rather use a well for landscaping purposes than water obtained from Escambia County Utilities Authority. Recent studies have been done using all available data, which indicates that there may be some health issues related to the Agrico site. Regarding the Agrico site, the EPA has designated an area within which ongoing monitoring is presently being conducted. Regarding the Escambia Treating site, the EPA is currently conducting investigations to better determine the extent of contamination. If the Board would like to consider putting in place a moratorium on the construction of small irrigation wells, staff thinks the EPA-delineated Agrico area would be a good boundary for the moratorium. In the absence of a similar delineation for Escambia Treating, staff examined the existing plume delineations and drew a boundary that encompassed the Escambia Treating plumes. Mr. Barr said that if it is the Board's desire, then staff would recommend that a well construction moratorium be declared in the Agrico and Escambia Treating contamination area. The moratorium is not to apply to any wells associated with investigation, monitoring, or remediation of ground or surface waters.

MOTION BY MS. RILEY, SECONDED BY MR. BODIE, THAT THE GOVERNING BOARD DECLARE A WELL CONSTRUCTION MORATORIUM IN THE AGRICO/ESCAMBIA TREATING CONTAMINATION AREA AS GENERALLY DESCRIBED BY THE STAFF. THIS MORATORIUM IS NOT TO APPLY TO ANY WELL ASSOCIATED WITH THE INVESTIGATION, MONITORING, OR REMEDIATION OF GROUND OR SURFACE WATERS.

Mr. Barr introduce Mr. Jeff Wagner, an environmental consultant with USR.

Mr. Wagner said that as part of the EPA Record of Decision for the Agrico site, it is USR's charge to eliminate the exposure to groundwater from these irrigation wells. It is a voluntary program, as we do not have any regulations to prevent the installation of new wells. Wells in the area were inventoried using the District's construction permitting database and then a door-to-door well survey through that entire area was performed. Our records show that there are 60 wells in that area. We sampled 12 out of the 60 wells and out of the 12, several had problems with perchloroethylene contamination. This contamination (PCE) is not associated with the Agrico plume. As an incentive for abandonment of these wells we have offered to abandon the wells and switch them over to the Escambia County Utilities Authority system and to also pay them \$5,000 for their time. Even with the \$5,000 incentive no one wants to have their well abandoned.

AT THIS POINT THE MOTION CARRIED.

10. Legal Counsel Briefing

Mr. Doug Stowell reported on items found in his litigation report.

Mr. Stowell said that at last month's Governing Board meeting we discussed the provisions of Section 373.083, Florida Statutes, which were recently amended to allow the Governing Board to delegate powers, duties and functions to the Executive Director or other staff members. As a result of that discussion, the Board directed that we bring back to the Board some thoughts with regard to what responsibilities and activities could be delegated. Mr. Stowell referred to a memo he provided to the Board and said that potential delegations are categorized into three categories: Procedural and Permitting, Administrative and Lands. He explained the benefits of delegating authority and said that the list of potential areas for delegation of authority is not intended to be an exhaustive list, but is intended to provide a framework for discussion of the kinds of activities the Board may feel comfortable in delegating to the Executive Director or others.

The Board requested time to review the list of potential areas for delegation of authority to the Executive Director or others.

11. Executive Director Briefing and Announcements

Mr. Barr gave brief updates on the ACF Compact negotiations, Regional Water Supply Plan, drought conditions, legislative matters and streamlining initiatives.

12. Consideration of Committee Schedule for March Governing Board Meeting

Ms. Carolyn Wise presented the schedule of committee meetings to be held in conjunction with the March 22, 2001, Governing Board meeting. The meetings will be held at District headquarters. Times listed are Eastern Standard.

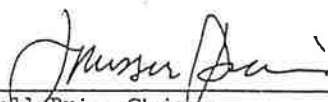
13. Administrative Detail

Chairman Roberts recommended that Mr. Price serve as chairman for the District Lands Committee in March since that meeting will be held before the election of officers.

Mr. Price agreed to do so.

Chairman Roberts thanked Mr. Barr, staff and Board members for an outstanding learning experience and a rewarding 12 years as a member of the Governing Board.

Meeting was adjourned at 4:20 p.m.


J. Russell Price, Chairman

March 22, 2001
Date


Executive Director


Agency Clerk





December 12, 2011

alan.hagans@dot.state.fl.us

Mr. Alan Hagans
Florida Department of Transportation District 3
1074 Highway 90
Chipley, Florida 32428

**Subject: Annual Inquiry Regarding Construction Activities
Fairfield Drive (SR 727) at I-110 (SR 8-A) Roadway ID 48004000
Mile Marker 9.009 at Palafox to Mile Marker 9.490 at I-110 West Ramp
Pensacola, Florida**

Dear Mr. Hagans:

Per U.S. Environmental Protection Agency requirements set forth in the Agrico Chemical Site Operation and Maintenance Plans, this annual inquiry is submitted to determine if intrusive work into the subsurface soils in the above-referred location is planned by Florida Department of Transportation (FDOT) for the year 2012. Additionally, this inquiry seeks to determine if there are work activities included in FDOT's five-year plan that will involve intrusive work at Fairfield Drive from Palafox to the I-110 ramp.

If there is additional information that we or the U.S. Environmental Protection Agency (USEPA) should be aware of, please let me know.

Please respond in writing regarding receipt of this correspondence. If you have any questions concerning this request, please e-mail me at jeffry.wagner@urs.com. **Please note new email address.**

Sincerely,

A handwritten signature in black ink, reading "Jeffrey R. Wagner". The signature is fluid and cursive, with a long, sweeping underline.

Jeffrey R. Wagner, P.G., V.P.
Principal Hydrogeologist

JRW:lc

cc: Terry D. Vandell (ConocoPhillips)
Phil Roberts (Williams)
Scott Miller (USEPA)

URS Corporation
1625 Summit Lake Drive,
Suite 200
Tallahassee, Florida 32317
Tel: 850.574.3197
Fax: 850.576.3676



June 30, 2011

Mr. Scott Miller
Remedial Project Manager
Superfund Remedial and Technical Services Branch
U.S. Environmental Protection Agency, Region 4
Atlanta Federal Center
61 Forsyth Street
Atlanta, Georgia 30303-8960

**Subject: Responses to the May 17, 2011 Florida Department of Environmental
Protection Comments to the 2010 Annual Report
Agrico Site
Pensacola, Florida
EPA ID: FLD 98022 1857**

Dear Mr. Miller:

URS Corporation (URS) on behalf of ConocoPhillips, Inc., merger successor to Conoco, Inc. and Williams representing Agrico Chemical Company is submitting these responses to the May 17, 2011 Florida Department Environmental Protection Comments to the 2010 Annual Report.

Should you have any questions or require additional information regarding these comments, please contact Ms. Terry D. Vandell (ConocoPhillips) at (580) 767-6561 or Mr. Phil Roberts (Williams) at (918) 573-0757.

Sincerely,

A handwritten signature in blue ink, reading "Jeffry R. Wagner", is positioned below the word "Sincerely,".

Jeffry R. Wagner, P.G., V.P.
Principal Hydrogeologist

JRW:lc

Enclosure – Responses to Comments

cc: Walsta Jean-Baptiste – FDEP, Hazardous Waste Cleanup Section, Tallahassee
Phil Roberts– Williams
Terry Vandell-Bell – ConocoPhillips

**RESPONSES TO MAY 17, 2011 FDEP COMMENTS TO THE 2010 ANNUAL REPORT
AGRICO PENSACOLA, FL SITE (dated March 31, 2011)
EPA ID: FLD 980221857**

FDEP General Comment –

“I have reviewed the referenced document and concur with the recommendations as long as a modification is made to add AC-27S/D to the existing network for groundwater elevations, site COCs and field parameters. The deep well needs to be added because it is located on the east side of Bayou Texar between the plume/discharge divide and the Hagler water supply well. The pH at this well declined from 6.5 in 2005 to 4.7 in 2008. The pH at AC-35D has recently been 4.29 (2010), 4.0 (2009), 3.8 (2008), and 4.1 (2007). As the plume advances, pumping at the Hagler water supply well likely influences the potentiometric surface in wells near the head of Bayou Texar and may permit plume advancement. (See May 1, 2002 Remedial Investigation Report, Escambia Treating, Figure 4-6 and the effect of Royce Street well on AC-25I. Note that the Hagler well is closer to AC-27D than the Royce Street well is to AC-25I.) In fact a number of events have been recorded that show a downward vertical gradient at ETC MW-20S/D (June and October 2001 with AC-27S/D upward in October 2001). On January 22, 2005, the ETC MW-25S/D and ETC MW-26 S/D well pairs (located between AC-27D and Fairfield Drive) showed downward hydraulic gradients. Because plume advancement would affect the protectiveness of the MNA remedy, monitoring of this well should occur more frequently than the approved annual network frequency. It takes a significant change to alter groundwater pH and for that reason, the additional monitor events could be limited to groundwater elevations at AC-27S/D and field parameters (the Agrico plume is characterized by low pH and high specific conductivity). “

URS Response to General Comment -

There is reference in this general comment about a monitoring well AC-25I. It should be noted that this is not an Agrico well and the proper well ID should be ETC MW-25I. The Agrico monitoring well AC-25D is located near Bayou Texar to the north, it is not in close proximity to or affected by the Royce Street ECUA Public Supply Well.

