URS

April 6, 2012

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: **2011 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 ConocoPhillips, Inc., merger successor to Conoco, Inc. and Williams representing Agrico Chemical Company is submitting this 2011 Annual Report for the Agrico site in Pensacola, Florida. This report presents the results of O&M activities conducted during 2011 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.

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URS has uploaded the electronic data for 2011 to the EPA DART system as per the guidance memorandum from EPA Region 4's Superfund Division Director requiring that all future 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 (ConocoPhillips) at (580) 767-6561 or Mr. Phil Roberts (Agrico Chemical Company Representative) at (918) 573-0757.

Sincerely,

Jeffry 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 – ConocoPhillips
Sheron Rundall – West Florida Public Library

REPORT

2011 ANNUAL REPORT

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

EPA ID: FLD 980221857

Prepared for

ConocoPhillips, Inc.
Ponca City, Oklahoma

and

Williams, Inc. on behalf of
Agrico Chemical Company
Tulsa, Oklahoma

April 6, 2012

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Certification By
Florida Registered Professional Geologist

In accordance with Chapter 492, Florida Statutes, the geologic aspects of this *2011 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.

Jeffry R. Wagner, P.G. V.P.
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3/29/12

JEFFRY R. WAGNER
No. 156
STATE OF
FLORIDA
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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 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 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 provides 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. 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 2011 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 (NWFWMD).
- 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 2011 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 2011 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 2011 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 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. The 2011 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.

Groundwater Levels

Results of water level measurements collected in November 2011 indicate that groundwater flow remains toward Bayou Texar for both the surficial zone and main producing zone. In 2011, 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 2011 indicated that fluoride

concentrations were less than 1 milligram 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 2011, no additional irrigation wells were identified from the Northwest Florida Water Management District (NWFWMD) well construction permit records. The well construction moratorium initiated in February 2001 is still in effect.

To date, 59 irrigation wells have been identified within the OU-2 area. These wells were identified from NWFWMD 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 (NWFWMD)

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 2012, with a report to follow in March 2013. 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 2011 supports a continuation of the existing O&M/Monitoring Program for the Agrico site.

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

URS Corporation (URS) has prepared this 2011 Annual Report on behalf of ConocoPhillips, Inc. (ConocoPhillips) and Agrico Chemical Company represented by Williams Companies, Inc. (Williams). 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 thirteenth 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 2011 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 2011, 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 2011, 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 (NWFWMD); 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, NWFWMD, 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 NWFWMD 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 2011 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 inhibit 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).**

The chronology associated with Action Item 6 is as follows:

July 2005	EPA recommended site–specific benthic community analysis or sediment toxicity testing for Bayou Texar in the Second Five-Year Review Report. The recommendation is based on a SLERA conducted by the USACE.
November 7, 2006	An evaluation of existing information was performed and presented in the URS Technical Memorandum, "Evaluation of Studies on Benthic Community Analysis and Sediment Toxicity Testing Conducted for Bayou Texar". The memo identified the chemical constituents detected in Bayou Texar sediments and concluded that a variety of non-point pollutant sources were responsible for the impacts to the bayou.
December 12, 2006	EPA issued a response and evaluation of URS' Technical Memorandum, "Evaluation of Studies on Benthic Community Analysis and Sediment Toxicity Testing Conducted for Bayou Texar". The response called for definition of actual or potential contribution of site related contamination to ecological risk.
May 7, 2007	A conference call to discuss EPA's comments to URS' Technical Memorandum, "Evaluation of Studies on Benthic Community Analysis and Sediment Toxicity Testing Conducted for Bayou Texar" was conducted. EPA and URS agreed that URS would prepare a conceptual technical approach.
June 7, 2007	URS submitted conceptual CSM approach letter to EPA.
June 27, 2007	EPA responded in a letter that the proposed Conceptual Site Model approach for evaluation of the potential effects of fluoride on ecological receptors in Bayou Texar was acceptable.
September 17, 2007	URS submitted to EPA the following report -"Conceptual Site Model Describing Fluoride Bioaccessibility in Bayou Texar Surface Sediments". In Section 7 of this report, Table 3 provides a detailed description of the route of entry.
September 20, 2007	A conference call was held to discuss the CSM document. EPA questioned whether the dissolved fraction of fluoride in the sediment pore waster was the primary exposure pathway to benthic receptors. EPA also questioned whether the top 10 cm of sediment was the appropriate exposure regime to be evaluated for benthic macroinvertebrates. EPA requested supporting documentation from literature for both.
October 1, 2007	A detailed letter and reference documents from URS was submitted to EPA providing the scientific basis for the conceptual site model. This included references and a CD with guidance manuals from EPA supporting the CSM approach. Included was supporting information on (1) fluoride in the dissolved phase being the primary exposure pathway and (2) the exposure regime being the top 10 cm of sediment.
October 3, 2007	EPA, via a conference call, indicated general agreement with the September 17, 2007 Conceptual Site Model.
December 14, 2007	The "Conceptual Site Model Sampling and Analysis Plan (SAP)" was submitted to EPA. The plan provided details on the collection and analysis and interpretation of results for proposed surface water, sediment and pore water chemistry data. The data would address data gaps in the CSM that were identified in the September 2007 CSM document.
May 19, 2008	EPA presented to URS the April 22, 2008 FDEP comments on the December 14, 2007 SAP Work Plan.
May 27, 2008	EPA in a letter approved the Phase I SAP Work Plan.
July 16, 2008	A letter amendment to the December 14, 2007 "Conceptual Site Model and Analysis Plan" was submitted by URS to EPA and FDEP as a result of the April 22, 2008 FDEP comments. This letter served as an amendment to the December 14, 2007 CSM SAP. EPA verbally approved the amendment since it addressed FDEP comments.

August 2008	During August 2008, the Phase I SAP was implemented. After review of the Phase I results, Phase II sampling was recommended.
October 2008	URS presented a PowerPoint presentation to EPA via conference call that highlighted the Phase 1 results and presented a recommendation for a Phase 2. EPA agreed during the call that reporting of Phase 1 data could be reported with the Phase 2 data report.
December 4, 2008	The" Phase II Work Plan for Characterizing Pore Water in the Biotic Zone of Bayou Texar" was submitted to EPA.
January 7, 2009	A letter, "Clarification of Sampling Information for Phase II Bayou Texar Assessment of Biotic Zone (Amendment to the December 4, 2008 Phase II Work Plan)" was submitted to EPA.
March 10, 2009	EPA issued a Memorandum by Bill Osteen (EPA) entitled "Review of Pore Water Fluoride Contamination beneath Bayou Texar, Pensacola, Florida and Recommendations for Phase II Sampling. EPA recommended nine alternate sampling locations, and collection of sediment grain-size analysis at each sample location. EPA concluded that it is necessary to determine the percent of the total discharge area where the CSM does not apply due to higher groundwater flux.
March 24, 2009	In a conference call, the PRPs agreed to include the March 10, 2009 Memo recommendations into the Phase II Sampling Plan.
March 24, 2009	EPA issued a letter approving the Phase II Sampling Plan.
April 17, 2009	URS sent the amended Phase II Work Plan letter to EPA expanding Phase II sampling effort per EPA's March 10, 2009 request letter. The number of pore water samples was increased from 26 to 35, and it was agreed that surface water samples would be collected. URS also agreed to collect sediment samples for grain size analysis.
April 24, 2009	URS provided project overview and summary of Phase II Work Plan and associated documents to Linda George (EPA).
May 5 -12, 2009	The Phase II sampling was conducted. Sampling was observed by Linda George and Scott Miller.
September 4, 2009	The results of Phase I and Phase II were submitted to EPA in the report "Conceptual Site Model Ecological Impact Evaluation of Bayou Texar Downgradient of Agrico's Groundwater Fluoride Plume".
October 22, 2009	A review of the Site-Specific Toxicological Benchmark for Fluoride prepared by URS was submitted to EPA.
October 23,2009	EPA issued initial comments regarding the September 4, 2009 evaluation report
January 4, 2010	EPA distributed FDEP comments on the September 4, 2009 evaluation report
January 15, 2010	A conference call was held with EPA and FDEP to discuss comments on the September 4, 2009 evaluation report.
January 19, 2010	URS resubmitted the October 1, 2007 letter to EPA for the purpose of redistribution. This detailed letter provided the scientific basis for the conceptual site model that was discussed with and accepted by EPA in 2007. It provides the scientific basis for the conceptual site model for Bayou Texar including information on (1) fluoride in the dissolved phase being the primary exposure pathway and (2) the exposure regime being the top 10 cm of sediment.
March 13, 2010	EPA and FDEP issued a preliminary memorandum with suggested toxicity testing for Bayou Texar
April 20, 2010	URS presented and reviewed findings of the Bayou Texar evaluation at a meeting with FDEP and EPA in Tallahassee. Presentation wrap-up resulted in future

	sampling and monitoring recommendations being developed and agreed to by all parties. FDEP and EPA withdrew toxicity testing suggestion for Bayou Texar. The Bayou Texar sampling recommendation was implemented in the November 2010 annual sampling event.
June 30, 2010	EPA issued the Third Five-Year Review Report for the Agrico site. The review included the recommendation agreed to during the April 20, 2010 Tallahassee meeting.
September 20, 2010	EPA-Athens confirmed the SWAC calculation result from the URS September 4, 2009 evaluation report.
September 20, 2010	EPA approved the September 4, 2009 evaluation report bringing closure to the 2005 Action Item #6.

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 administrating 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.

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 covenants filed for the property.

2.3 DOCUMENT REPOSITORY

The EPA maintains site information at the West Florida Regional Library. 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
200 W. Gregory Street
Pensacola, Florida 32501
850-435-1763

EPA also has site information located at www.epa.gov/region4/waste/npl/nplfln/agricofl.htm web site.

A site 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.

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.

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.
- Cover system inspection.
- Topographic survey (as needed); a topographic survey was previously completed in April 2002.
- 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**).

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.

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. These past storms have not compromised the integrity of the cap.

The inspection reports for May and November 2010 are presented in **Appendix E**.

2.5.2 Groundwater Monitoring

The surficial zone of the Sand-and-Gravel aquifer is monitored immediately downgradient of the containment 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 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

* 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.
** 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
MCL = maximum contaminant level

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**. This area encompasses a larger area than the area 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, or 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 irrigation 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 NWFWMD moratorium for construction of irrigation 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)

* 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.
** 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.

mg/L = milligrams per liter
pCi/L = pico Curies per liter
MCL = maximum contaminant level

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 (NWFWMD, 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 an abandoned 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), and a group of phosphate-bearing minerals called apatite. The general formula for apatite is Ca5 (PO4)3(OH,F,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 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 NWFWMD. Information concerning the discharge boundary for Bayou Texar is found in the following references:

- NWFWMD. (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.

