DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY, MCAAP
25800 RALPH FAIR ROAD, BOERNE, TX 78015-4800

May 3, 2012

U-022-12

[redacted]
25360 Old Fredericksburg Road
Boerne, TX 78015

SUBJECT: Sampling of Water Well RFR-11, Located at 25360 Old Fredericksburg Rd.

[redacted]

Camp Stanley Storage Activity (CSSA) collected a groundwater sample from your well (RFR-11) on March 8, 2012. The purpose of this letter is to transmit the analytical results for your well sample, and to also inform you about a treatment technology that CSSA will be testing at Area of Concern 65 (AOC-65) in the coming months. In preparation for this upcoming treatability study, the March 8 sample of groundwater from your well was analyzed for additional analytes so that baseline conditions could be established. This sample was submitted to a laboratory contracted by CSSA's environmental contractor for volatile organic compounds (VOCs), metals, and natural water quality parameters such as alkalinity and pH. This letter provides you with the laboratory results and a formal thank you for your assistance in this groundwater monitoring effort.

Upcoming Treatability Study

AOC-65, located in the southwest corner of CSSA, see enclosed map, has been identified as a source of VOCs found in groundwater around CSSA. A soil vapor extraction (SVE) system was installed in 2002 and is being tested to evaluate its effectiveness and ability to remove VOCs from soil and rock in the area. Since the initial operation of the SVE system began in 2002, a reduction in soil gas concentrations has been observed. However, we have continued to look for other technologies to accelerate the rate of contaminant removal.

CSSA will be testing a technology called in-situ chemical oxidation (ISCO) to treat contamination underlying and in the vicinity of a former drainage ditch at AOC-65. ISCO is accomplished by injecting a chemical oxidizer, sodium persulfate, directly into the contaminated soil/rock and groundwater to remediate chemical contaminants in place. In March, a 325-foot-long, 15-foot-deep, 3.5-foot wide trench was excavated in the drainage ditch at AOC-65 to remove contaminated soil and rock and to provide a suitable location for injecting a small amount of the ISCO material into the ground where underlying rock and groundwater contaminant concentrations are highest. CSSA continues to coordinate closely with the U.S. Environmental Protection Agency (USEPA) and the Texas Commission on Environmental Quality (TCEQ) regarding our groundwater program and the ISCO technology for AOC-65 is a regulator-approved treatment option.

CSSA is confident that this study will not impact the safety of your drinking water, in fact it should gradually improve it by helping reduce the amounts of VOCs in your groundwater. We will be injecting ISCO material into the trench in June for this pilot treatability study, and we anticipate that its range of influence will not extend to the location of your well due to the small

amount of ISCO material we will be using. We will closely monitor on-post wells surrounding the injection site to monitor its range of effect, and with your permission, we will also collect samples from your well one day, 5 days, 15 days, and 30 days following the ISCO injection date as an added measure to verify the range of the ISCO's effects. In the unlikely event that residuals created by the injection of this small amount of ISCO migrate off-post, your well's granular activated carbon (GAC) unit will treat these residual compounds.

March 2012 Monitoring Results

An abbreviated summary of the March 2012 analytical results for your well compared to maximum contaminant levels (MCLs) allowed in drinking water by the U.S. EPA under the Safe Drinking Water Act is provided in the attached table.

Based on the analytical data, levels of the VOCs PCE and TCE were identified in the water sample from your well before GAC filtration. These levels are below the applicable MCL and do not affect usability of your well. The concentrations reported for the VOC PCE was above the MCL in the past. Therefore, a filtration system was installed on your well. Chloride, sulfate, sulfide, bicarbonate, and many metals are naturally occurring, and none of the concentrations detected in your well exceed MCLs.

Carbonair Environmental Systems of San Marcos, Texas installed the filtration system on your well. The system will remain in operation for the foreseeable future or until significant reductions in contamination levels are seen in the water in your well before it enters the filtration system. As we discussed at the time of installation, CSSA will continue to be responsible for all costs associated with operation and maintenance of this system. CSSA will continue to send a representative every three weeks to exchange the five-micron pre-and post-filters in the system. Carbonair exchanged the first carbon canister and performed other routine maintenance on your system in January 2012. If you experience any problems with the system, please let the installer or CSSA know immediately. Carbonair is very responsive and can make additional maintenance visits if needed.

On 3/8/12, CSSA collected a sample from your well (RFR-11) after the water was processed through the GAC filter system. This sample is representative of the water being delivered to your home for daily use. Based on the analytical data, no VOCs related to CSSA's groundwater investigation were identified in the sample after the second carbon canister (A2). A summary of the post-GAC analytical results is provided below. Copies of the laboratory data sheets are attached. CSSA will collect additional confirmation samples on a 6-month basis to confirm the system remains effective.