It should be noted that the pH range recorded for the AC-27D monitoring well east of Bayou Texar is within the background fluctuation range for groundwater pH and conductivity in Escambia County. A data review of USGS publication, “Summary of Ground-water and Surface Water Data for the City of Pensacola and Escambia County, Florida” (U.S. Geological Survey Open-File Report 82-361) as stated on page 8-8 of the 2010 Annual Report, indicates that groundwater pH will vary seasonally in Escambia County. A ten year data span shows pH at the same site ranging from less than 5 to greater than 7. Additionally, it should be noted that an increase in pH and conductivity and the absence of fluoride concentrations is not characteristic of the Agrico plume. For the Agrico plume, fluoride is not transported independently of acidity or

dissolved solids. So the statement that the Agrico plume is characterized by low pH and high specific conductivity is not correct if the groundwater is also not elevated in fluoride.

For groundwater in Escambia County, a change from 6.5 to 4.7 for pH over a three year period is not considered significant. Overall, the pH data for well AC-27D shows an increasing pH trend. And in light of the fact that fluoride has not been detected in the AC-27 monitoring well cluster, there is no evidence that any pH change at AC-27D is attributable to the Agrico plume. It should also be noted that the vertical gradient for groundwater levels near discharge boundaries in Escambia do fluctuate seasonally and can reverse naturally for a period of time from an upward to a downward vertical gradient.

A review of the Northwest Florida Water Management District (NFWFMD) publications “Wellhead Protection area Delineation in Southern Escambia County, Florida” (December 1997) and “Susceptibility of Public Supply Wells to Ground Water Contamination in Southern Escambia County, Florida” (December 1999) and the “Potentiometric surface of the Main Producing Zone of the Sand-and-Gravel aquifer, Escambia County, Florida” (October/November 2000) was conducted to assess the potential for well influences to spread to Bayou Texar from ECUA’s Hagler Airport Public Supply Well. These NFWFMD evaluations of pumping influences show that the Hagler well has more of a tendency to reach north-northwest rather than west or east to satisfy groundwater contribution to this production well. Also, the NFWFMD potentiometric surface shows pumping impacts only in the immediate location of the pumping well, the surface does not show pumping influences extending laterally downgradient of the well location to the southwest towards Bayou Texar located ~ 1 mile away. Potentiometric data indicate that the Hagler well is predominantly recharged by groundwater originating north-northwest and upgradient of the well, not from downgradient sources.

For the above reasons, there is no evidence of the Agrico plume advancement and there is no evidence that the groundwater divide at Bayou Texar is being influenced by pumping from the Hagler well.

URS will continue to sample the AC-27 monitoring well cluster every 5-years as part of the EPA Five-Year Review. The analysis will include field parameters (pH, conductivity, dissolved oxygen, turbidity, temperature, and oxidation reduction potential) and the 7 primary COCs. URS will continue to measure water levels in the AC-27 cluster annually.

Specific Comments 1-5:

FDEP Comment 1. – “Page 8-18 references the Florida Institute of Phosphate Research “Phosphate Primer” (2004). This reference does not discuss any Radium isotopes nor that the phosphate ore tends to have more RA 226 than RA 228. A proper reference needs to be provided.

Also, the findings need to present a complete discussion of the radium source. While the Agrico waste stream may not have been the direct source of the now detected radium with more RA 228 than RA 226, the passage of the plume (with high specific conductivity) and its geochemical interaction with the aquifer sediments has produced higher radium concentrations (and a different isotope balance) within the plume limits.”

URS Response – Comment regarding reference is noted.

Comment regarding presenting a discussion on the source of radium is addressed below.

The many technical reports prepared for the Agrico site have addressed the source of radium. For example, the source of radium is discussed in the November 30, 2006 Technical Memorandum Report – Evaluation of Long-Term Groundwater Monitoring network, which was Action Item #3 from the July 2005 Five-Year Review Report. In this report (section 6 and section 8), it is stated that the Agrico waste stream was not the source of radium 226 or radium 228 detected in the Agrico groundwater plume. It also states that the acidity associated with the wastewater ponds contributed to the acidity found in the groundwater plume. Furthermore, it states that due to the transport of the acidity in the plume and contact with aquifer media, a secondary release of radium 228 primarily has occurred within the plume limits. It should be noted that radium 226 is much lower in concentration than radium 228 for the plume. As the FDEP comment indicates and which is also stated similarly in the 2006 report, the presence of radium 228 is due to the passage of the plume (with low pH groundwater; not high specific conductivity – as the comment implies) and its geochemical interaction with the aquifer sediments within the limits of the plume. Please also refer to the more recent August 19, 2009 report, “Evaluation of Monitored Natural Attenuation in Groundwater”, pages 7-9, 42-43.

To clarify the source of the radium, a summary discussion based on the prior work will be included in future annual reports.

FDEP Comment 2. – ***“The Table 8 yellow highlighting should be used for results that exceed the Performance Standard, not clean results.”***

URS Response – The Agrico site is no longer in an assessment phase. It is in a phase of demonstrating that the MNA remedy is working. Emphasizing data results that show that the MNA remedy is working is very appropriate. Please note the exceedances of the performance standards in Table 8 are shown in larger and bold font.

FDEP Comment 3. – ***“Field sampling logs need to be included in future reports to document field purging observations.”***

URS Response – Comment noted and such field logs will be included.

FDEP Comment 4. – *“Future reports need to include a table summary of all historical results for all plume COCs (including those that have been dropped because they met the performance standards) and field parameters.”*

URS Response – For COCs, Table 8 presents all historical data results for the seven plume COCs. None of the COC results have been dropped from the table. For example, the footnotes explain when a select COC has been discontinued from the sampling program, but the results for that COC when it was analyzed are still presented in Table 8.

Future reports will include a table that shows the historical results for Field Parameters.


FDEP Comment 5. – *“Provide pH and specific conductivity versus time plots for AC-25D, AC-35D and AC-27D.”*

URS Response – The plots are attached to these comment responses. Note for AC-27D, three additional pH/conductivity measurements have been collected in 2010 and 2011 by EPA in relation to monitoring the ETC site. Additionally, a plot for pH and specific conductivity for AC-27S is also presented.

Memorandum

Florida Department of Environmental Protection

TO: Walsta Jean-Baptiste, Project Manager, Hazardous Waste Cleanup
Section, BWC

THROUGH: Brian Dougherty, Administrator
Program & Technical Support Section, BWC 5/19/2011
X 
BJD

FROM: Zoe Kulakowski, Professional Geologist
Program & Technical Support Section, BWC 5/19/2011
X ZPK
ZPK

DATE: May 17, 2011

SUBJECT: Agrico Chemical Superfund Site, Fairfield Avenue, Pensacola,
Escambia County, 2010 Annual Report for OU-1 and OU-2, dated
March 31, 2011

I have reviewed the referenced document and concur with the recommendations as long as a modification is made to add AC-27S/D to the existing network for groundwater elevations, site COCs and field parameters. The deep well needs to be added because it is located on the east side of Bayou Texar between the plume/discharge divide and the Hagler water supply well. The pH at this well declined from 6.5 in 2005 to 4.7 in 2008. The pH at AC-35D has recently been 4.29 (2010), 4.0 (2009), 3.8 (2008), and 4.1 (2007). As the plume advances, pumping at the Hagler water supply well likely influences the potentiometric surface in wells near the head of Bayou Texar and may permit plume advancement. (See May 1, 2002 Remedial Investigation Report, Escambia Treating, Figure 4-6 and the effect of Royce Street well on AC-25I. Note that the Hagler well is closer to AC-27D than the Royce Street well is to AC-25I.) In fact a number of events have been recorded that show a downward vertical gradient at ETC MW-20S/D (June and October 2001 with AC-27S/D upward in October 2001). On January 22, 2005, the ETC MW-25S/D and ETC MW-26 S/D well pairs (located between AC-27D and Fairfield Drive) showed downward hydraulic gradients. Because plume advancement would affect the protectiveness of the MNA remedy, monitoring of this well should occur more frequently than the approved annual network frequency. It takes a significant change to alter groundwater pH and for that reason, the additional monitor events could be limited to groundwater elevations at AC-27S/D and field parameters (the Agrico plume is characterized by low pH and high specific conductivity).