- NWFWMD. April 1996. Analysis of Ground Water Availability in the Cordova Park Area, Southeastern Escambia County, Florida.
- NWFWMD. (Richards, Pratt, and Milla). December 1997. Wellhead Protection Area Delineation in Southern Escambia County, Florida. Water Resources Special Report 97-4.
- NWFWMD. (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.
- NWFWMD. (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 2011 was characterized by below average normal rainfall (61.53 inches based on 1900-2011 period of rainfall record), with a total accumulation of 48.68 inches. Above normal rainfall has occurred for two consecutive years (2009 and 2010). During 2006, rainfall was the lowest for the past five-year period, with a total of 45.26 inches, or 16.41 inches below normal. The hurricanes during 2005 produced a very wet year, with an annual total of 87.32 inches, or 25.65 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 water levels subsequently declined in 2006 and 2007.

The field activities associated with this 2011 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 2011 are as follows:

- Annual groundwater sampling (November 2011) 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 NWFWMD 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 NWFWMD well construction permits records to identify any potential new well construction downgradient of the Agrico site. Also annual inquiry on status of NWFWMD 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 2011. The total number of monitoring wells sampled for November 2011 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 to 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), formerly Industrial Water Services (IWS), Inc. of Jacksonville, Florida, 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 was picked up and transported for disposal on November 29,2011.

4.1.7 Water Level Measurements

In November 2011, 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, 2011. 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 2011 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 2011:

- 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 2011 (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)

CONSTITUENT	ANALYTICAL METHOD
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 2010, efforts continued to identify new irrigation wells. No additional new wells were identified by searching the NWFWMD's well construction permit file. Also, no irrigation well owners requested their wells to be sampled or abandoned.

For 2011, a review of the NWFWMD 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 November 4, 2011, 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 NWFWMD, 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, 2011 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 (NWFWMD)
- 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 November 4, 2011 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 (NWFWMD), 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 NWFWMD, including wells used for lawn irrigation, may have certain specific conditions or limitations attached.

On February 22, 2001 the NWFWMD 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 2011. NWFWMD 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 2011.

6.3 IRRIGATION WELL ABANDONMENT LOCATIONS

No irrigation wells were abandoned during 2011.

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 (NWFWMD)

   On February 22, 2001, the NWFWMD 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 2010 and is expected to continue for 2011.

   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).

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 NWFWMD 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 NWFWMD. 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 December 13, 2011, 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 – NWFWMD
- 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 December 12, 2011, FDOT was sent an annual inquiry regarding construction activities. On December 13, 2011, 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)**

The NWFWMD responded to the December 13,2011 memorandum on January 31, 2012 requesting that Guy Gowens' name be replaced with Kathleen Coates for any future distribution.

To:	Karen Shea (FDEP NW District) Walsta Jean-Baptiste (FDEP, Tallahassee) Tim Haag (ECUA) Danny Majors (ECUA) Guy Gowens (NWFWMD) 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:	December 12, 2011
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 (NWFWMD). On February 22, 2001 the Northwest Florida Water Management District (NWFWMD) 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 NWFWMD 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 has 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 (NWFWMD) 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, NWFWMD). 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 NWFWMD 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 2010 Annual Report was distributed to you in June 2011. The 2011 Annual Report is currently in preparation and will not be submitted until the second quarter of 2012. 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. 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 dermersal 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. Thirteen 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. **Please note this is a new email address.** Your assistance in this cooperative effort is greatly appreciated.

If you have any questions, please contact me at (850) 574-3197.

JRW/lc

cc: Scott Miller, EPA Region 4

8.1 GROUNDWATER SAMPLING RESULTS

The November 2011 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.

The groundwater results for the identified COCs detected in the surficial and main producing zones for the site-wide monitoring wells are provided in **Table 8**. **Figures 8** through **17** shows the concentration trends for each of the long-term monitoring locations.

Surficial Zone

The following summarizes the November 2011 water quality data from the 7 surficial zone monitoring wells. *Note that monitoring wells ACB-31S and ACB-32S are located upgradient of the cap.*

- **Fluoride** concentrations ranged from < 0.10 (ACB-31S and AC-3S) to 68 mg/L (AC-2S). Concentrations were less than the performance standard of 4 mg/L in all surficial zone wells, except for well AC-2S. This well is located immediately downgradient of the former site. This well, AC-2S marks the vicinity of the downgradient extent of the fluoride plume in the surficial zone. It should be noted that at AC-3S, southeast and downgradient of AC-2S about 1,500 feet, fluoride is not detected. **Figure 8** shows the fluoride concentration trends for long-term monitoring wells within the surficial zone.
- **Arsenic (total)** was only analyzed in AC-2S and AC-3S surficial zone monitoring wells. The arsenic performance standard (0.05 mg/L) for the site has not been reduced to the new drinking water standard of 0.01 mg/L. However, EPA has requested that all samples be analyzed with a detection limit of 0.01 mg/L. At AC-2S, the concentration was 0.024 mg/L. Historically, AC-2S is the only groundwater monitoring well displaying low levels of arsenic. Downgradient at AC-3S, arsenic concentrations are below the detection limit (0.010 mg/L).
- **Chloride** concentrations ranged from 1.5 mg/L (ACB-32S) to 7.5 mg/L (AC-2S). All concentrations were less than the performance standard of 250 mg/L. All chloride concentrations occurring in the surficial zone groundwater are within the range of background chloride concentrations. **Figure 9** shows the chloride concentration trends within the surficial zone.
- **Sulfate** concentrations ranged from 8.3 mg/L (ACB-32S) to 67 mg/L (AC-34S). All surficial zone concentrations are less than the performance standard of 250 mg/L. **Figure 10** shows the sulfate concentration trends within the surficial zone.
- **Nitrate** concentrations ranged from 0.45 mg/L (AC-33S) to 6.2 mg/L (AC-2S). All surficial zone concentrations are less than the performance standard of 10 mg/L. This range is within background concentrations found in surficial zone groundwater in the Pensacola area. **Figure 11** shows the nitrate concentration trends within the surficial zone.
- **Combined radium 226 + 228** concentrations for the surficial zone ranged from 0.2336 pCi/L (AC-2S) to 4.988 pCi/L (ACB-31S). All surficial zone concentrations are less than the performance standard of 5.0 pCi/L. **Figure 12** shows the combined radium 226 + 228 concentration trends within the surficial zone.

Main Producing Zone

The following summarizes the November 2010 water quality data from the 16 main producing (deep) zone long-term monitoring wells. *Note that monitoring well PIP-D is considered to be upgradient from the site and is not necessarily a background well due to proximity to the ETC site.*

- **Fluoride** concentrations ranged from less than the method detection limit (< 0.10 mg/L) (PIP-D, NWD-4D, AC-6D, AC-8D, and AC-36D) to 130 mg/L (AC-35D). The non-detect monitoring wells surround the Agrico main producing zone plume and historically have always been non-detect for fluoride. Concentrations were less than the fluoride performance standard of 4 mg/L, except for wells AC-3D (17 mg/L), AC-9D2 (42 mg/L), AC-12D (14 mg/L), AC-13D (14 mg/L), AC-24D (65 mg/L), AC-25D (100 mg/L), AC-28D (9.3 mg/L), AC-29D (41 mg/L), AC-30D (7.0 mg/L), and AC-35D (130 mg/L). Results for the southern perimeter of monitoring wells showed that fluoride was not detected. **Figure 13** shows the fluoride concentration trends within the main producing zone.
- **Chloride** concentrations ranged from 3.3 mg/L (PIP-D) to 390 mg/L (AC-25D). The following monitoring wells that surround the Agrico main producing zone plume had results that are considered within the range of background chloride concentrations: PIP-D (3.3 mg/L), NWD-4D (7.9 mg/L), AC-2D (7.6 mg/L), AC-6D (10 mg/L), AC-8D (13 mg/L), and AC-36D (12 mg/L). Concentrations were less than the chloride performance standard of 250 mg/L for all wells, except wells AC-25D (390 mg/L) and AC-35D (370 mg/L). These two locations are adjacent to Bayou Texar. Bayou Texar is a brackish body of water. **Figure 14** shows the chloride concentration trends within the main producing zone.
- **Sulfate** concentrations ranged from 2.1 mg/L (PIP-D) to 300 mg/L (AC-13D). Concentrations were less than the sulfate performance standard of 250 mg/L, in all wells except AC-13D (300 mg/L). **Figure 15** shows the sulfate concentration trends within the main producing zone.
- **Nitrate** concentrations ranged from 0.13 mg/L (NWD-4D) to 13 mg/L (AC-9D2). Concentrations were less than the performance standard of 10 mg/L for nitrate in all wells except AC-12D (10 mg/L), AC-9D2 (13 mg/L), AC-13D (13 mg/L), AC-29D (12 mg/L), and AC-35D (11 mg/L). **Figure 16** shows the nitrate concentration trends within the main producing zone.
- **Combined Radium 226 and radium 228** concentrations for 2011 for the main producing zone compared favorably to long-term results. Combined radium 226 + 228 concentrations ranged from 2.313 pCi/L (AC-8D) to 15.36 pCi/L (AC-29D). Concentrations were less than the performance standard for combined radium 226 + 228 of 5.0 pCi/L, except for wells AC-3D (14.09 pCi/L), AC-6D (8.42 pCi/L), AC-9D2 (10.08 pCi/L), AC-12D (13.23 pCi/L), AC-13D (9.82 pCi/L), AC-24D (12.96 pCi/L), AC-25D (7.31 pCi/L), AC-28D (13.67 pCi/L), AC-29D (15.36 pCi/L), AC-30D (11.37 pCi/L), and AC-35D (7.65 pCi/L). **Figure 17** shows the combined radium 226 + 228 concentration trends within the main producing zone.

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.