Date Sampled	VOC compound	Result (ppb)	MCL (ppb)
Well RFR-11-A2, 25360 Old Fredericksburg Rd.			
3/8/12	PCE	<0.06 (non-detect)	5
	TCE	<0.05 (non-detect)	5
	cis-1,2-DCE	<0.07 (non-detect)	70

As part of the ongoing CSSA environmental program, we are continuing to investigate and cleanup VOC source areas on the installation and to track these compounds in groundwater on- and off-post. As part of this effort, your well is scheduled to be sampled again in June 2012, and following the initiation of the ISCO pilot treatability study. Results of the study will be provided to you.

Again, we would like to thank you for your cooperation. We are committed to making sure your water is safe to use and keeping you informed. If you have any questions concerning this letter, or would like further information about the upcoming study, please contact Gabriel Moreno-Fergusson, Environmental Program Manager, at (210) 295-7014.

Sincerely,

Jason D. Shirley
Installation Manager

Enclosure

cc: Mr. Greg Lyssy, EPA Region 6
Mr. Kirk Coulter, TCEQ Central Office
Mr. Henry Karnei, TCEQ Region 13
Ms. Kyle Cunningham, San Antonio Metropolitan Health Dist.
Ms. Julie Burdey, Parsons

March 8, 2012 Groundwater Sample Analytical Results for RFR-11, 25360 Old Fredericksburg Rd.

Compound	Result (see footnotes for explanation of data flags)	MCL, Action Level, or Secondary MCL
Tetrachloroethene (PCE)	0.47F ppb	5 ppb
Trichloroethene (TCE)	1.47 ppb	5 ppb
cis-1,2-Dichloroethene (DCE)	<0.07 ppb (non-detect)	70 ppb
Total Antimony	<1.8 ppb (non-detect)	6 ppb
Dissolved Antimony	7.9B ppb	
Total Arsenic	<0.2 ppb (non-detect)	10 ppb
Dissolved Arsenic	<0.2 ppb (non-detect)	
Total Beryllium	<0.2 ppb (non-detect)	4 ppb
Dissolved Beryllium	<0.2 ppb (non-detect)	
Total Cadmium	<0.3 ppb (non-detect)	5 ppb
Dissolved Cadmium	<0.3 ppb (non-detect)	
Total Chromium	<1.0 ppb (non-detect)	100 ppb
Dissolved Chromium	<1.0 ppb (non-detect)	
Total Copper	33 ppb	1,300 ppb
Dissolved Copper	4.2F ppb	
Total Lead	6.8 ppb	15 ppb[1]
Dissolved Lead	<1.9 ppb (non-detect)	
Total Manganese	<1.2 ppb (non-detect)	50 ppb[2]
Total Mercury	<0.1 ppb (non-detect)	2 ppb
Dissolved Mercury	1.0J ppb	
Total Nickel	<1.0 ppb (non-detect)	--
Dissolved Nickel	1.0J ppb	
Total Selenium	<3.2 ppb (non-detect)	50 ppb
Dissolved Selenium	<3.2 ppb (non-detect)	
Total Silver	0.081J ppb	100 ppb[2]
Dissolved Silver	<0.081 ppb (non-detect)	
Total Thallium	<1.0 ppb (non-detect)	2 ppb
Dissolved Thallium	<1.0 ppb (non-detect)	
Total Zinc	123 ppb	5,000 ppb[2]
Dissolved Zinc	73.7 ppb	
Chloride	11.97 ppm	250 ppm[2]
Sulfate	23.72 ppm	250 ppm[2]
Sulfide	<2.53 ppm (non-detect)	--
Bicarbonate / Total Alkalinity	317.5 ppm	--
pH	7.1	6.5 – 8.5[2]

Footnotes:

[1] This is an action level. If more than 10% of tap water samples exceed the action level, water systems must take additional steps.

[2] This is a non-mandatory secondary MCL (SMCL). USEPA does not enforce SMCLs. They are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color and odor. These contaminants are not considered to present a risk to human health at the SMCL.

B = Analyte was also detected in laboratory method blank sample. The dissolved concentration is a subset of the total concentration. Since no total arsenic was detected, this dissolved concentration consists entirely of sample contamination at the laboratory.

F = Analyte was positively identified above the laboratory method detection limit, but below the laboratory reporting limit for the compound.

J = Analyte was positively identified but the concentration is an estimation.