Specific Comments

MEMORANDUM

Walsta Jean-Baptiste

May 17, 2011

Page 2

1. Page 8-18 references the Florida institute of Phosphate Research "Phosphate Primer" (2004). This reference does not discuss any Radium isotopes nor that the phosphate ore tends to have more Ra ²²⁶ than Ra ²²⁸. A proper reference needs to be provided. Also, the findings need to present a complete discussion of the radium source. While the Agrico waste stream may not have been the direct source of the now detected radium with more Ra ²²⁸ than Ra ²²⁶, the passage of the plume (with high specific conductivity) and its geochemical interaction with the aquifer sediments has produced higher radium concentrations (and a different isotope balance) within the plume limits.
2. The Table 8 yellow highlighting should be used for results that exceed the Performance Standard, not clean results.
3. Field sampling logs need to be included in future reports to document field purging observations.
4. Future reports need to include a table summary of all historical results for all plume COCs (including those that have been dropped because that met the Performance Standards) and field parameters.
5. Provide pH and specific conductivity versus time plots for AC-25D, AC-35D, and AC-27D.

If you have any questions, please contact me at (850)245-8982.



Miller.Scott@epamail.epa.gov

11/01/2010 09:41 AM

To Jeffry_Wagner@URSCorp.com

cc

bcc

Subject Required Electronic Data Submittal

History:

This message has been forwarded.

Jeffry,

Good morning, as a heads-up here. Referenced is a guidance memorandum from EPA Region 4's Superfund Division Director requiring that all environmental sampling data is required to be submitted in an electronic format.

The data submittal requirements may be found here:

<http://www.epa.gov/region4/waste/sf/edd/edd.html>

The guidance document may be found here:

http://www.epa.gov/region4/waste/sf/edd/edd_sf_dd_memo_final.pdf

Please plan to provide environmental sampling data in this electronic format for future submittals in addition to the standard reporting that has been previously done.

If you have questions related to this requirement, please contact me via reply e-mail or at the number below.

Thank you,

Scott Miller

Remedial Project Manager

Superfund Division

Superfund Remedial Branch

Section C

U.S. EPA Region 4

61 Forsyth Street, SW

Atlanta, GA 30303

Phone (404) 562-9120

Fax (404) 562-8896



"Hagans, Alan"
<Alan.Hagans@dot.state.fl.us>
10/26/2010 08:30 AM

To "Jeffry_Wagner@URSCorp.com"
<Jeffry_Wagner@URSCorp.com>

cc

bcc

Subject RE: Agrico Pensacola -- Annual FDOT Inquiry

Hey Jeffry,

Maybe this will work. If you need more specific's holler!

Thanks,

*Alan Hagans
District Contamination Impacts Coordinator
Department Of Environmental Management (FDOT)
Ph: (850) 415-9511
alan.hagans@dot.state.fl.us*

From: Jeffry_Wagner@URSCorp.com [mailto:Jeffry_Wagner@URSCorp.com]

Sent: Monday, October 25, 2010 3:39 PM

To: Hagans, Alan

Subject: RE: Agrico Pensacola -- Annual FDOT Inquiry

Alan -- I'm not able to read the attachments you had to the email

Can you possibly send in different file format

thanks,
jeff

Jeff Wagner, V.P., P.G., CPM
Senior Principal Hydrogeologist
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, Florida 32317
Cell - 850-251-7208
Direct Line - 850-402-6409
Phone - 850-574-3197
Fax - 850-402-6490 or 850-576-3676
email - Jeffry_Wagner@urscorp.com

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"Hagans, Alan" <Alan.Hagans@dot.state.fl.us>

"Hagans, Alan"
<Alan.Hagans@dot.state.fl.us>

10/21/2010 03:32 PM

To "Jeffry_Wagner@URSCorp.com"
<Jeffry_Wagner@URSCorp.com>

cc

Subject RE: Agrico Pensacola -- Annual FDOT Inquiry

Jeffry,

Here are the projects pulled by the co/sec:

If you need additional information please call.

Thanks,

*Alan Hagans
District Contamination Impacts Coordinator
Department Of Environmental Management (FDOT)
Ph: (850) 415-9511
alan.hagans@dot.state.fl.us*

From: Jeffry_Wagner@URSCorp.com [mailto:Jeffry_Wagner@URSCorp.com]

Sent: Wednesday, October 20, 2010 11:54 AM

To: Hagans, Alan

Cc: miller.scott@epa.gov

Subject: Agrico Pensacola -- Annual FDOT Inquiry

(See attached file: FDOT_2010AnnlnqLtr.pdf)

Jeff Wagner, V.P., P.G., CPM
Senior Principal Hydrogeologist
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, Florida 32317
Cell - 850-251-7208
Direct Line - 850-402-6409
Phone - 850-574-3197
Fax - 850-402-6490 or 850-576-3676
email - Jeffry_Wagner@urscorp.com

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AGRICO POTENTIAL PROJECT IMPACTS.docx

Here are the projects pulled by the co/sec:

```
WP02      D_  Display Item_Seg_def

          FDOT - Work Program Administration          10-21-20
          Item/Segment List                          12:39:20
          MORE:

District: 03 Type: M (Man, Geo) County: 48 + Roadway Id: 48004000
Box Item: N (y/N) Box Code:    Trans System:    Group:    Cont Type:
Bridge ID:    Include Candidates: N (y/N)
Include Completed Items: N (y/N) Include Dropped Items: N (y/N)
Begin Search At Item:

Sel Item Seg Status      Description Version
-----
- 218604 1 PRE-CONST.UNDERWAY ADOPTED
  SR 727/295 FAIRFIELD FROM SR 298 LILLIAN HWY TO SR 10A (US 90)
- 222467 1 CONST.COMPLETE ADOPTED
  SR 8A (I-110) FROM MAXWELL STREET TO SR 295 FAIRFIELD DRI
- 407938 2 PRE-CONST.UNDERWAY ADOPTED
  ESCAMBIA COUNTY PEDESTRIAN ACTUATED SIGNAL PROJECT
- 413435 1 ADOPTED, NOT BEGUN ADOPTED
  SR 727 FAIRFIELD DR. FROM SR 292 GULF BEACH HW TO BRUCE STREET
- 419301 1 ADVERTISED ADOPTED
  SR 727/295 FROM SR 292 PACE BLVD TO SR 289 9TH AVENUE
AAA250-I: Successfully displayed.
F1=Help F3=Exit F4=Prompt F7=Bkwd F8=Frwd F15=Logoff
```

```
WP02      D_  Display Item_Seg_def

          FDOT - Work Program Administration          10-21-20
          Item/Segment List                          12:40:00
          MORE: -

District: 03 Type: M (Man, Geo) County: 48 + Roadway Id: 48004000
Box Item: N (y/N) Box Code:    Trans System:    Group:    Cont Type:
Bridge ID:    Include Candidates: N (y/N)
Include Completed Items: N (y/N) Include Dropped Items: N (y/N)
Begin Search At Item:

Sel Item Seg Status      Description Version
-----
- 424106 1 ADVERTISED ADOPTED
  SR 727 FAIRFIELD DR FROM BRUCE STREET TO WEST OF SR 10A (US 90)

Successfully displayed. No more data to display.
F1=Help F3=Exit F4=Prompt F7=Bkwd F8=Frwd F15=Logoff
```



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

September 20, 2010

Mr. Jeffry R. Wagner, P.G.
Vice President/Operations Manager
Principal Hydrogeologist
Environmental Group Manager
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, Florida 32317

Re: September 4, 2009 report, "*Conceptual Site Model Ecological Impact Evaluation of Bayou Texar Downgradient of Agrico's Groundwater Fluoride Plume*"

Dear Mr. Wagner:

Thank you for the September 4, 2009 report, entitled "*Conceptual Site Model Ecological Impact Evaluation of Bayou Texar Downgradient of Agrico's Groundwater Fluoride Plume.*"

EPA approves this Report. If we may be of assistance in this matter, please contact me at (404) 562-9120.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Miller", is positioned above the printed name.

Scott Miller
Remedial Project Manager
Superfund Remedial Branch, Section C
Superfund Division



Jeffrey Wagner/Tallahassee/URSCorp

09/20/2010 12:00 PM

To Jeffrey Wagner/Tallahassee/URSCorp@URSCORP

cc

bcc

Subject Agrico Pensacola -- RE: EPA approval BT Report

Terry/Phil -- Please note the string of emails attached. File attached is EPA approval letter for Sept. 4, 2009 Bayou Texar report.

Also as the emails state, the SWAC calculation was confirmed by EPA-Athens.

The upcoming annual sampling event in November will add the BT surface water sampling locations as was recommended by the April 20, 2010 Tallahassee meeting.

I believe the responses from EPA bring closure to the open issues regarding the BT report.

jeff



Miller.Scott@epamail.epa.gov

09/17/2010 08:20 PM

To Jeffrey_Wagner@URSCorp.com

cc

Subject Re: Agrico Pensacola

Jeff,

Hello, I assumed that Joe would've been in contact had there been an issue with the SWAC for Bayou Texar. I will follow-up with Joe and make sure that this is the case. If this is the case, I'll send you an approval letter to close your files on it. One could also probably conclude from the 2010 Five-Year Review report recommendations that EPA accepted that approach.