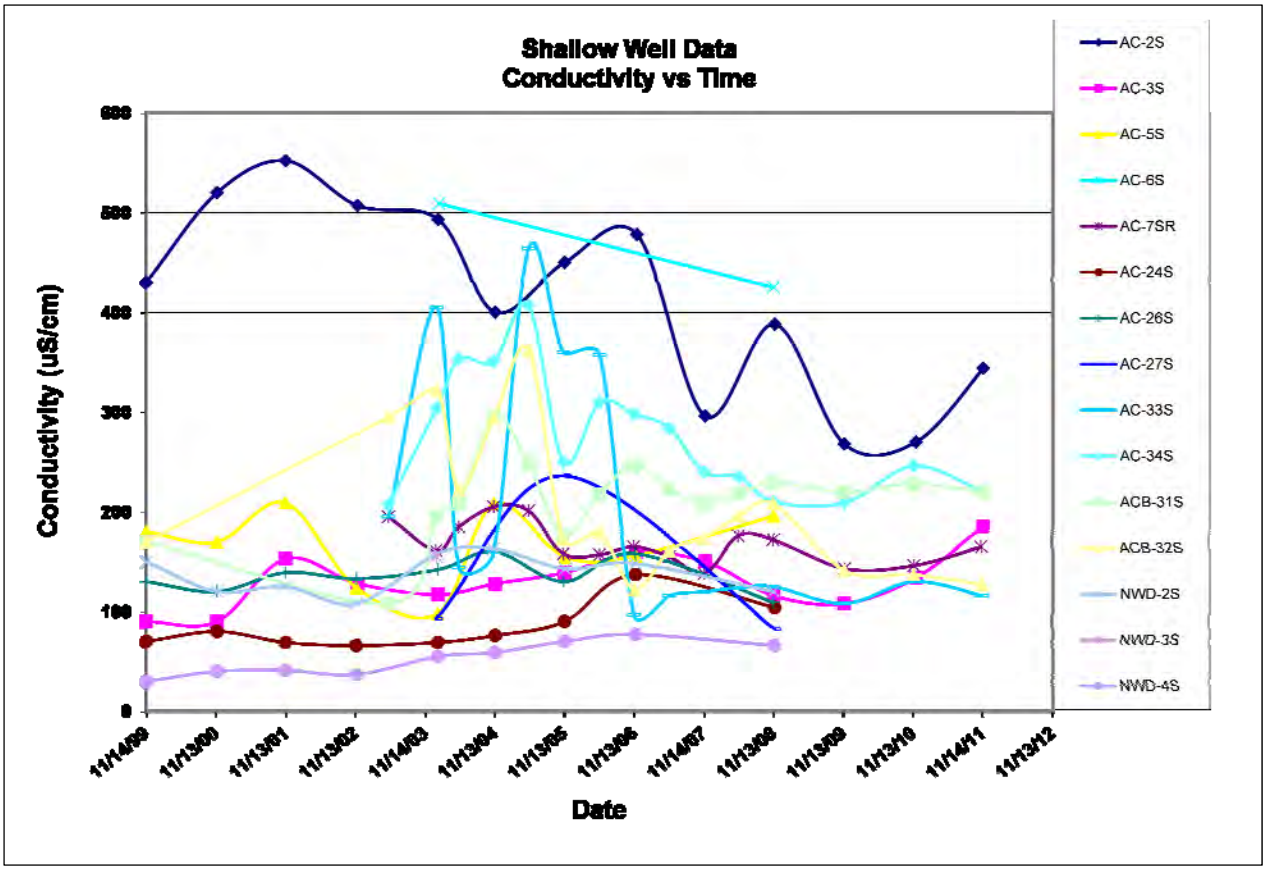
8.2.1 Specific Conductance

Specific conductance is a measure of how well a given 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 microsiemens per centimeter (uS/cm) and currently ranges as high as 1,611 uS/cm. Outside of the plume, conductance ranged from a low of 66 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.

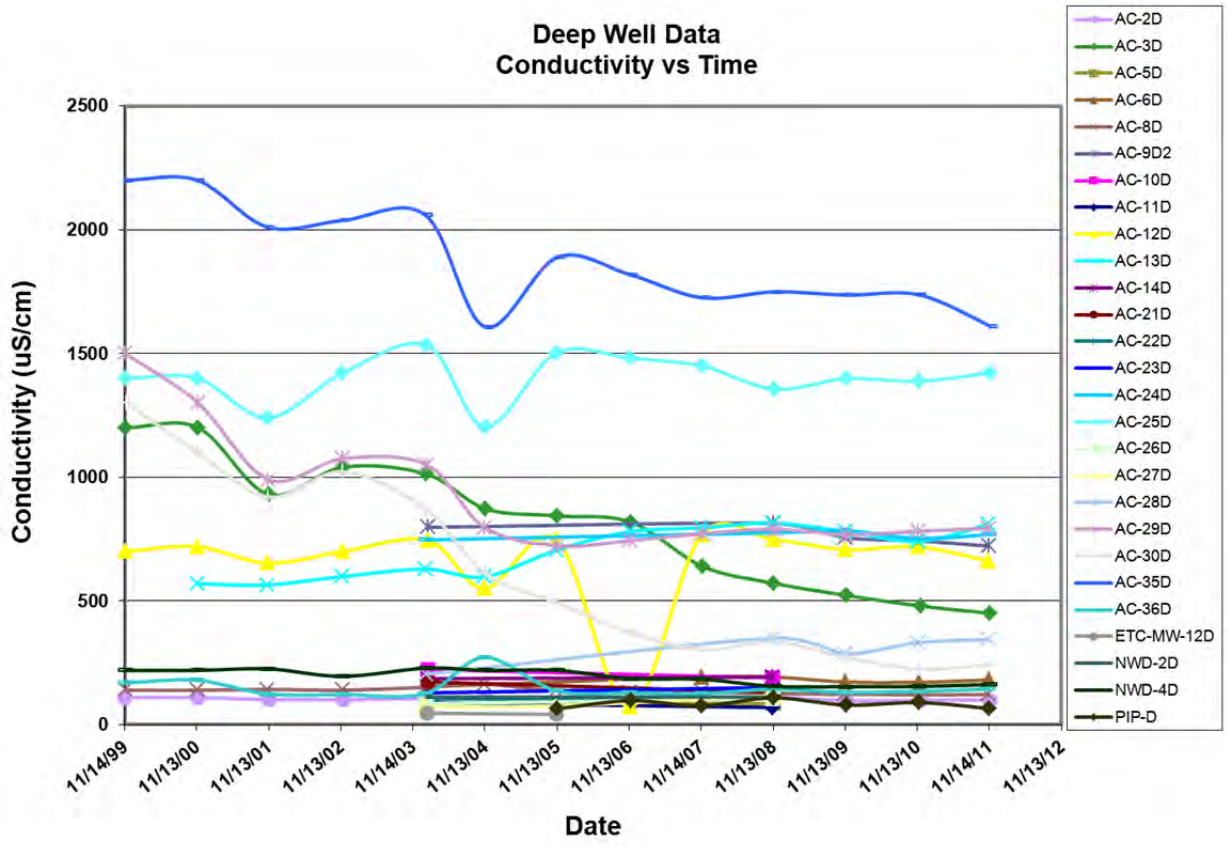
Surficial Zone Groundwater:

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.

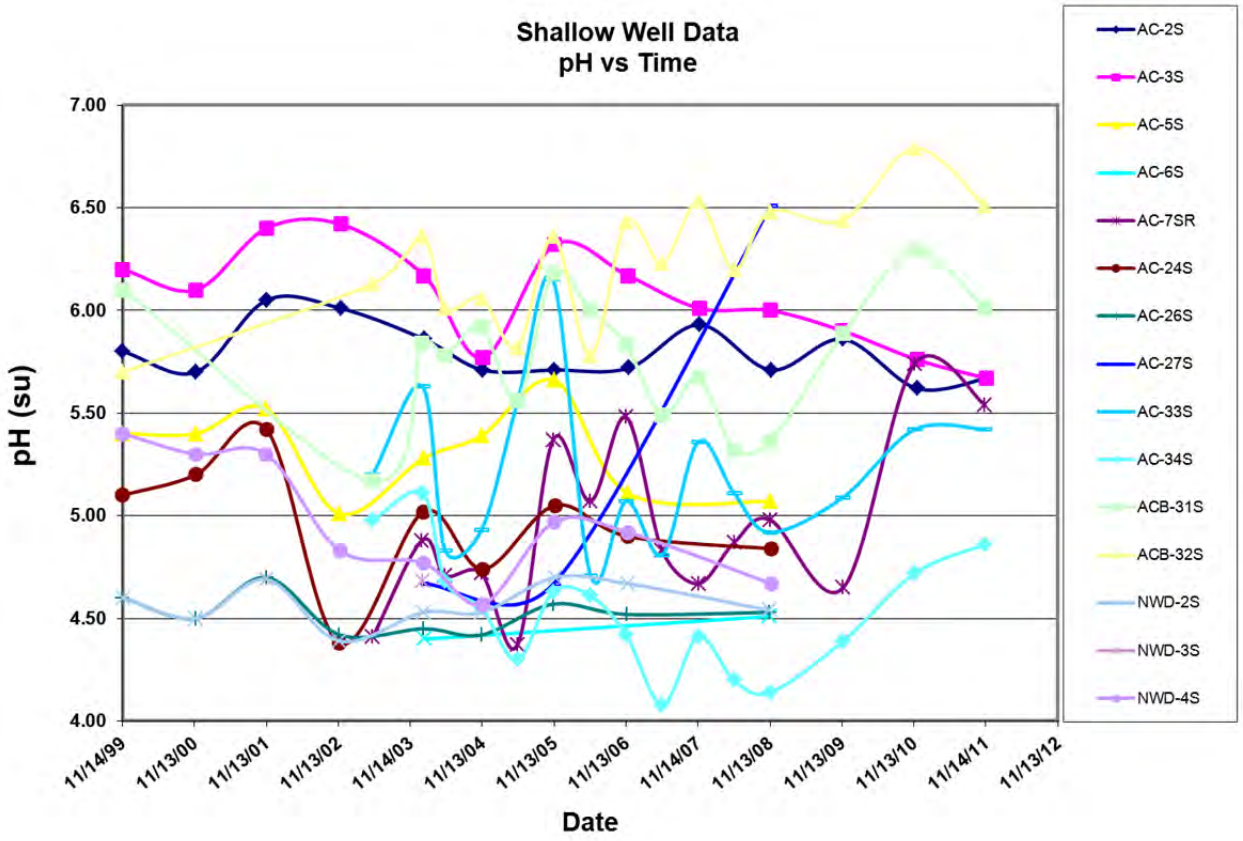
Geochemically, pH is an important factor in understanding the occurrence of radium in the groundwater beneath Escambia County. Historically, the impacts from radium are well documented within the county and many of these exceedances are not associated with known contaminated sites. The public supply 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 (Zapecza 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.