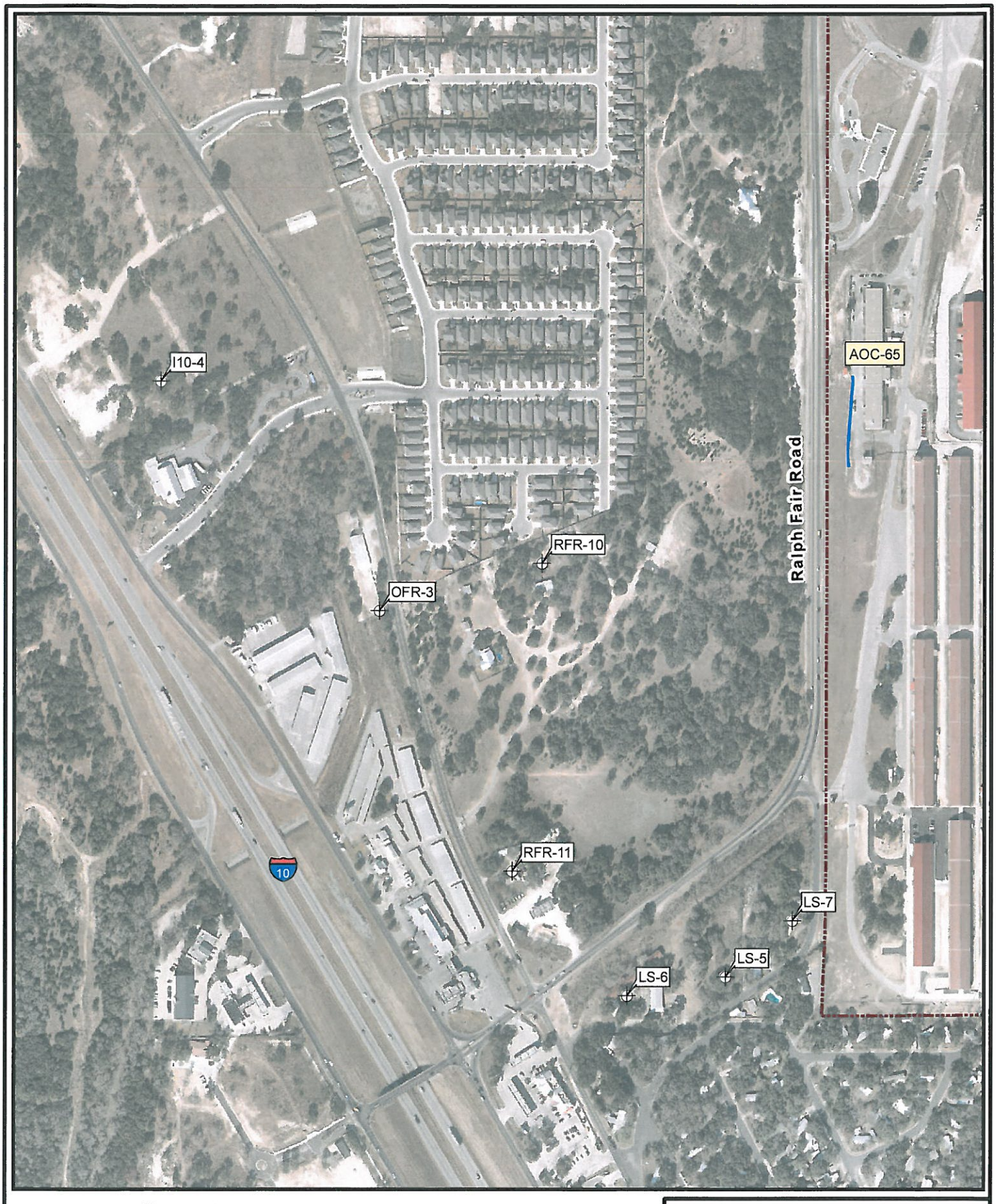

Figure 1

Trench Location Map

Camp Stanley Storage Activity

PARSONS

J:\CSSA\GIS\AOC65_Bldg90\Maps\AOC65_Well_Owners_Trench_Notification.mxd

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 8260B Preparatory Method: 5030B AAB #: 120315AN-164941
Lab Name: APPL, Inc Contract #: *G012
Field Sample ID: RFR-11 Lab Sample ID: AY56697 Matrix: Water
% Solids: NA Initial Calibration ID: N120309
Date Received: 09-Mar-12 Date Prepared: 15-Mar-12 Date Analyzed: 15-Mar-12
Concentration Units: ug/L

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
1,1-DCE	0.12	1.2	0.12	1		U
CIS-1,2-DCE	0.07	1.2	0.07	1		U
TCE	0.05	1.0	1.74	1		
TETRACHLOROETHENE	0.06	1.4	0.47	1		F
TRANS-1,2-DCE	0.08	0.6	0.08	1		U
VINYL CHLORIDE	0.08	1.1	0.08	1		U

Surrogate	Recovery	Control Limits	Qualifier
SURROGATE: 1,2-DICHLOROETHANE-	93.8	69-139	
SURROGATE: 4-BROMOFLUOROBENZ	89.5	75-125	
SURROGATE: DIBROMOFLUOROMET	97.6	75-125	
SURROGATE: TOLUENE-D8 (S)	85.2	75-125	