Have a great weekend,

Scott Miller

Remedial Project Manager

Superfund Division

Superfund Remedial Branch

Section C

U.S. EPA Region 4

61 Forsyth Street, SW

Atlanta, GA 30303

Phone (404) 562-9120

Fax (404) 562-8896

----- Forwarded by Scott Miller/R4/USEPA/US on 09/20/2010 09:15 AM -----

From: Joe Owusu/R4/USEPA/US

To: Scott Miller/R4/USEPA/US@EPA
Cc: Linda George/R4/USEPA/US@EPA
Date: 09/20/2010 09:09 AM
Subject: Re: Fw: Agrico Pensacola

Hi Scott:

Sorry we have not been able to communicate with you lately. We have been kind of busy. Yes I got help from one of our engineers and we confirmed the SWAC calculation for Bayou Texar. In fact EPA has set up a work group that is looking at SWAC.

Thanks, Joe
Senior Toxicologist
Integrated Laboratory Systems, Inc.
980 College Station Rd
Athens, GA 30605
(866) 355-8696

From: Scott Miller/R4/USEPA/US
To: Joe Owusu/R4/USEPA/US@EPA
Cc: Linda George/R4/USEPA/US@EPA
Date: 09/20/2010 07:50 AM
Subject: Fw: Agrico Pensacola

Howdy Joe,
Hope all is going well in Athens for you and Linda this morning. I take it that your calculations of the SWAC of fluoride for Bayou Texar showed the same results that URS did. Is that correct?
Thanks,
Scott Miller
Remedial Project Manager
Superfund Division
Superfund Remedial Branch
Section C

U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
Phone (404) 562-9120
Fax (404) 562-8896

----- Forwarded by Scott Miller/R4/USEPA/US on 09/20/2010 07:49 AM -----



EPA approval ltr -BT 090409 report_092010.pdf

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

2/5/2010

Mr. Jeffry Wagner, P.G., V.P.
Principal Hydrogeologist
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, FL 32317

Dear Mr. Wagner:

Thank you for your February 3, 2010, letter entitled "Evaluation of Monitored Natural Attenuation in Groundwater: EPA Comments (October 15, 2009), Agrico Site, Pensacola, Florida." EPA appreciates the thoroughness of the August 19, 2009, initial monitored natural attenuation (MNA) approach and the submitted updates to the original MNA plan included in the February 3, 2010, submittal.

EPA approves the original August 19, 2009, submittal and the corresponding updates in the February 3, 2010, submittal. If we may be of assistance in this matter, please contact me either via Internet e-mail at miller.scott@epa.gov or at (404) 562-9120.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Miller", is positioned above the typed name.

Scott Miller
Remedial Project Manager
Superfund Remedial Branch, Section C
Superfund Division



Miller.Scott@epamail.epa.gov
01/04/2010 07:19 AM

To Jeffry_Wagner@URSCorp.com

cc

bcc

Subject Fw: Agrico Report Reviews

History: This message has been forwarded.

Jeff,
FDEP feedback on Agrico submittals FYI.
Scott Miller
Remedial Project Manager
Superfund Division
Superfund Remedial Branch
Section C
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
Phone (404) 562-9120
Fax (404) 562-8896
----- Forwarded by Scott Miller/R4/USEPA/US on 01/04/2010 07:18 AM -----

From: "Jean-Baptiste, Walsta" <Walsta.JeanBaptiste@dep.state.fl.us>
To: Scott Miller/R4/USEPA/US@EPA
Cc: "Kulakowski, Zoe" <Zoe.Kulakowski@dep.state.fl.us>, "Jean-Baptiste, Walsta" <Walsta.JeanBaptiste@dep.state.fl.us>
Date: 12/21/2009 10:39 AM
Subject: Agrico Report Reviews

Hi Scott,

Zoe Kulakowski of the Technical section has reviewed the Monitored Natural Attenuation in Groundwater report dated August 19, 2009 with the following comments:

"This report is satisfactory for its intended purpose and is technically acceptable. I concur with all three conclusions presented on page 2, including the dropping of arsenic and lead from the list of future analyses. Monitored Natural Attenuation (MNA) appears to be working for the Agrico plume as documented by declining groundwater concentrations.

I also concur with the conclusion that radium is not the result of Agrico's releases to groundwater, but from the passage of the plume and plume interaction with the aquifer sediments."

Zoe also reviewed the 2007 and 2008 Annual Reports prepared by URS Corporation and finds them acceptable.

Thank you,

Walsta Jean-Baptiste
Environmental Specialist II
Hazardous Waste Cleanup Section

Office Phone: 850-245-8973

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

January 25, 2010

Mr. Jeffry R. Wagner, P.G.
Vice President/Operations Manager
Principal Hydrogeologist
Environmental Group Manager
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, Florida 32317

Re: November 18, 2009, Requested O&M Plan Updates – Agrico Pensacola

Dear Mr. Wagner:

Thank you for the November 18, 2009, submittal of the "Recommendations to Operations and Maintenance Plans Operable Unit One (OU1) and Operable Unit Two (OU2)." EPA and FDEP approve these requested changes and look forward to working with you on their implementation.

If we may be of assistance in this matter, please contact me at (404) 562-9120.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Miller", is positioned below the word "Sincerely,".


Scott Miller
Remedial Project Manager
Superfund Remedial Branch, Section C
Superfund Division



Miller.Scott@epamail.epa.gov
01/04/2010 07:19 AM

To Jeffry_Wagner@URSCorp.com
cc
bcc

Subject Fw: Agrico Report Reviews

History:  This message has been forwarded.

Jeff,
FDEP feedback on Agrico submittals FYI.
Scott Miller
Remedial Project Manager
Superfund Division
Superfund Remedial Branch
Section C
U.S. EPA Region 4
61 Forsyth Street, SW
Atlanta, GA 30303
Phone (404) 562-9120
Fax (404) 562-8896

----- Forwarded by Scott Miller/R4/USEPA/US on 01/04/2010 07:18 AM -----

From: "Jean-Baptiste, Walsta" <Walsta.JeanBaptiste@dep.state.fl.us>
To: Scott Miller/R4/USEPA/US@EPA
Cc: "Kulakowski, Zoe" <Zoe.Kulakowski@dep.state.fl.us>,
"Jean-Baptiste, Walsta"
<Walsta.JeanBaptiste@dep.state.fl.us>
Date: 12/21/2009 10:39 AM
Subject: Agrico Report Reviews

Hi Scott,

Zoe Kulakowski of the Technical section has reviewed the Monitored Natural Attenuation in Groundwater report dated August 19, 2009 with the following comments:

"This report is satisfactory for its intended purpose and is technically acceptable. I concur with all three conclusions presented on page 2, including the dropping of arsenic and lead from the list of future analyses. Monitored Natural Attenuation (MNA) appears to be working for the Agrico plume as documented by declining groundwater concentrations.

I also concur with the conclusion that radium is not the result of Agrico's releases to groundwater, but from the passage of the plume and plume interaction with the aquifer sediments."

Zoe also reviewed the 2007 and 2008 Annual Reports prepared by URS Corporation and finds them acceptable.

Thank you,

Walsta Jean-Baptiste
Environmental Specialist II
Hazardous Waste Cleanup Section

Office Phone: 850-245-8973

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.



November 18, 2009

Sent via electronic mail to miller.scott@epa.gov

Mr. Scott Miller, RPM
U.S. Environmental Protection Agency (EPA)
Region 4
Atlanta Federal Center
61 Forsyth St SW
Atlanta, GA 30303-8960

**RE: Recommendations to Operations and Maintenance Plans
Operable Unit One (OU-1) and Operable Unit Two (OU-2)
Agrico Site
Pensacola, Florida
EPA ID # FLD 980221857**

Dear Mr. Miller:

As per discussions in Pensacola on October 6, 2009 during the Agency's Five-Year field inspection and project review, and subsequent follow-up via telephone discussion on October 14, 2009, URS Corporation (URS) *[on behalf of ConocoPhillips, Inc. (ConocoPhillips) and Agrico Chemical Company represented by the Williams Companies (Williams)]* is submitting the enclosed recommendations to the Agrico site Operations and Maintenance (O&M) Plans.