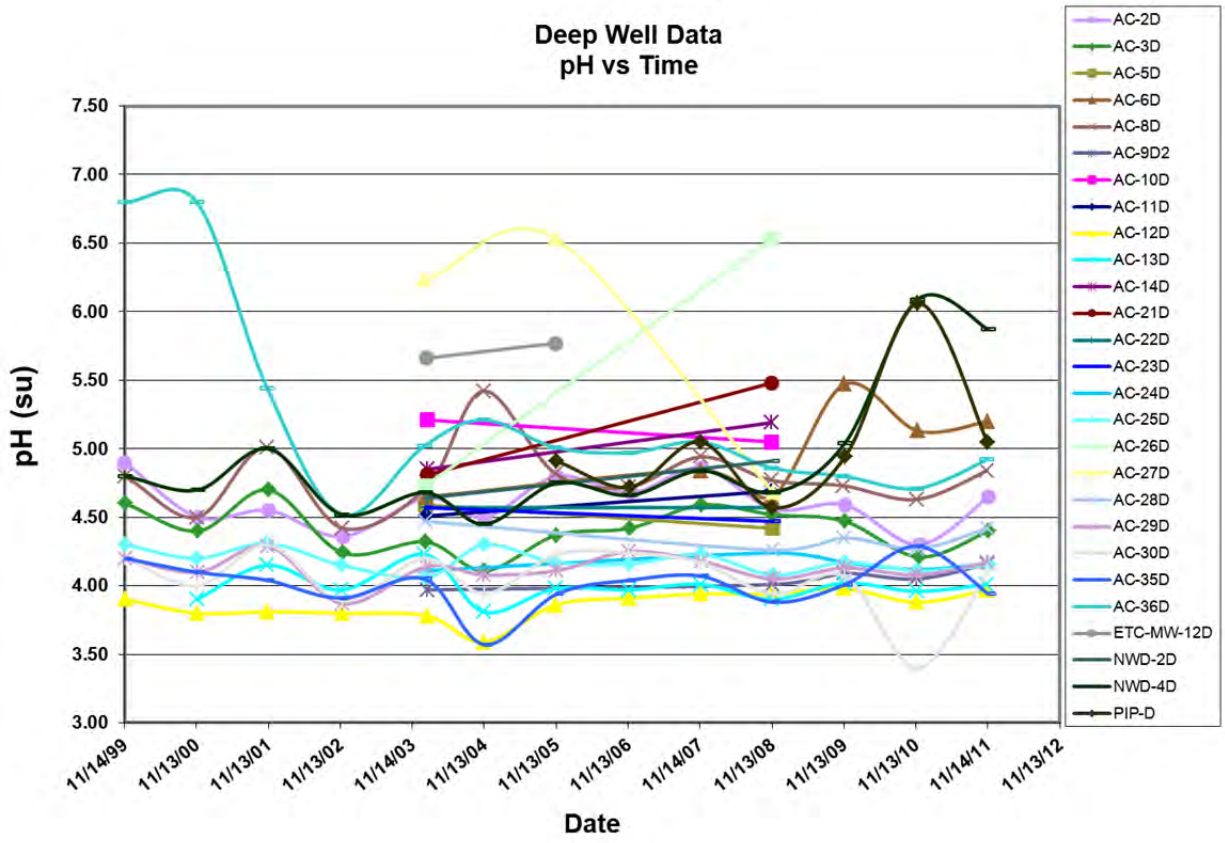
The acidity reflected by low pH in groundwater within the Agrico plume is most likely the result of former operational processes whereby wastewater was disposed in the former on-site impoundments at the former Agrico facility (Watts, et al, 1988). Since the completion of the OU-1 Remedial Action, the 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.

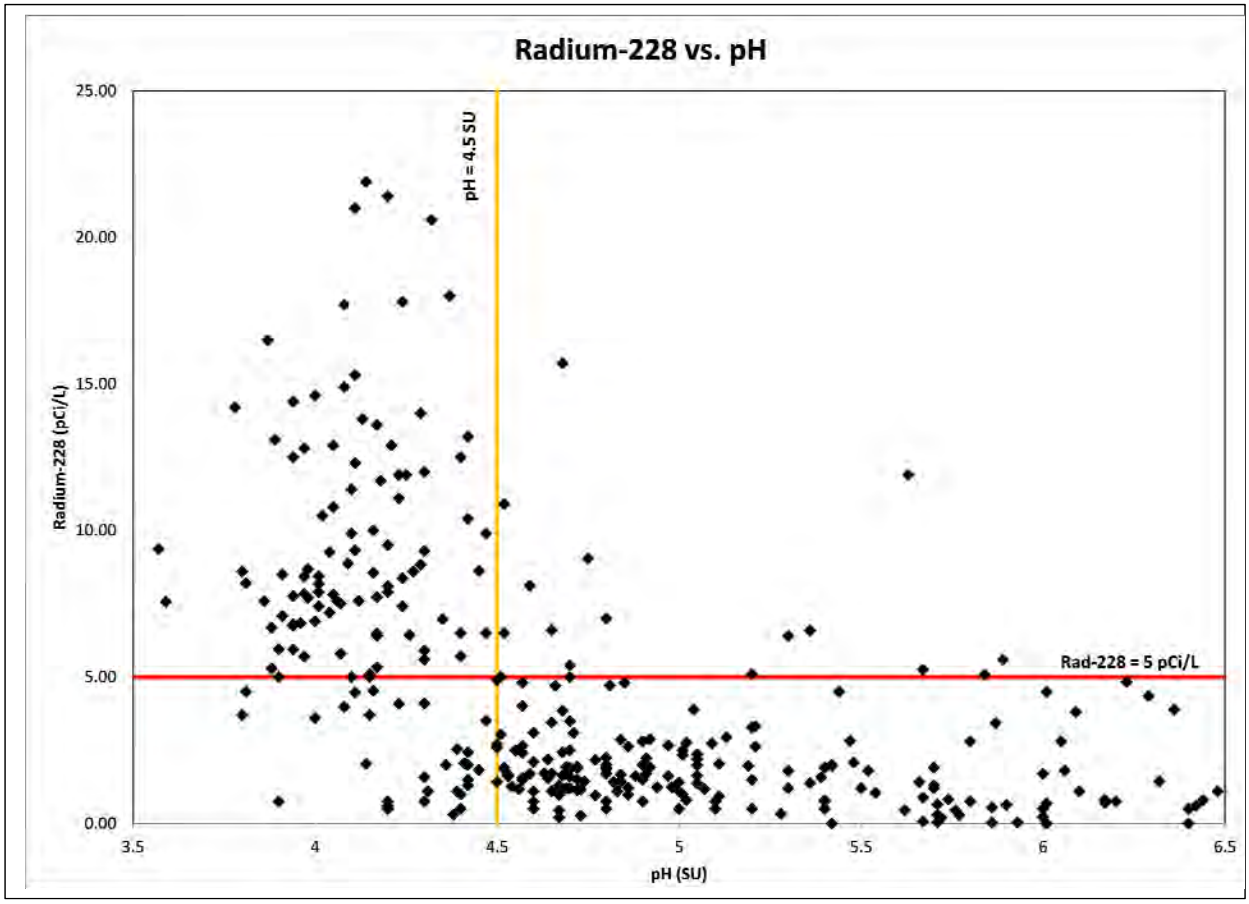
The surficial zone groundwater pH vs. time chart is shown below.



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 (Zapecza 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.

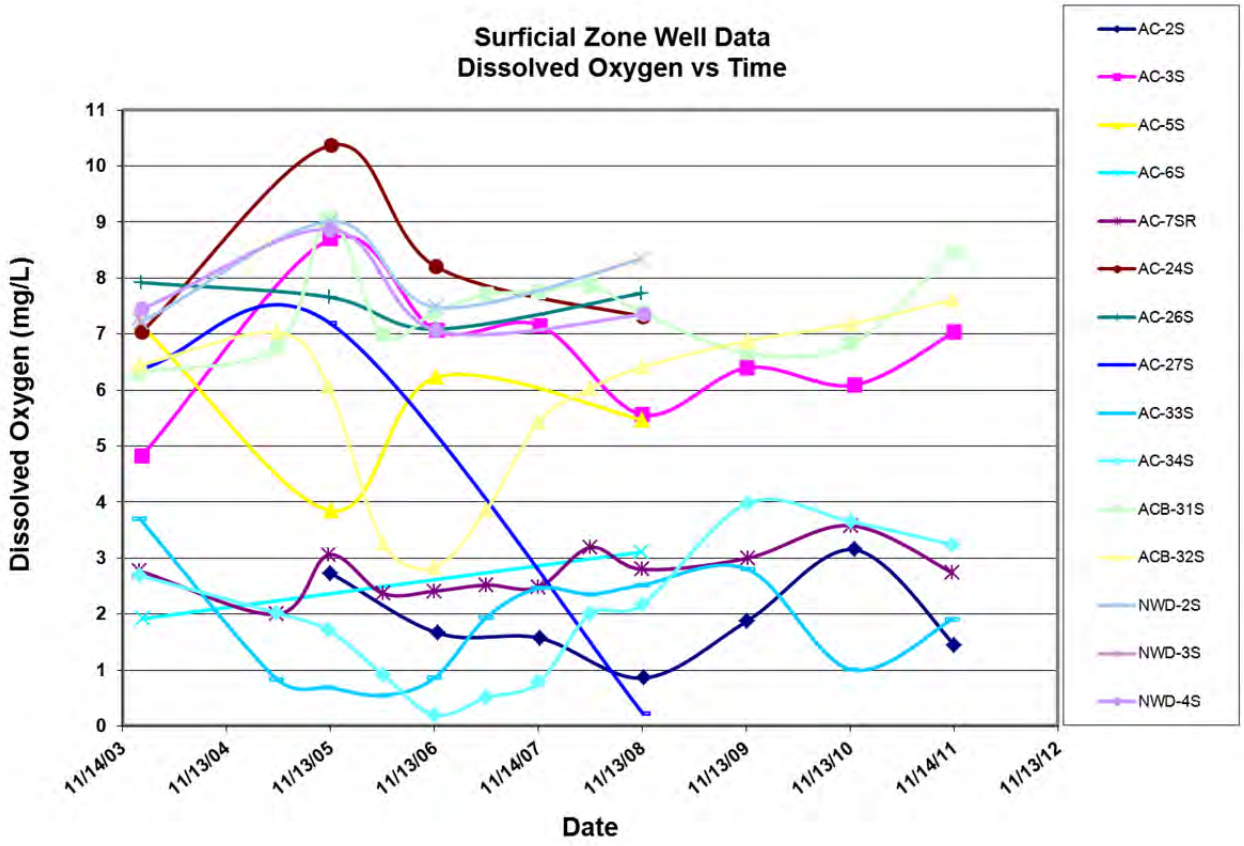
8.2.3 Dissolved Oxygen

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.

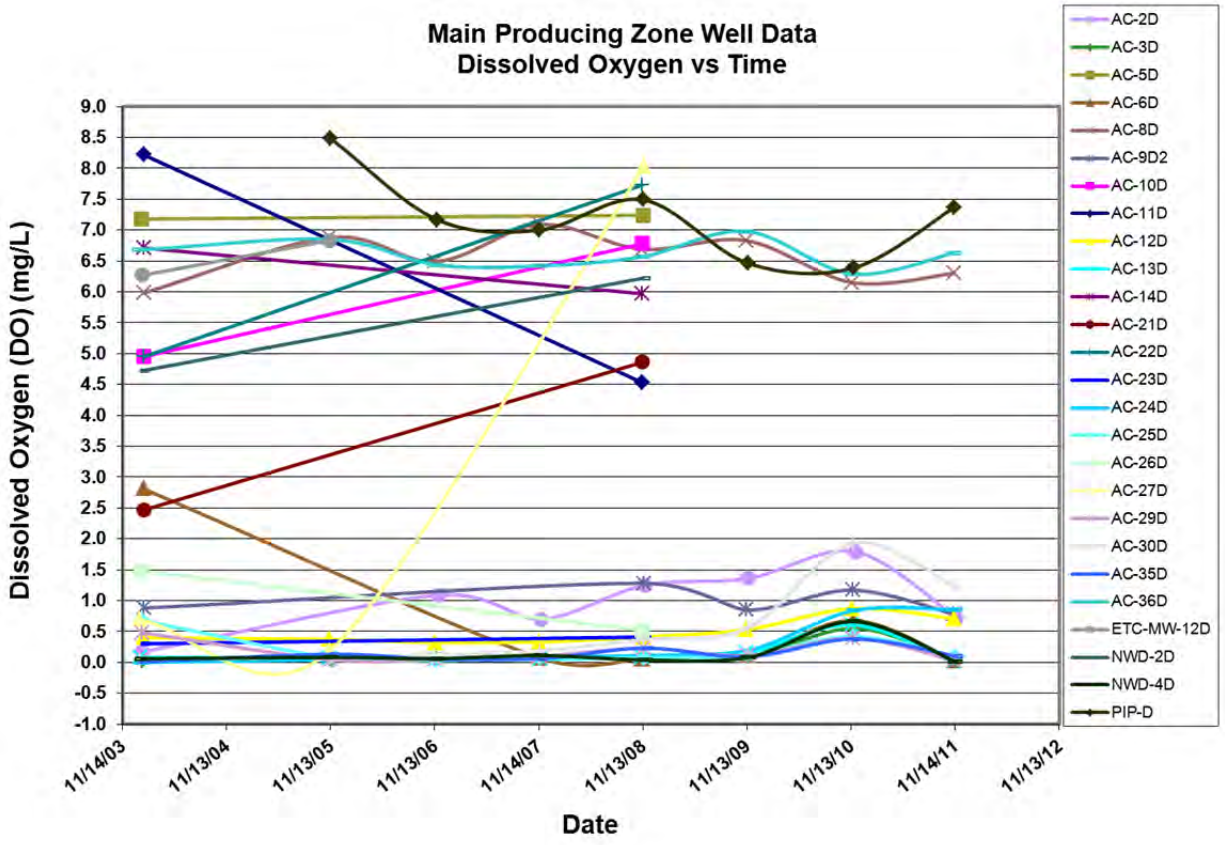
Surficial Zone Groundwater:

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.

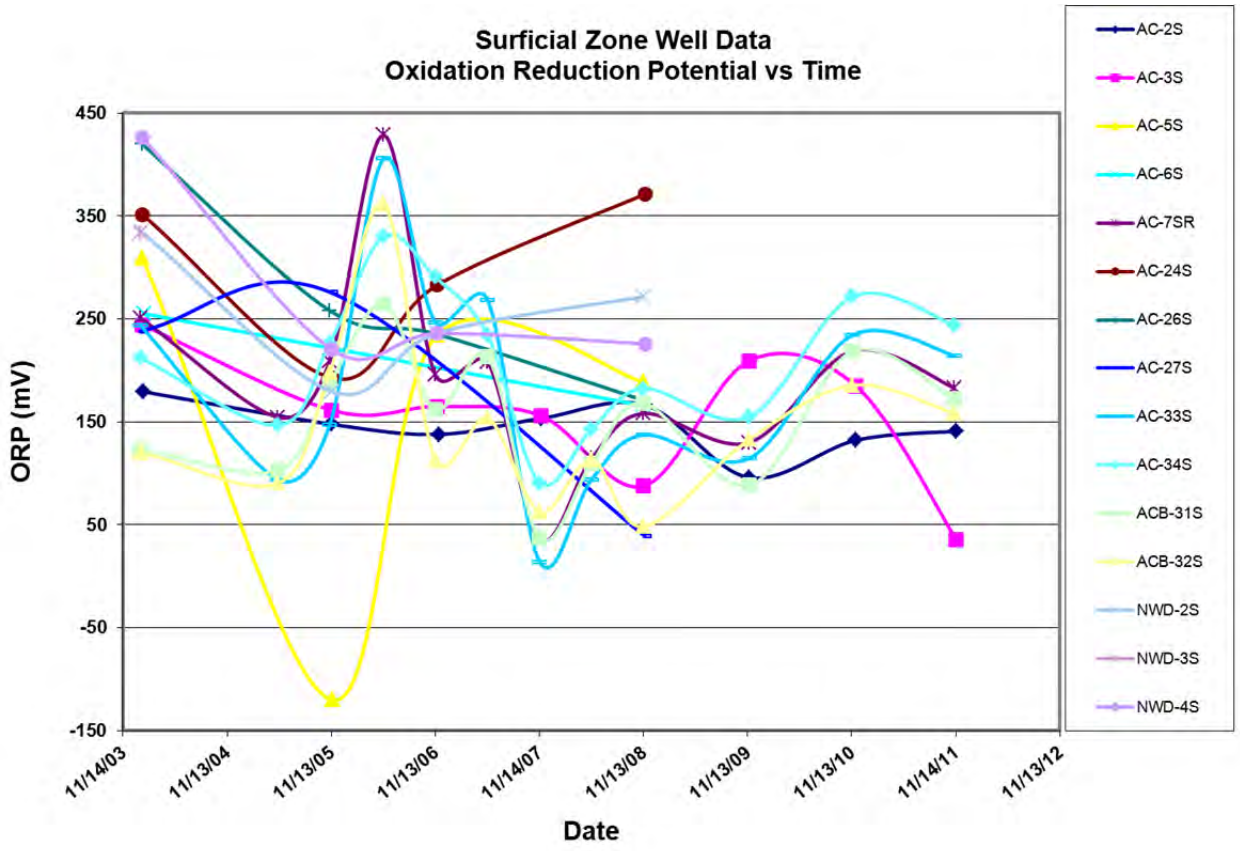
Field ORP readings can be converted to Eh values by adding the offset value provided by the manufacturer of the ORP calibration solution used (or by experimentation). ORP has been measured at the site with a YSI (brand) instrument equipped with an Ag/AgCl electrode and calibrated against a Zobell 4M 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.

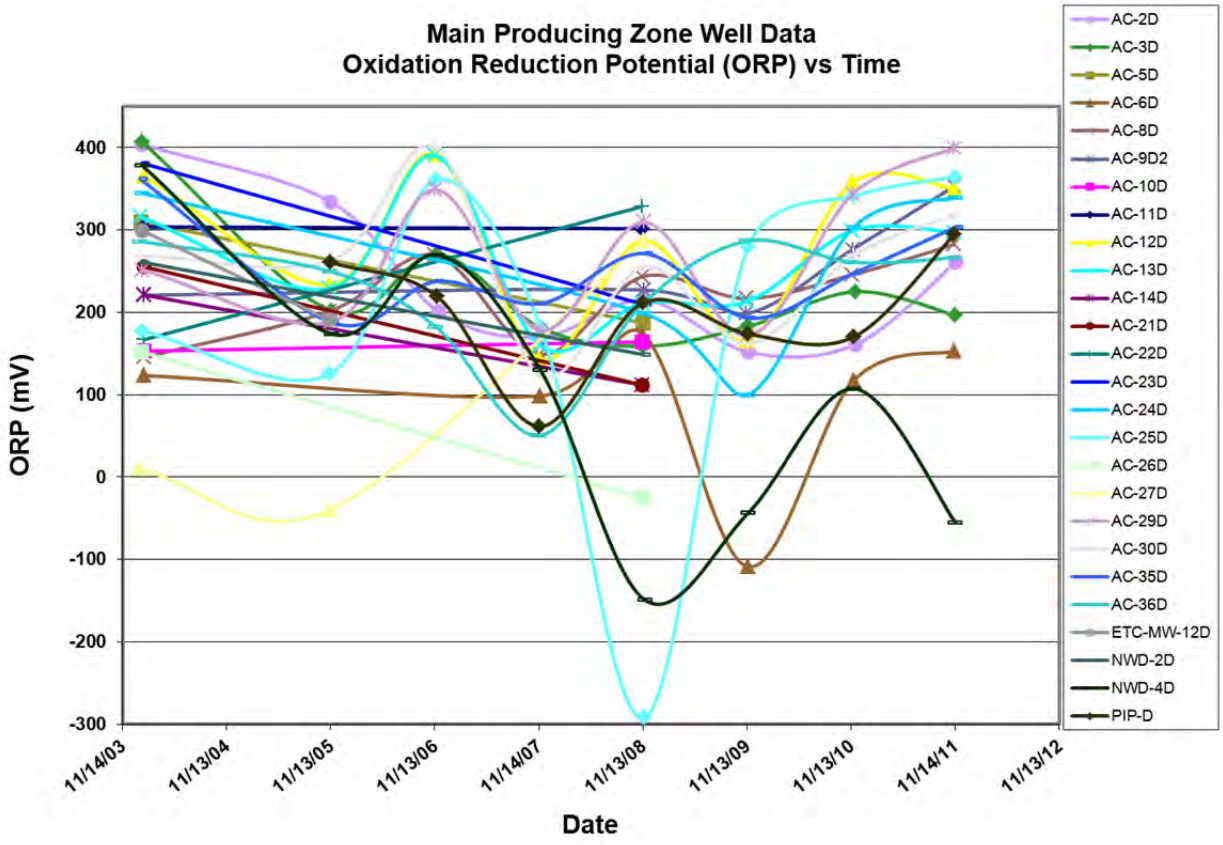
Surficial Zone Groundwater:

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 2011. 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.