Background

The O&M Plans developed in 1996 and 1998 have been implemented for the past 12 years. For the OU-1 O&M Plan, the intent of the O&M tasks as written were to ensure that a well vegetated cover was established and that erosion controls mitigated any damage to the cap. In the past 12 years, a well established cover has been established on the 12 acre cap area as well as for the remaining area of the site. Erosion has been minimal and readily controlled since the final remedy was approved by EPA in April 1997. For these reasons, URS is recommending the following changes to the 1996 OU-1 O&M Plan that are more flexible, yet meets the same objectives:

- Maintain vegetation
- Maintain drainage control structures and control erosion
- Maintain site security control
- Maintain care activities



Mr. Scott Miller, RPM
U.S. Environmental Protection Agency (EPA)
November 18, 2009
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All of these objectives have been established and maintained over the past 12 years. The site is entering the thirteenth year under the 30 year regulatory care period. It is recognized that the OU-1 Record of Decision also provides for Post-Closure Care for an additional 30 years. Both ConocoPhillips and Williams have demonstrated that they are committed to the care of the site. We believe the recommendations presented herein will ensure the continued care for the site.

The following are recommendations for the September 20, 1996 Operation and Maintenance Plan for Operable Unit One:

RECOMMENDATION #1: Delete Drive-By Site Security

During the past 12 years, URS contracted with a local security company to provide bi-weekly drive-by security checks of the site. During this 12 year period, there has never been a security incident reported. URS believes that these security drive-by checks have very limited value and do not enhance site control. We do believe, however, that the more significant factors include the care of the property, i.e. it is well maintained via continued maintenance of the security fencing and locked gates, vegetative control, along with the continued periodic inspections by URS personnel (at least twice a month).

RECOMMENDATION #2: Change Schedule for Storm Water Under Drain Piping Cleanout to one per three years and/or as needed

Currently the O&M Plan calls for annual storm water drain cleanout. It is recommended that the clean out schedule be changed to on an as needed basis, and/or once every 3 years and then, only cleaned out if needed.

During the past 12 years, the annual inspection and cleanout has not yielded a single time where sediments have been found to be built-up in the under drain piping system. The only sediment build up in the under drain piping has been after the pipes have been jetted with water during the annual cleaning. Although minimal pressure is used to jet out the pipes, the gravel packing outside the pipes is very sensitive to jetting, and the result is that soil around a few manhole access points has been disturbed to the point where visible wash-outs occurred next to the manholes. These were subsequently repaired; the piping system has not been impaired. Based on the past 12 years, it is believed that the recommended schedule and clean out only as needed and/or once per three years, will serve better to maintain control of the under drain piping system and actually result in less potential negative impacts.

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U.S. Environmental Protection Agency (EPA)
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RECOMMENDATION #3: Change Reporting related to Semi-annual Site Inspections

This change is related to the documentation of inspections. Inspections will continue on a semi-annual basis with periodic inspections related to storm events. Currently a separate letter report is distributed to EPA twice a year that includes the results of the site inspection visits. In order to consolidate the documentation of the activities associated with this site, it is recommended that the results of the inspections conducted at the site, whether they are semiannual or related to storm events, be documented in the annual report and not submitted as separate letter reports after each separate event.

RECOMMENDATION #4: Change Mowing Schedule from a Rigorous Set Schedule to a More Flexible "As Required" Schedule

Currently the schedule calls for mowing the grass twice a month from May through October and once a month from November through March. It is recommended that more flexibility be allowed for the mowing schedule, i.e. "mow as necessary to maintain site care and control". The grass cover is well established and through the past 12 years has been well maintained. However, the rigorous schedule in the O&M plan is not always needed as stated. During periods of drought, a twice monthly mowing schedule is not needed. Likewise, during a warm, wet winter period twice a month or possibly more may be necessary. The recommendation is asking for flexibility in the mowing schedule with the objective of maintaining care of the site.

The following recommendation is related to Operable Unit Two Operations and Maintenance Plan dated November 1998:

RECOMMENDATION #5: Deletion of Surface Water Monitoring Station on Carpenter's Creek and designated as ACSW-BL

The original rationale for this station was for annual monitoring of Agrico Constituents of Concern (COCs) (especially nitrate/nitrate) upstream of Bayou Texar. These monitoring results are considered not to be site related but they are related to freshwater storm water input to Carpenter's Creek and thus input to the brackish Bayou Texar since the creek flows into the bayou. The sampling results are primarily affected by source and non-point source loading from the Carpenter's Creek drainage basin.



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Since the results for the past 12 years at the upstream, freshwater Carpenter's Creek station do not show significant concentrations of any Agrico COCs from sources upstream of Agrico, it is recommended that the annual sampling for this station be discontinued.

If you have any questions regarding these recommendations, please call. If you are in agreement with the proposed changes, please provide written approval. Your consideration of these recommendations is greatly appreciated.

Sincerely,

A handwritten signature in blue ink, reading "Jeffrey R. Wagner", is positioned above the printed name and title.

Jeffrey R. Wagner, P.G., V.P.
Principal Hydrogeologist

JRW/lc

cc: Terry Vandell-Bell
Phil Roberts

OCT 21 2009



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4

61 Forsyth Street
Atlanta, Georgia 30303-3104

October 15, 2009

Mr. Jeffry R. Wagner, P.G.
Vice President/Operations Manager
Principal Hydrogeologist
Environmental Group Manager
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, Florida 32317

Dear Mr. Wagner:

Thank you for the August 21, 2009, document entitled "Evaluation of Monitored Natural Attenuation (MNA) in Groundwater, Agrico Chemical NPL Site, Pensacola, FL". We were impressed with the effort taken to do the evaluation and generally agree with this approach. Our comments on this document are as follows:

1. There is some potentially troubling language near the bottom of page 17. Specifically, the text states "*Only data representing attenuating conditions are valid for calculating attenuation rates. This section provides a scientific and statistical basis for choosing which wells and data are suitable for evaluating MNA.*" This statement can be interpreted to indicate that data that do not fit a presupposed "attenuating condition" should be discarded from MNA analysis. Taken as a general statement (not specific to this site), this statement appears to advocate a selective use of monitoring data, rejecting sample points that are not showing concentration decreases as indicators (or not) of natural attenuation. Such selective data evaluation would bias an assessment of MNA. While it is true that attenuation rates could not be calculated in the absence of attenuation, it is obviously important to identify sample locations where there is no apparent concentration trend over time or for that matter, a potentially increasing concentration trend. Since the conceptual site model includes a cessation of the contaminant source and the concept of peak concentrations followed by a decline, the inclusion of all wells in an attenuation analysis is clearly inappropriate for this site. Regardless of that fact, the statement should be amended to indicate that it pertains specifically to the Agrico Chemical Site.

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2. On page 20, there is the following statement regarding the σ parameter:
“Small values indicate concentrations in the well are decaying at a consistent rate.” Is a small value necessarily associated with a consistent decay rate? Conceptually, the concentrations in the wells of particular interest are expected to decrease over time at this site (after the peak concentration has passed), but if the attenuation rate is extremely low, then a “small” value of σ becomes more important. In fact, a small σ would seem to not indicate anything regarding the decay rate as long as σ is large enough relative to the attenuation rate (or line slope).

Additionally, it is conceivable that large σ values would be associated with something other than, or in addition to, the decay rate. That is, while sampling and analytical variability are expected to be a relatively minor factor for a well run field program (as pointed out on page 20, under the heading **Estimating the parameters**), it is not inconceivable that variability attributable to the sampling and analysis (mostly sampling) will be substantial and not amenable to confident diagnosis as to the cause. Thus a large σ may not indicate anything definitive about the consistency of the decay rate.

3. On page 23, the text indicates an alternative method that that suggested by EPA was used to estimate cleanup times and their confidence limits. The report should indicate reasons why the alternative method was selected rather than following the procedure suggested by EPA. The report references Newell et al (2002) to make its case for the alternative procedure, but the approach for Agrico data analysis suggested by EPA Region 4 is that of Wilson (2008). If the objections raised on pages 23-25 to the Newell et al (2002) method are likewise applicable to Wilson's 2008 method, the text should indicate that is the case. If we understand the discussion on page 24 correctly, at least a part of the concern with the referenced EPA method is that it uses the most recent sample result (with a true concentration plus an error component) in the equation to predict a cleanup time, whereas the report proposes the alternative approach that only uses the regression model to predict the cleanup time, which avoids the bias inherent in using the most recent sample as the starting point for predicting the cleanup time. Is this the fundamental, or sole concern (conceptually) with the EPA approach discussed, or are there any additional conceptual concerns with the EPA approach?
4. On page 32, the text discusses dropping older data if there is a slowly accelerating decay rate and proposes a method for doing this. While this approach may be statistically valid, there is probably no practical reason for doing this, as long as the apparent decay rate prior to the gradual acceleration period is an acceptable degree of progress toward attainment of remedial objectives. That is, there is probably no “down side” to under-predicting the decay rate and over-predicting the time to attain to remedial objectives, as long as the progress toward attainment is already deemed acceptable. On the

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other hand, if there is a slowly decelerating decay rate, there may be a concern about over-predicting the decay rate. For this reason, the text on page 32 should be restructured to discuss the converse of the situation of a slowly accelerating decay rate.

5. Table I indicates that AC-2D, while appearing to be downgradient, is upgradient of the source area when the 3-D flow pattern is considered. Figure 4 indicates that at this well, the initial fluoride concentrations slightly exceeded 5 mg/L, and there has been an observable decrease in fluoride concentrations in AC-2D samples over the monitoring period. The water quality data imply that the well is downgradient of the source and EPA has already concluded that AC-2D is downgradient of the source.

A conceptualization of why there is and has been limited contamination observed at AC-2D despite its downgradient status and horizontal proximity to the source is that the well is so close to the source that the lateral component of advective flow carries the plume core through a shallower part of the aquifer past AC-2D before the vertical advective flow component has brought the plume core to the approximate depth of the AC-2D monitoring interval. This conceptualization of near-source advective transport should be the basis for a remark in Table I regarding the AC-2D status. AC-2D should be identified in the table as a plume fringe monitoring well.

6. On page 36, the statement is made "...we may conclude that **peak concentrations have already occurred in most of the area occupied by the plume**, especially in the areas of highest concentration." This conclusion is questionable. While peak concentrations have apparently been noted in wells that are along what is believed to be the plume centerline, or that are closest to the source area, there are many wells outside the plume core and/or the near-source area where the peak concentrations may or may not have yet been observed. In these areas, fluoride concentrations are relatively dilute, but the volume of contaminated groundwater is potentially greater than in the areas where peak concentrations have more demonstrably already been reached. Note that Table IV shows numerous wells without clearly identifiable peak concentration dates (or ranges). Additionally, there is a large volume of fringe plume area that is unmonitored and little can be said about the timing of the peak concentration there. The statement should be modified to more accurately represent what is known (or unknown) about the arrival of peak contaminant concentrations.

7. Text on page 36 that discusses "fringes of the plume" monitoring wells should note wells where fluoride concentration increases might be expected in the future. Examples of such wells include AC-10D and AC-14D. These two specific wells are identified based upon their distance from the source area, their distance from the plume centerline, and the appearance of increasing

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fluoride concentrations, at respectively, AC-22D and AC-12D, which are more or less upgradient of AC-10D and AC-14D.

8. On pages 41 and 42, more discussion is needed regarding the nitrate concentration. The text has a somewhat dismissive tone regarding nitrate, probably because the nitrate concentrations are generally much closer to the performance standard relative to the fluoride concentrations at wells with significant groundwater impacts. Yet the text indicates that nitrate appears to move more slowly than fluoride, such that "...definite peak concentrations in all wells have not yet been observed." This statement, if correct, first implies that some nitrate concentrations close to the performance standard in wells with presently low or nondetect fluoride concentrations are monitoring nitrate from some other source(s). Examples of such wells include AC-8D and AC-10D. This condition should be noted in the report. Additionally, since the text indicates that peak concentrations may not yet be present at some wells, the text should clearly state that when peak nitrate concentrations arrive, existing data indicate that such concentrations will not be much greater than the performance standard. This latter point may be considered obvious from a review of the Figure 7 plots, but the text should state that it is the case.
9. For the statistical evaluation of radium attenuation rates (page 42; Table VI), there is a lack of consistency regarding what data events were included, or excluded for each statistically evaluated monitoring point, and an incomplete explanation of why such inclusion or exclusion was done. Table VI does footnote the cases where some of the January 2004 results were included (the 2004 results are identified in the text as being excluded from the statistical evaluation), but it appears to be arbitrary to only include some of the data points from that sample period in the statistical calculations. What justifies inclusion of the January 2004 data at all, other than to have a less ominous estimate of the maximum duration of the cleanup period at certain wells? It is also unclear from the text and table why eight samples are included in the AC-30D statistical analysis when there are data that were collected from other wells that would allow for statistical analysis using the same sample size or range of dates of sample collection. The report and/or table need to include a better explanation of why different sample sizes were evaluated.
10. We do not fully concur with the statements made in the last paragraph on page 44 regarding monitoring frequency. For wells where the peak contaminant concentration has not yet occurred, more frequent monitoring prior to the time of peak contaminant concentration would not add to an understanding of the time needed to attain cleanup goals. However, once the peak concentration has been observed, more frequent monitoring would allow for an earlier predictive capability of the time needed for remedial action.

The report states "More frequent monitoring would not help identify when peak concentrations occur in wells: that depends on the progress of

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attenuation." We partially disagree with this statement. It is true that assuming a uniform decay rate, sufficient monitoring after the peak concentration will eventually identify declining concentrations, and monitoring results will eventually produce a reasonable estimated decay rate. With sufficient post-peak sample points available to establish a valid statistical basis for estimating cleanup times and uncertainties, the exact or approximate time at which the peak concentration occurred will be of no importance. However, this understanding of the anticipated progress of the remedial action may occur years after it would occur if there is more frequent monitoring that can identify the post-peak condition sooner and should more readily provide an adequate data set for statistical evaluation. Although the exact timing of the peak concentration may not be determined even with more frequent monitoring data, it is important at key wells to have sufficient monitoring data from the post-peak period to be able to statistically interpret cleanup progress sooner rather than later. More frequent monitoring may be especially useful if the attenuation rate at wells that are both outside of the plume centerline and far downgradient of the plume source are low and thus post-peak trends are more subtle than in wells closer to the source and along the plume centerline. One could probably conclude that because of the observed fluoride concentrations and its distance from the source area, well AC-25D will probably be the best predictor of the complete time needed to cleanup groundwater throughout the plume. However, it is not assured that the full duration of the remedial action is predictable by results from this well.

There are some key monitoring wells where the peak concentration has probably not yet been observed and that have infrequent monitoring; these wells include AC-9D and AC-24D. For the reasons listed above, I recommend more frequent monitoring at these wells, to more quickly establish when post-peak monitoring is occurring and thus more quickly be able to evaluate the cleanup progress at these wells. AC-28D is in somewhat the same status as AC-24D and AC-9D. However, because the most recent observed fluoride concentration at AC-28D is roughly an order of magnitude lower than the most recent fluoride concentrations at the other two wells, I do not recommend more frequent AC-28D monitoring at this time. As AC-28D and other less frequently monitored wells continue to be evaluated, there is a possibility that future changes in monitoring frequency in such wells will also be indicated.

If we may be of assistance in this matter, please contact me at (404) 562-9120 or via Internet e-mail at miller.scott@epa.gov.

Sincerely,



Scott Miller

Remedial Project Manager

Superfund Remedial Branch, Section C



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960



September 2, 2008
Mr. Jeffry R. Wagner, P.G.
Vice President/Operations Manager
Principal Hydrogeologist
Environmental Group Manager
URS Corporation
1625 Summit Lake Drive, Suite 200
Tallahassee, Florida 32317

Re: Agrico OU-1 semiannual sampling event in response to
June 28, 2000, Five-Year Review

Dear Mr. Wagner:

EPA approves the August 19, 2008, e-mail request from you to discontinue the OU-1 semiannual sampling event required by the June 28, 2000, Five-Year Review and continue with the integrated networks as was started in 2007.

The statistical evaluation confirmed the integrity of the containment system with five years of data, 1997 to 2001, and was further confirmed by data collected since 2001 with an additional seven years of data.

If we may be of assistance in this matter, please contact me at (404) 562-9120 or via Internet e-mail at miller.scott@epa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Scott Miller".

Scott Miller
Remedial Project Manager
Superfund Remedial Branch, Section C
Superfund Division

5.1 BACKGROUND

With the implementation of the OU-1 source control, impacts upon groundwater from the soils are eliminated and concentrations in the ground water are expected to attenuate downgradient, resulting in decreasing concentrations with time.

Following the implementation of remedial actions for OU-1 and as part of the O&M plan requirements (Appendix I-September 1996) for OU-1, EPA required that the monitoring for groundwater for OU-1 be separate and distinct from the ground water monitoring requirements in OU-2.

Baseline data was collected semiannually for a period of five years (1997-2001) in order to determine concentration variability. Based on the 5 years of data collected during annual seasonal extremes in the water level hydrograph (May – highs, November – lows), a statistical evaluation was conducted to evaluate the integrity of the OU-1 containment remedy. This report presents the 2001 sampling results and the results of the statistical evaluation for the five years of data.

The statistical procedures utilized to evaluate the data are the procedures established in 40 CFR 264 Subpart F and are adapted from the Interim Final Guidance for Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities. Application of this methodology is intended to evaluate if the OU-1 remedy has eliminated continuing releases to groundwater.

5.2 METHODOGY

The choice of an appropriate statistical test depends on the type of monitoring and the nature of the data. When a site in compliance monitoring has a constant maximum concentration limit or performance standard, the appropriate comparison is with the constant. Section 5.2.1 discusses the comparison of the compliance well data to the performance standard. When a site has collected multiple years of compliance data, it may be also useful to perform intra-well comparisons over time to supplement other methods. This type of analysis is presented in Section 5.2.2.