8.4 SURFACE WATER SAMPLING RESULTS

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 18. The COC results did not vary

significantly from the previous four years of data. No COCs in surface water exceeded the surface water criteria.

8.5 QA/QC REVIEW

TestAmerica job numbers for this annual report include the following:

640-36175-1, 640-36191-1, 640-36209-1, 640-36076-1, 640-36116-1, 640-36132-1, 640-36230-1, and 640-36151-1. The following laboratory narratives describe the sample conditions and associated analytical QA/QC issues.

640-336175-1: All samples were received in good condition within temperature requirements. Nitrate analysis was performed on preserved samples extending the recommended analytical holdtime to 28 days. No issues regarding radiological analyses. No other analytical or quality issues noted.

640-36191-1: All samples were received in good condition within temperature requirements. Nitrate analysis was performed on preserved samples extending the recommended analytical holdtime to 28 days. No issues regarding radiological analyses. No other analytical or quality issues noted.

640-36151-1: All samples were received in good condition within temperature requirements. Nitrate analysis was performed on preserved samples extending the recommended analytical holdtime to 28 days. No issues regarding radiological analyses. No other analytical or quality issues noted.

640-36209-1: All samples were received in good condition within temperature requirements. Nitrate analysis was performed on preserved samples extending the recommended analytical holdtime to 28 days. No issues regarding radiological analyses. Method 6010B- the matrix duplicate %RPD (precision) for arsenic in batch 640-87405 was outside advisory limits due to matrix interference. Parent sample, AC-2S, was used for the batch laboratory duplicate. No other analytical or quality issues noted.

640-36076-1: All samples were received in good condition within temperature requirements. Nitrate analysis was performed on preserved samples extending the recommended analytical holdtime to 28 days. No issues regarding radiological analyses. No other analytical or quality issues noted.

640-36116-1: All samples were received in good condition within temperature requirements. Nitrate analysis was performed on preserved samples extending the recommended analytical holdtime to 28 days. No issues regarding radiological analyses. No other analytical or quality issues noted.

640-36132-1: All samples were received in good condition within temperature requirements. Nitrate analysis was performed on preserved samples extending the recommended analytical holdtime to 28 days. No issues regarding radiological analyses. Method 300.0 – the matrix spike (MS) recovery for sulfate in batch 640-87261 was outside advisory limit due to the abundance of the target analyte present in the un-spiked parent sample, AC-9D2. The associated laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recoveries met acceptance criteria. Pertaining QC data was flagged “4”. The concentration of sulfate in batch 640-87261 matrix spike was outside the calibration range of the analytical curve. Associated QC data was flagged “E”. No other analytical or quality issues noted.

640-36230-1: All samples were received in good condition within temperature requirements. Nitrate analysis was performed on preserved samples extending the recommended analytical holdtime to 28 days. Sample, ACSW-1, was analyzed outside the recommended holdtime for nitrite due to a laboratory oversight. Pertaining data was used for the calculation of nitrate concentration in this sample. In the radium 228 analysis the achieved MDA for the duplicate of ACSW-1 is slightly above the CRDL due to low but acceptable tracer yields caused by probable matrix interference. Method 300.0 – closing continuing calibration blank (CCB) in batch 640-87510 had a detect greater than the reporting limit (RL) for chloride. The sample results for ACSW-1 and ACSW-2 were >10 times the amount in the CCB, therefore samples are reported without qualification. No other analytical or quality issues noted.

Four QA/QC samples (two duplicates, two equipment blanks) were collected during the November 2011 sampling event. Field duplicates showed acceptable agreement with their respective results, indicating adequate field and laboratory precision. Target analytes were reported below laboratory detection limits in equipment samples except EQ BLNK 2 where chloride and fluoride wasabove the reporting limit.

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-29D
EQ BLNK-2	AC-35D2

8.6 FINDINGS

The 2010 annual results continue to support the following findings.

- 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. Groundwater sampling results for 2010 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 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. Concentrations are diminishing due to the implementation of source control measures. Currently, the only significant concentration remaining in the surficial zone is fluoride and fluoride concentrations are only elevated immediately downgradient of the site (AC-2S). Even at this location, fluoride concentrations are trending downward from a historical high of 210 mg/L to a current value of

68 mg/L. Due to the conditions described herein, the surficial zone plume does not extend more than 0.25 miles from the site.

- 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. 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 significantly but are generally lower on the upgradient and sidegradient areas. 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 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 390 mg/L. At monitoring well AC-13D, sulfate and nitrate are the highest concentrations in the plume at 300 and 13 mg/L, respectively. Groundwater from monitoring well AC-9D2, also shares the highest nitrate concentration at 13 mg/L for November 2011. The highest concentration of combined radium 226+228 was found at AC-29D (15.36 pCi/L). The wells listed above are the same locations that have had similar elevated concentrations over the past 5 years.
- 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 (Mohrherr, 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 2011 were all less than 1 mg/L.
- 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.

- 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 and fringes. 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. The downgradient impacts (ammonia concentrations and other Site 348 COCs) to other Agrico monitoring wells is unknown at this time because the third party assessment for Site 348 is on-going.
- No pumping effects are occurring within the current Agrico plume boundary. This is verified by the past 13 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, caused by non-Agrico sources, significantly decreases the chances of the Agrico plume migrating from its current plume boundary. These conditions negate the potential for future Agrico plume migration that could affect any public water supply well.

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 (see **Figure 8**). 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 2011 sampling of monitoring wells downgradient of the cap area indicate that the OU-1 remedy remains effective (see **Figures 8** through **12**).

9.2 OU-2 REMEDY

Annual groundwater and surface water monitoring has been performed at established long-term monitoring sites 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 (see **Figures 8** through **17**). 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 being observed downgradient, as expected. Decreases in concentrations have now been observed in the most upgradient groundwater and are imminent in the further downgradient wells.

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 affected area and of the existing moratorium on well construction. It also directs them to the NWFWMD, FDEP, or the Escambia County Health Department for more information.

9.2.2 IRRIGATION WELL PROGRAM

According to NWFWMD permit records, no new irrigation wells were installed within the monitoring area during 2011 (**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 20110 to sample or abandon any existing irrigation well within the OU-2 area.

9.2.3 INSTITUTIONAL CONTROLS COORDINATION

On February 22, 2001, the NWFWMD Board passed a moratorium on drilling wells, including irrigation wells, in the Agrico OU-2 and the ETC groundwater plume area. The moratorium remains in effect and provides the most stringent institutional controls for the area impacted by the plume.

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 source 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 is still under investigation by FDEP. Three of these 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. Additionally, the former Agrico plant was not associated with the either operations identified by FDEP that are related to Site 348. The discontinued pumping from these supply wells south of the Agrico plume eliminates any potential for the Agrico plume to be pulled to the south by pumping.

Water level measurements collected during the past 13 years indicate that the remaining irrigation pumpage occurring within the plume 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 15 of the estimated 70 years elapsed (remediation of OU-1 was certified complete in 1996). 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 determine 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 2011 closely compared to historical results for both aquifer zones. Overall, sampling result trends for the individual long-term groundwater monitoring locations with detected concentrations are shown in **Appendix F**. 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 (**Figures 8** through **12**). 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. The 2011 results for seven surficial zone monitoring wells were compared to the last sampling event and showed that for the Agrico COCs 18 values decreased, 15 values increased, , and 2 values were less than the detection limit for the COCs analyzed.

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. 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 (**Figures 13** through **17**). The 2011 results for 16 main producing zone monitoring wells were compared to the last sampling event and showed that 44 values decreased, 24 increased, 7 had no change, and 5 values were less than the detection limit for the COCs analyzed for the main producing zone.

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 macroinvertebrates) within the groundwater plume discharge zone was less than 3 mg/L in 30 or 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 macroinvertebrate communities that inhibit 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 2011, the fluoride concentrations ranged from 0.77 mg/L to 0.88 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) 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 lead site) and work with EPA on gathering information pertaining to Site 348.

Bortone, Stephen A. 1996. Biophysical Monitoring at Bayou Texar: Bathymetric, Sedimentologic and Macroinvertebrate Evaluation at Twelve Outfalls, University of West Florida.

Carmargo, J.A. 2003. Fluoride Toxicity to Aquatic Organisms: A Review. Chemosphere 50 (2003):251-264.

Cameron-Cole, LLC, 2011. 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; September 15, 2011.CDM Federal Programs Corp. 1998. Remedial Investigation/Feasibility Study for Source Soils for the Escambia Treating Company Site, Pensacola, Florida. February 9, 1998.

Coffin, John E. 1982. Summary of Ground-Water and Surface-Water Data For City of Pensacola and Escambia County, Florida: U.S. Geological Survey Open-File Report 82-361.

E^2 Inc. 2010. Five-Year Review Report (2005-2009) Third Five-Year Review Report for Agrico Chemical Company, FLD 980221857, Pensacola, Escambia County, Florida, June 2010. Prepared for United States Environmental Protection Agency, Region 4, Atlanta, Georgia.

Entrix, Inc. 1993a. Final Bayou Study Work Plan: Phase 1a and 1b Sediment Sampling Program.

Entrix, Inc. 1993b. Bayou Texar Study Phase I Report: Sediment and Pore water Sampling and Analysis. May 6, 1993.

Entrix, Inc. 1993c. Bayou Texar Study Phase I Addendum Report: Bulk Metals Analyses with Additional Interpretation of Pore water Analyses. May 26, 1993.

Florida Institute of Phosphate Research. 2004. Phosphate Primer.

Geraghty & Miller, Inc. 1990. Remedial Investigation and Feasibility Study Work Plan. Pensacola Fertilizer Site. Pensacola, Florida. June 1, 1990.