URS has elected to use both of these tools to evaluate the Agrico OU-1 monitoring well data sets. These data sets have been generated through semi-annual ground monitoring conducted at the site from May of 1997 through November 2001. These data are presented in Table 3. These evaluations show that the concentrations results are decreasing.

In order to further evaluate the data, trend analysis were performed on the 5-year data set. The results of these analyses are presented in Section 5.2.3.

5.2.1 Comparison of Compliance Well Data to Performance Standards

This statistical procedure is appropriate when the monitoring is designed to determine whether ground-water concentrations of hazardous constituents are below or above fixed concentration

limits. In this situation, the Performance Standard is a specified concentration limit rather than being determined by the background well concentrations.

The performance standards for this site are as follows:

Arsenic	0.05 mg/L
Lead	0.015 mg/L
Fluoride	4 mg/L

The control charts found in Figure 6, indicate the sampling dates where the concentrations are above the specified performance standards. As of the last sampling event, the only performance standard, which is currently being exceeded, is fluoride in monitor well AC-7SR.

5.2.2 Intra-Well Comparison

Control charts are used for intra-well comparisons because it can be an effective technique for monitoring the levels at a well over time. An important application of the plotting procedure is in detecting possible trends or drifts in the data from a given well. Also, when visually comparing the plots from several compliance wells, variations in concentrations at different locations of the site can be detected.

Inspection of the graphic presentations of the data in Figure 6 indicates that the concentrations of all of the constituents of concern are decreasing over time. As of the latest sampling episode, the concentrations of all constituents are below the established performance standards with the exception of fluoride in monitor well AC-7SR. The concentration of fluoride in AC-7SR has decreased over time from a value of approximately 5 times the performance standard to a value which is approaching the performance standard.

5.2.3 Trend Analysis

Trend analyses can perform using a variety of statistical tests. However traditional, tests produce biased estimates from the outlier ground water data. Therefore, for ground water data, the most appropriate trend estimator is a non-parametric type. Because of the differences in the concentrations results for the three constituents evaluated, two different non-parameteric methods were used to analyze the trends of the 5 years of data for the ground water monitoring wells immediately downgradient of OU-1. The trend analysis was not performed on the background wells since all results were less than the detection limit indicating no upgradient impacts to OU-1.

The Sen's Test was applied to fluoride, arsenic, and lead results. This test proved unsuitable for the arsenic and lead data. It was suitable for the fluoride data and indicated a positive downward trend for AC-34S. The results of the calculations for this test are presented in Appendix C.

The Mann-Kendall Test was applied to lead and arsenic data. This test uses only the relative magnitudes of the data rather than the measured values, therefore rendering the data sets suitable for trend analysis. A positive downward trend was indicated for arsenic and lead data associated for AC-7SR no trend was indicated for AC-33S or AC-34S for arsenic and lead. The reason for no trend is that all result have been non-detect (constant value) except for a detection in AC-33S for arsenic and lead in May 1999 in which both values were less than the performance standard (Table 3). The test results are presented in Appendix C.

5.3 SUMMARY AND CONCLUSIONS

Two statistical procedures were utilized to evaluate the performance monitoring data from OU-1. These procedures are established in 40 CFR 264 Subpart F and are adapted from the Interim Final Guidance for Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities. The data that has been evaluated has been the result of sampling and analysis of three compliance and two background wells on a semi-annual basis for the past five years.

At this time only Fluoride in Well AC-7SR exceeds the established performance standard. Evaluation of the available data indicate that fluoride in monitor well AC-7SR has decreased over the time period monitored, to a value which is approaching the performance limit. Values obtained in future monitoring events are expected to show that the performance standards are being met in each of the compliance wells.

This evaluation demonstrates that the remedy for OU-1 is effective.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4



61 Forsyth Street
Atlanta, Georgia 30303-3104

January 22, 2007

4SD-TSS

MEMORANDUM

SUBJECT: Agrico Site, Pensacola, Florida

FROM: William N. O'Steen, Environmental Scientist
Technical Services Section, Waste Management Division

TO: David Keefer, Remedial Project Manager
Superfund Remedial and Technical Services Branch

This memorandum responds to your request for a review of the document **Evaluation of Long-Term Groundwater monitoring Network, Agrico Site OU-1 and OU-2, Pensacola, Florida**. For your convenience, comments on this document are itemized and are referenced to specific sections or pages of the report, as applicable. If you have any questions about this memorandum or need additional hydrogeologic technical assistance on this project, please contact me.

1. Point 5 in the Executive Summary on page ES-2 should add that the limited extent of the surficial aquifer plume is caused by the significant downward vertical component to contaminant transport. Additionally, a statement should be added that indicates the generally decreasing concentrations in the surficial monitoring zone are a result of Agrico OU-1 source control measures.
2. Point 11 in the Executive Summary on page ES-2 could also note the occurrence of radium in concentrations of concern at other locations in the Pensacola area, outside the area impacted by Agrico contamination.
3. I disagree with wording presented in point 3 on page ES-3 of the Executive Summary. Specifically, I would instead state that the Agrico plume is adequately rather than well defined and remove the term "limited" from the point. The comment about the plume being well defined has applicability elsewhere in the report (e.g. elsewhere on page ES-3; page 8-6). The report should remove the word "well" when referring to the definition of the plume extent and use the word "adequately" instead. This comment is made because of the inherent uncertainty in main producing zone vertical plume zonation and localized areas of relatively high concentration within the overall Agrico plume footprint. These factors are conceptually valid but have not

- been confirmed through detailed monitoring of the Agrico plume in the main producing zone at multiple depth intervals at a specific location, or through closely spaced monitoring along a transect at right angles to the generally eastward plume movement that could define localized variations in plume characteristics caused by lateral variations in aquifer hydraulic properties.
4. With regard to point 9 on page ES-3, the text should indicate that the Agrico waste stream is not the principal source of the observed radium. There may be some relatively minor and environmentally inconsequential contribution of radium from Agrico to the radium ground-water contamination observed in the Agrico plume.
 5. I concur with recommendations presented on the last two pages of the Executive Summary and later in the summary section of the report.
 6. For Figure 9, the plot of the fluoride data for MW-AC-34S shows an increase in fluoride concentrations over the last four sample events, compared to multiple sample events before this period. This increase is a concern and needs to be considered as to its possible causes or implications.
 7. Concentration trends at AC-25D are a concern and need further evaluation. Section 8 on page 8-11 does not convey the fact that several key contaminants of concern are at historic high concentrations over the last three AC-25D sample events (reference Figure 10). The change in concentrations at this location need to be discussed in the context of the overall changes in concentrations over time across the plume area, expected concentration changes over time based on a conceptual understanding of the Agrico source, plume, and contaminant transport, and similar factors. The same comment applies to concentration trends at nearby well AC-35D.
 8. On page 8-2, the text states that water chemistry at well AC-2S is different from other surficial zone locations. The paragraph then continues by listing individual constituents associated or potentially associated with the Agrico plume and their recently observed concentrations. The wording of the text implies that the listed concentrations are dissimilar from observed concentrations at other surficial aquifer monitoring locations. This situation applies to some, but not all of the listed contaminants. For example, the fluoride concentration at AC-2S is clearly different from fluoride observed at other monitoring wells. Conversely, the chloride concentration at AC-2S is comparable to chloride observed in samples from other shallow monitoring wells. The first sentence needs to identify specific contaminant concentrations that are clearly unique to AC-2S.
 9. On page 8-10, the discussion of data from well AC-2D indicates that this well is upgradient of the surficial zone plume diversion area and upgradient of the first occurrence of plume impacts to the main producing zone off-site. These statements may not be entirely correct. In particular, fluoride data from AC-2D indicate some possible impacts from Agrico, although relatively inconsequential. The correct statement may be that AC-2D is at the fringes of vertical plume movement from the surficial zone into the main producing zone. Note that if it is not positioned thusly, the following statement is incorrect (bottom of page 8-9) "This indicates that...attenuation is occurring immediately downgradient of the site." If AC-2D is completely outside the Agrico plume as indicated on page 8-10, it cannot demonstrate plume attenuation.

10. With regard to the page 8-10 analysis of AC-3D data, results shown on Figure 10 are not clear cut regarding a continuing downward trend in data for several constituents. Following what appears to be a downward trend in constituent concentrations around the time of OU-1 remedy implementation, concentrations of several constituents have either stabilized or increased somewhat compared to historic low levels observed in late 1999. While the combined radium data show a rather dramatic increase to pre-remedial levels over the last few sampling events, all of the other constituents shown on Figure 10 appear to have had stable concentrations over the last few sampling events. The discussion of the AC-3D data needs to more clearly state what is happening with contaminants other than radium.
11. AC-12D data seem to have a similar history as data from AC-3D. Specifically, the data show decreases in constituent concentrations after the OU-1 remedial action, followed by some increases above historic low concentrations. Several contaminants have apparently stabilized at concentrations either less than historic high values or approaching those values. The text describes the trends at AC-12D as cyclic. This characterization may be correct. However, it is not clearly demonstrated.