Geraghty & Miller, Inc. 1991a. Draft Remedial Investigation Additional Work Plan. Agrico Chemical Site. Pensacola, Florida. July 24, 1991.

Geraghty & Miller, Inc. 1991b. Draft Remedial Investigation. Pensacola Fertilizer Site. Pensacola, Florida. March 28, 1991.

Geraghty & Miller, Inc. 1992a. Final Phase I Remedial Investigation, Agrico Chemical Site, Pensacola, Florida. March 12, 1992.

Geraghty & Miller, Inc. 1992b. Phase II Remedial Investigation, Agrico Chemical Site, Pensacola, Florida. September 18, 1992.

Geraghty & Miller, Inc. 1993a. Final Feasibility Study. Agrico Chemical Site. Pensacola, Florida. June 23, 1993.

Geraghty & Miller, Inc. 1993b. Final Phase 2 Remedial Investigation. Agrico Chemical Site. Pensacola, Florida. November 26, 1993.

Gibbons, Robert D., 1994. Statistical Methods for Ground Water Monitoring, John Wiley & Sons, Inc.

Henningson, Durham, and Richardson. 1974. Bayou Texar Restoration Study.

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

Mohrherr, Dr. Carl J., Dr. Johan Liebens, Dr. J. Eugene Lepo, and Dr. K. Ranga Rao. 2005. Profiles of Selected Pollutants in Bayou Texar, Pensacola, FL; a component of the "Assessment of Environmental Pollution and Community Health in Northwest Florida"; EPA Cooperative Agreement Award X-9745502; University of West Florida. May 10, 2005.

Moshiri, Gerald A. and Salman Elawad. 1990. Physical, Biological, and Environmental Studies of Bayou Texar, Escambia County, Florida: Physical, Chemical and Biological Characteristics of the Water Column and Sediments; The Institute for Coastal and Estuarine Research, University of West Florida; Vol. II.

Northwest Florida Water Management District. 1978. Evaluation of the Sedimentation and Hydraulic Characteristics of Bayou Texar and Carpenter's Creek. Escambia County, Florida: Technical File #78-3.

Northwest Florida Water Management District. 1988. Storm water Evaluation for the Restoration of Bayou Texar. WRSR #88-3.

Northwest Florida Water Management District. 1989. Ambient Ground Water Quality in Northwest Florida: Water Resources Special Report 87-1 (Revised edition).

Northwest Florida Water Management District. 1996. Analysis of Ground Water Availability in the Cordova Park Area, Southeastern Escambia County, Florida. April 1996.

Northwest Florida Water Management District. December 1999. Susceptibility of Public Supply Wells to Ground Water Contamination in Southern Escambia County, Florida.

Northwest Florida Water Management District. (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.

Northwest Florida Water Management District. (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.

Roaza, Honesto P., Thomas R. Pratt, Christopher J. Richards, Jay L. Johnson, and Jeffry R. Wagner. 1991. Conceptual Model of the Sand-and-Gravel Aquifer, Escambia County: Northwest Florida Water Management District, Water Resources Special Report 91-6.

Roaza, Honesto P., Thomas R. Pratt, and Christopher J. Richards. 1993. Numerical Modeling of Ground Water Flow and Contaminant Transport in the Sand-and-Gravel Aquifer, Escambia County, Florida: Northwest Florida Water Management District, Water Resources Special Report 93-4.

Richards, Christopher J., Thomas R. Pratt, and Katherine A. Milla. 1997. Wellhead Protection Area Delineation in Southern Escambia County, Florida: Northwest Florida Water Management District, Water Resource Special Report 97-4.

Stone, Gregory W. and James P. Morgan. 1990. Physical, Biological, and Environmental Studies of Bayou Texar, Escambia County, Florida: Sedimentation, Bathymetric Changes

and Tidal Variability in Bayou Texar. The Institute for Coastal and Estuarine Research. University of West Florida.

Stone, Gregory W., Morgan, James P., Moshiri, Gerald A., and Elawad Salman. 1990. Physical, Biological, and Environmental Studies of Bayou Texar, Escambia County, Florida: Conclusions and Recommendations for Environmental Quality Improvement in Bayou Texar; The Institute for Coastal and Estuarine Research, University of West Florida. Vol. V.

Trapp, H., Jr. 1975. Hydrology of the Sand-and-Gravel Aquifer in Central and Southern Escambia County, Florida. U.S. Geological Survey Open-File Report FL 74027.

URS. January 2001. Annual Report. Ground Water Sampling Results –May and November 2000. Operable Unit One, Agrico Site, Pensacola, Florida.

URS. March 9, 2001. Annual Report for 2000. Operable Unit Two (OU-2), Agrico Site, Pensacola, Florida.

URS. March 1, 2002. Annual Report for 2001, Operable Unit Two (OU-2), Agrico Site, Pensacola, Florida.

URS. March 1, 2002. Ground Water Sampling Results – May and November 2001. Operable Unit One, Agrico Site, Pensacola, Florida.

URS. April 2, 2003. Annual Report for 2002. Operable Unit Two (OU-2), Agrico Site, Pensacola, Florida.

URS. April 2, 2003. Annual Report for 2002. Operable Unit One (OU-1), Agrico Site, Pensacola, Florida.

URS. April 2, 2004. Annual Report for 2003, Operable Unit One (OU-1), Agrico Site, Pensacola, Florida.

URS. June 25, 2004. Annual Report for 2003, Operable Unit Two (OU-2), Agrico Site, Pensacola, Florida.

URS. 2005a. Annual Report for 2004, Operable Unit One (OU-1), Agrico Site, Pensacola, Florida. February 11, 2005.

URS. 2005b. Annual Report for 2004, Operable Unit Two (OU-2), Agrico Site, Pensacola, Florida. February 11, 2005.

URS. 2006a. Annual Report for 2005, Operable Unit One (OU-1), Agrico Site, Pensacola, Florida. February 20, 2006.

URS. 2006b. Annual Report for 2005, Operable Unit Two (OU-2), Agrico Site, Pensacola, Florida. April 6, 2006.

URS. 2006c. Technical Memorandum – Evaluation of Studies on Benthic Community Analysis and Sediment Toxicity Testing Conducted for Bayou Texar, Agrico Site, Pensacola, Florida. November 7, 2006.

URS. 2006d. Technical Memorandum Report – Evaluation of Long-Term Groundwater Monitoring Network. Agrico Site, OU-1 and OU-2, Pensacola, Florida. November 30, 2006.

URS. 2008. Annual Report for 2007, Operable Units One and Two (OU-1, OU-2), Agrico Site, Pensacola, Florida. March 28, 2008.

URS. 2009a. Annual Report for 2008, Operable Units One and Two (OU-1, OU-2), Agrico Site, Pensacola, Florida. March 31, 2009.

URS. 2009b. Evaluation of Monitored Natural Attenuation in Groundwater, Agrico Site, Pensacola, Florida. Prepared by William A. Huber, Ph.D. (Quantitative Decisions), August 19, 2009.

URS. 2009c. Conceptual Site Model Ecological Impact Evaluation of Bayou Texar Downgradient of Agrico's Groundwater Fluoride Plume. In cooperation with Anchor-QEA; September 4, 2009.

URS. 2010a. Annual Report for 2009, Operable Units One and Two (OU-1, OU-2), Agrico Site, Pensacola, Florida. March 15, 2010.

URS, 2011, Annual Report for 2010, Operable Units One and Two (OU-1, OU-2), Agrico Site, Pensacola, Florida March 31, 2011.

URS Greiner Woodward Clyde. January 1999. Annual Report. Ground Water Sampling Results – May and November 1998. Operable Unit One, Agrico Site, Pensacola, Florida.

URS Greiner Woodward Clyde. December 1999. Annual Report. Ground Water Sampling Results – May and November 1999. Operable Unit One, Agrico Site, Pensacola, Florida.

URS Greiner Woodward Clyde. 2000a. Remedial Action Implementation and First Annual Report (1999), OU-2, Agrico Site, Pensacola, Florida. February 2000.

URS Greiner Woodward Clyde. 2000b. Five-Year Review, Agrico Site, Pensacola, Florida. February 2000.

U.S. Army Corps of Engineers, Mobile District. 2005. Second Five-Year Review Report for Agrico Chemical Company, Operable Units 1 and 2, Pensacola, Escambia County, Florida, EPA ID: FLD980221857. Prepared for U.S. Environmental Protection Agency, Region 4. July 2005.

U.S. Department of Agriculture and Tennessee Valley Authority. 1964. Superphosphate: Its History, Chemistry, and Manufacturing. December 1964.

U.S. Environmental Protection Agency. 1992. Agrico Chemical Superfund Site, Record of Decision Operable Unit One. October 7, 1992.

U.S. Environmental Protection Agency. 1994. Record of Decision for Operable Unit Two, Agrico Chemical Superfund Site, Pensacola, Escambia County, Florida. August 25, 1994.

U. S. Environmental Protection Agency. 1994. Symposium on Natural Attenuation of Ground Water. 600/R-94/162.

Wagner, J.R., T.W. Allen, L.A. Clemens, and J.B. Dalton. 1984. Ambient Ground Water Monitoring Program - Phase I: NWFWMD, DER Contract No. WM65.

Watts, G., J.M. Wilson, K. Busen, and W.H. Colona, III. 1988. Agrico Chemical, Inc., Escambia County: FDER Groundwater Investigation Report No. 88-08.

Watts, Geoffrey B., and George E. Wiegand. 1989. Supplementary Contamination Report. Agrico Chemical Company - Escambia County: FDER, Site Investigation Section.

Wilkins, K.T., Wagner, J.R., and T.W. Allen. 1985. Hydrogeologic Data for the Sand-and-Gravel Aquifer in Southern Escambia County, Florida: Northwest Florida Water Management District Technical File Report 85-2.

Woodward-Clyde Consultants. 1993. Off-Site Monitoring Well Installation and Ground Water Sampling. Agrico Chemical Site. Pensacola, Florida: Technical Memorandum; Volumes 1 and 2.

Woodward-Clyde Consultants. 1998. Annual Report. Ground Water Sampling Results – May and November 1997. Operable Unit One, Agrico Site, Pensacola, Florida.

Woodward-Clyde Consultants. 1997. Work Plan - OU-2 Remedial Design. Agrico Chemical Site. Pensacola, Florida.