The condition of concentrations declining around the time of OU-1 remedy implementation then increasing above historic low levels may also apply to main producing zone wells in addition to AC-3D and AC-12D. If so, it further suggests some widespread factor is responsible for the depressed concentrations observed during the period shortly following OU-1 implementation, rather than the remedial action causing such decreases. This possibility should be considered when evaluating the time-concentration data for the main producing zone.

12. On page 7-4, the text indicates that for NWD-4D, concentrations observed in the well are not related to the Agrico plume, based on documented hydrogeologic evidence. Text on page 8-12 likewise indicates this well is outside the Agrico plume. NWD-4D concentration increases of several constituents associated with the Agrico plume are attributed to some other source. There should be a more specific statement in this document regarding the information that excludes the Agrico contamination as being the cause or a potential cause of concentration increases at NWD-4D.
13. I note that with regard to the Escambia Treating (ETC) naphthalene contamination discussed in Section 9 on page 9-3, subsequent investigation and conceptual model refinement have led EPA to conclude that the apparent sporadic nature of ETC-derived organic contamination is the result of spatially variable, discrete zones of more significant naphthalene transport within the aquifer, and that some of the ETC monitoring wells have apparently been screened at depths that do not coincide with the core of the ETC plume at that location.
14. At the top of page 11-4, the discussion of fluoride concentrations at AC-2S needs revision. Fluoride concentrations have decreased at this location relative to the peak concentration from 2002, but have not steadily decreased since the source was remediated.

*Excerpt from November 30, 2006 Technical Memorandum Report –
Evaluation of Long-Term Groundwater Monitoring Network
Agrico Site, Pensacola, Florida*

Key Recommendations

Table 4 of this Report identifies each of the Agrico monitoring wells and describes their purpose and any specific modification recommended to the network. Key recommendations are presented below.

1. Groundwater monitoring is an effective means of evaluating the Agrico natural attenuation remedy and should continue as designed, except for the modifications requested as part of this Report.
2. The availability of a groundwater model specifically developed for Escambia County hydrogeology allows for new proposed modeling that could more rigorously simulate aquifer conditions and provide better estimates of time of remediation for the Agrico plume. This tool would provide a means to verify and substantiate future Five-Year Reviews and water quality observations. It is recommended that the modeling, as proposed, be implemented.
3. It is recommended that the OU-2 COCs be added to the OU-1 parameters for all OU-1 surficial zone monitoring wells to assist in the demonstration that the surficial zone of the aquifer is cleaning up. Therefore, the OU-1 analytes would include lead, arsenic, fluoride, chloride, sulfate, nitrate, radium 226, and radium 228. Since the OU-1 network is sampled biannually, it is recommended that the extended analyte list apply only to the November event to coincide with the annual event for the OU-2 wells. Following the next Five-Year Review, the monitoring network would again be evaluated and recommendations for modifications suggested.
4. It is recommended that the analysis for nitrate + nitrite (Method 353.2) be discontinued and replaced with analysis for nitrate, as nitrogen (Method 353.2), reporting nitrate only. Nitrite was analyzed for in all groundwater samples during the January 2004 sampling event and found to be below detection levels. In the past, it has been argued that the performance standard should be the lower nitrite drinking water standard, but since nitrite is not present, the performance standard of 10 milligrams per liter (mg/L) is the appropriate standard, since it is applicable to nitrate.
5. It is recommended that the use of selected surficial zone long-term monitoring wells as long-term monitoring wells be discontinued, and they be changed to periodic monitoring locations. The locations are such that the surficial zone plume will not be transported to these areas. These locations include **NWD-2S**, **AC-24S**, **AC-26S**, **NWD-4S**, and **AC-5S**. **NWD-2S** was destroyed as of November 2006. A replacement well is not recommended.
6. Future monitoring results outside the southern edge of the Agrico plume should be closely scrutinized due to the possibility of the Kaiser main producing zone plume potentially impacting this downgradient area, including the groundwater discharge to Bayou Texar. The wells to be closely evaluated for trends are **AC-8D** and **AC-36D**.

Executive Summary

7. It is highly recommended that FDEP continue their assessment of the Kaiser site and fully define the extent of impacts for both the surficial and main producing zones of the aquifer.
8. Due to the uncertainty and unknowns associated with the radium 228 concentrations, it is recommended that joint discussions with EPA be held to discuss a suitable path forward for this constituent. There are aspects of the radium results that must be more thoroughly evaluated before a conclusion can be reached as to whether concentrations are increasing. It must also be evaluated whether some mechanism other than the former site conditions is the cause of the elevated radium 228 concentrations. These other factors need to be evaluated, since they may impact the time for remediation.
9. It is recommended that radium analyses be performed by STL-Richland for at least the next five years to avoid results potentially influenced by analysis techniques used by different laboratories. Consistent use of a single laboratory over a five-year period will allow better assessment of data trends for radium 228 and radium 226. This may also address the reason for the large variability over time for the radium 228:226 ratio for individual wells.
10. It is recommended that the site O&M Plan be modified to allow for the use of FDEP Standard Operating Procedures (SOPs) related to well purging procedures.
11. It is recommended that the OU-1 Annual Report be combined with the OU-2 Annual Report, whereby one Annual Report would be produced reporting the annual Agrico groundwater monitoring results.

APPENDIX E

OU-1 Bi-Annual Inspection Report

Agrico Chemical Site Pensacola, Florida

ROUTINE FACILITY INSPECTION CHECKLIST AGRICO CHEMICAL SITE, PENSACOLA FLORIDA	SATISFACTORY	UNSATISFACTORY	DATE CORRECTED	INITIALED	REMARKS
GENERAL FACILITY AREA					
Gates and Locks Secured	X				All gates and locks are secure and in proper working condition.
Perimeter Fencing	X				Fence is in good condition. Some baarbed-wire east of the main gate is damaged due to falling tree limbs. No site access issues.
Signage	X				Signs are in place and in good condition.
Roadway Conditions	X				All roadways are in good condition.
COVER SYSTEM					
Surface Water Runoff Controlled	X				In good condition.
No Ponding Water On Cover	X				None observed.
No Sideslope or Top Erosion or Gullying	X				None observed.
Topsoil and Vegetation Intact	X				In good condition.
Settlement/Cracking Inspection	X				No settling or cracking observed.
SURFACE WATER COLLECTION SYSTEM					
No Obstructions of Culverts or Inlets	X				None observed.
Inlet Sediment Controls Intact	X				In good condition.
No Erosion of Drainage Ditches or Berms	X				None observed.
Detention Ponds Draining Adequately	X				Only the north pond contains water. South Pond has scattered wet areas.
Side Slope Erosion of Detention Ponds	X				South and north walls of south pond have some minor erosion along base of slope which is beginning to grow over with vegetation.
Leaks, Structural Damage to Inlets, Culverts, or Pipes	X				None observed.

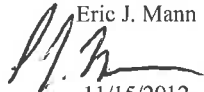
INSPECTION PERIOD: November 2012 Bi-Annual Inspection Report

INSPECTED BY:

NAME:

SIGNATURE:

DATE:

Eric J. Mann

 11/15/2012

OU-1 Bi-Annual Inspection Report

Agrico Chemical Site Pensacola, Florida

ROUTINE FACILITY INSPECTION CHECKLIST AGRICO CHEMICAL SITE, PENSACOLA FLORIDA	SATISFACTORY	UNSATISFACTORY	DATE CORRECTED	INITIALED	REMARKS
GENERAL FACILITY AREA					
Gates and Locks Secured	X				All gates and locks are secure and in proper working condition.
Perimeter Fencing	X				Fence is in good condition. Some baarbed-wire east of the main gate is damaged due to falling tree limbs. No site access issues.
Signage	X				Signs are in place and in good condition.
Roadway Conditions	X				All roadways are in good condition.
COVER SYSTEM					
Surface Water Runoff Controlled	X				In good condition.
No Ponding Water On Cover	X				None observed.
No Sideslope or Top Erosion or Gullying	X				None observed.
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SURFACE WATER COLLECTION SYSTEM					
No Obstructions of Culverts or Inlets	X				None observed.
Inlet Sediment Controls Intact	X				In good condition.
No Erosion of Drainage Ditches or Berms	X				None observed.
Detention Ponds Draining Adequately	X				Only the north pond contains water. South Pond has scattered wet areas.
Side Slope Erosion of Detention Ponds	X				South and north walls of south pond have some minor erosion along base of slope which is beginning to grow over with vegetation.
Leaks, Structural Damage to Inlets, Culverts, or Pipes	X				None observed.

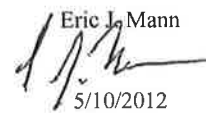
INSPECTION PERIOD: May 2012 Bi-Annual Inspection Report

INSPECTED BY:

NAME:

SIGNATURE:

DATE:

Eric J. Mann

5/10/2012