Woodward-Clyde Consultants 1997. Preliminary Design Analysis, Operable Unit Two Agrico Site. Pensacola, Florida.

Woodward-Clyde International- Americas. 1998. Intermediate Design Analysis, Operable Unit Two Agrico Site. Pensacola, Florida.

Woodward-Clyde International- Americas. 1998. Pre-Final Design Analysis, Operable Unit Two Agrico Site. Pensacola, Florida.

Woodward-Clyde International- Americas. 1998. Remedial Action Work Plan and Related Plans (including Management Plan, Sampling and Analysis Plan, Health and Safety Plan and Operation and Maintenance Plan). Operable Unit Two, Agrico Site, Pensacola, Florida.

Zapecza, O.S. and Szabo, Zoltan, 1988. Natural radioactivity in groundwater – A Review in Moody, D.W., Chase, E.B., and Paulson, R.W., comp., National Summary 1986 – Ground-water quality: Hydrologic conditions and events: U.S. Geological Survey Water Supply Paper 2325.

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 Outisde 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 NWFWMD 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 NWFWMD 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 (0C)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
AC-2D	11/16/2011	4.65	99	23.61	0.72	260.9	3.14
AC-2S	11/16/2011	5.67	344	24.77	1.45	140.9	3.96
AC-3D	11/15/2011	4.40	451	23.53	0.02	196.5	2.04
AC-3S	11/15/2011	5.67	185	25.38	7.04	35.8	1.05
AC-6D	11/10/2011	5.20	181	23.41	0.03	152.8	9.38
AC-7SR	11/8/2011	5.54	165	23.23	2.74	183.1	2.04
AC-8D	11/9/2011	4.84	122	23.43	6.30	282.4	1.92
AC-9D2	11/10/2011	4.16	772	23.61	0.78	353.1	0.43
AC-12D	11/9/2011	3.97	661	24.04	0.71	349.9	1.81
AC-13D	11/9/2011	4.01	810	23.97	0.01	297.3	0.54
AC-24D	11/14/2011	4.16	769	23.76	0.85	339.0	0.44
AC-25D	11/15/2011	4.15	1422	23.11	0.10	364.9	0.47
AC-28D	11/10/2011	4.42	345	23.60	2.98	349.0	0.47
AC-29D	11/11/2011	4.17	794	23.91	0.03	399.9	0.78
AC-30D	11/14/2011	4.11	242	23.97	1.23	318.1	0.14
ACB-31S	11/8/2011	6.01	220	23.61	8.45	171.9	3.49
ACB-32S	11/8/2011	6.51	127	24.12	7.61	158.1	1.65
AC-33S	11/8/2011	5.42	116	23.35	1.91	214.5	1.21
AC-34S	11/9/2011	4.86	220	23.27	3.24	243.8	1.92
AC-35D	11/16/2011	3.94	1611	22.98	0.10	303.7	0.24
AC-36D	11/9/2011	4.92	144	22.90	6.63	266.3	2.63
NWD-4D	11/15/2011	5.87	163	22.88	0.01	-55.2	0.43
PIP-D	11/11/2011	5.05	66	21.07	7.37	294.9	28.30

NOTES:

su = Standard Units

µs/cm=microsiemens per centimeter

^{0}C = Degrees Celsius

mg/L = milligrams per Liter

mV = milliVolt

NTU = Nephelometric Turbidity Units

TABLE 4
GROUNDWATER ELEVATIONS
November 7, 2011

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	49.64	42.28
ACB-32S	SZ	88.16	46.91	41.25
AC-33S	SZ	89.18	49.59	39.59
AC-7SR	SZ	90.59	51.43	39.16
AC-34S	SZ	89.09	50.15	38.94
AC-2D	MPZ	92.74	54.82	37.92
AC-2S	SZ	88.65	50.46	38.19
AC-3D	MPZ	88.07	60.06	28.01
AC-3S	SZ	88.06	53.79	34.27
AC-5D	MPZ	82.40	47.48	34.92
AC-5S	SZ	82.34	42.20	40.14
AC-6D	MPZ	69.19	45.21	23.98
AC-6S	SZ	69.32	39.58	29.74
AC-8D	MPZ	76.44	60.63	15.81
AC-9D2	MPZ	64.13	53.87	10.26
AC-10D	MPZ	79.48	66.79	12.69
AC-11D	MPZ	73.17	65.06	8.11
AC-12D	MPZ	79.23	63.93	15.30
AC-13D	MPZ	74.65	65.55	9.10
AC-14D	MPZ	49.79	44.63	5.16
AC-21D	MPZ	75.47	44.03	31.44
AC-22D	MPZ	76.58	55.81	20.77
AC-23D	MPZ	79.51	58.01	21.50
AC-24D	MPZ	79.60	64.41	15.19
AC-24S	SZ	79.50	57.08	22.42
AC-25D	MPZ	39.75	33.27	6.48
AC-26D	MPZ	26.70	18.96	7.74
AC-26S	SZ	26.75	19.80	6.95
AC-27D	MPZ	18.55	13.91	4.64
AC-27S	SZ	18.50	14.09	4.41
AC-28D	MPZ	74.89	64.21	10.68
AC-29D	MPZ	82.26	60.12	22.14
AC-30D	MPZ	85.73	70.33	15.40
AC-35D	MPZ	10.49	4.30	6.19
AC-36D	MPZ	5.26	1.93	3.33
NWD-2D	MPZ	76.80	49.11	27.69
NWD-2S	SZ	77.53	42.82	34.71
NWD-4D	MPZ	34.70	19.68	15.02
NWD-4S	SZ	34.70	19.48	15.22
PIP-D	MPZ	86.05	45.23	40.82

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
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
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
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
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
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 RACOON 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
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

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
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 MANGEME	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	CRAWFORDFILLE	FL	32327
MAINOR 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
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

TABLE 6

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Agrico Site
Pensacola, Florida

NAME	COMPANY NAME	ADDRESS	CITY	STATE	POSTAL CODE
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 PLUBMING 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 LANSCAPING & LAWN CARE		7795 GROW DR	PENSACOLA	FL	32514
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
DOWNS PLUMBING & GAS	LARRY DOWNS	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

TABLE 6

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Agrico Site
Pensacola, Florida

NAME	COMPANY NAME	ADDRESS	CITY	STATE	POSTAL CODE
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 PLUMBNIG CONTRACTORS		211 Brent Ln	PENSACOLA	FL	32503
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

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 Cemetary Diocese of Pensacola	1300 E. HAYES	4	160	140	MPZ	YES	YES	11/28/2000		Two wells exist for cemetary, for sampling purposes labeled HC-1 and HC-2
	41(HC-2)	Holy Cross Cemetary Diocese of Pensacola	1300 E. HAYES	4	160	140	MPZ	YES	YES	11/28/2000		Two wells exist for cemetary, 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 Meets 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

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

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

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meets Performance Standard
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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

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meets Performance Standard
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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

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

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

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meets 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 Meets 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. 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.	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 Meets 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.	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. 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. 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 Meets 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.	1.3	0.7 +/- 0.20	1.5 +/- 0.80	2.2
	9/26/1997	< 0.2	< 0.01	NA	4.7	< 5.	0.41	< 0.6 +/- 0.04	< 1. +/- 0.40	1.6
	11/17/1999	< 0.2	< 0.01	NA	7.2	< 5.	0.31	1.4	< 1.5 +/- 0.81	2.9
	11/21/2000	< 0.2	< 0.01	NA	5.5	< 5.	0.4	0.5 +/- 0.10	6.4 +/- 1.20	**6.9**
	11/13/2001	< 0.2	< 0.01	NA	5	< 5.	0.44	0.5 +/- 0.10	1.8 +/- 0.80	2.3
	11/22/2002	< 0.2	< 0.01	NA	5.5	< 5.	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. 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.	0.61	0.583 +/- 0.15	1.49 +/- 0.33	2.073
	11/15/2005	< 0.2 U	< 0.01 U	NA	15	< 5. 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. 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. 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 Meets 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

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

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meets 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.	0.27	< 1. +/- 0.52	< 1.5 +/- 0.32	2.5
	11/21/2000	< 0.2	< 0.01	NA	4.9	< 5.	0.35	0.8 +/- 0.40	1.9 +/- 3	2.7
	11/13/2001	< 0.2	< 0.01	NA	8.3	< 5.	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
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**

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meets 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.	6.7	< 0.6 +/- 0.07	< 1. +/- 0.44	1.6
	11/18/1999	< 0.2	< 0.01	NA	17	< 5.	8.1	1.7	1.9	3.6
	11/17/2000	< 0.2	< 0.01	NA	16	< 5.	9.1	0.9 +/- 0.20	2.7 +/- 0.90	3.6
	11/13/2001	< 0.2	< 0.01	NA	16	< 5.	8.9	1. +/- 0.20	2.5 +/- 1	3.5
	11/25/2002	< 0.2	< 0.01	NA	17	< 5.	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. U	9.3	1.28 +/- 0.28	1.94 +/- 0.54	3.22
	11/10/2004	< 0.2	< 0.01	NA	18	< 5.	9.4	1.04 +/- 0.15	1.96 +/- 0.35	3
	11/9/2005	< 0.2 U	< 0.01 U	NA	16	< 5. 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. 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. 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. 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
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**

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

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

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

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

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

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meets 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
	1/15/2004	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
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
	1/14/2004	< 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

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

TABLE 8
COMPARISON OF COC RESULTS AT GROUNDWATER MONITORING LOCATIONS FOR SURFICIAL ZONE AND MAIN PRODUCING ZONE
Highlighted Results Meets 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	4.3	NA	NA	NA
	4/9/1992	< 0.2	< 0.01	< 0.005	9.5	< 5.	3.5	NA	NA	NA
	9/24/1997	< 0.2	< 0.01	NA	11	< 5.	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. 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. 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 Meets 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 Meets 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. 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. 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.	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. 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. 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.	4.4	NA	NA	NA
	9/25/1997	< 0.2	< 0.01	NA	8.8	< 5.	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 baised 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

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

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
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
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

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						

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

Agrico Site
Pensacola, Florida

(1) Bayou Texar naturally occurring brackish water from Pensacola Bay

(2) Station Discontinued after 2009.

(3) Stations added in 2010; analysis is for fluoride only.

Notes:

COC = constituent of concern

mg/L = milligrams per Liter

pCi/L = picocuries per Liter

NA = Not Analyzed

Radium 226 + 228 Analytical Laboratories:

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