Internal Std	Qualifier
1,4-DICHLOROBENZENE-D4 (IS)	
CHLOROBENZENE-D5 (IS)	
FLUOROBENZENE (IS)	

Comments: ARF: 67176

AFCEE FORM O-2

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 8260B Preparatory Method: 5030B AAB #: 120315AN-164941
Lab Name: APPL, Inc Contract #: *G012
Field Sample ID: RFR-11-A2 Lab Sample ID: AY56698 Matrix: Water
% Solids: NA Initial Calibration ID: N120309
Date Received: 09-Mar-12 Date Prepared: 15-Mar-12 Date Analyzed: 15-Mar-12
Concentration Units: ug/L

Analyte	MDL	RL	Concentration	Dilution	Confirm	Qualifier
1,1-DCE	0.12	1.2	0.12	1		U
CIS-1,2-DCE	0.07	1.2	0.07	1		U
TCE	0.05	1.0	0.05	1		U
TETRACHLOROETHENE	0.06	1.4	0.06	1		U
TRANS-1,2-DCE	0.08	0.6	0.08	1		U
VINYL CHLORIDE	0.08	1.1	0.08	1		U

Surrogate	Recovery	Control Limits	Qualifier
SURROGATE: 1,2-DICHLOROETHANE-	99.5	69-139	
SURROGATE: 4-BROMOFLUOROBENZ	95.4	75-125	
SURROGATE: DIBROMOFLUOROMET	107	75-125	
SURROGATE: TOLUENE-D8 (S)	86.6	75-125	

Internal Std	Qualifier
1,4-DICHLOROBENZENE-D4 (IS)	
CHLOROBENZENE-D5 (IS)	
FLUOROBENZENE (IS)	

Comments: ARF: 67176

AFCEE
INORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 6010B Preparatory Method: 3010A AAB #: 120314A-165196
Lab Name: APPL, Inc Contract #: *G012
Field Sample ID: RFR-11 Lab Sample ID: AY56668 Matrix: Water
% Solids: NA Initial Calibration ID: 120316A
Date Received: 09-Mar-12 Date Prepared: 14-Mar-12 Date Analyzed: 16-Mar-12
Concentration Units: ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
ANTIMONY (SB)	1.8	5.0	1.8	1	U
ARSENIC (AS)	0.2	5.0	0.2	1	U
BERYLLIUM (BE)	0.2	2.0	0.2	1	U
CADMIUM (CD)	0.30	5.0	0.30	1	U
CHROMIUM (CR)	1.0	5.0	1.0	1	U
COPPER (CU)	3	5.0	33	1	
LEAD (PB)	1.9	5.0	6.8	1	
MANGANESE (MN)	1.2	5.0	1.2	1	U
NICKEL (NI)	1.0	5.0	1.0	1	U
SELENIUM (SE)	3.2	5.0	3.2	1	U
SILVER (AG)	0.081	1.0	0.081	1	J
THALLIUM (TL)	1.0	5.0	1.0	1	U
ZINC (ZN)	8	50.0	123	1	

Comments: ARF: 67173

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INORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 6010B Preparatory Method: 3010A AAB #: 120313A-164956
Lab Name: APPL, Inc Contract #: *G012
Field Sample ID: RFR-11 Lab Sample ID: AY56668 Matrix: Water
% Solids: NA Initial Calibration ID: 120314A
Date Received: 09-Mar-12 Date Prepared: 13-Mar-12 Date Analyzed: 14-Mar-12
Concentration Units: ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
ANTIMONY (SB) (DISSOLVED)	1.8	5.0	7.9	1	B
ARSENIC (AS) (DISSOLVED)	0.2	5.0	0.2	1	U
BERYLLIUM (BE) (DISSOLVED)	0.2	2.0	0.2	1	U
CADMIUM (CD) (DISSOLVED)	0.3	5.0	0.3	1	U
CHROMIUM (CR) (DISSOLVED)	1.0	5.0	1.0	1	U
COPPER (CU) (DISSOLVED)	3.0	5.0	4.2	1	F
LEAD (PB) (DISSOLVED)	1.9	3.0	1.9	1	U
NICKEL (NI) (DISSOLVED)	1.0	5.0	1.0	1	J
SELENIUM (SE) (DISSOLVED)	3.2	5.0	3.2	1	U
SILVER (AG) (DISSOLVED)	0.081	1.0	0.081	1	U
THALLIUM (TL) (DISSOLVED)	1.0	5.0	1.0	1	U
ZINC (ZN) (DISSOLVED)	8.0	50.0	73.7	1	

Comments: ARF: 67173

AFCEE
INORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 7470A Preparatory Method: 7470A AAB #: 120313A-164867
Lab Name: APPL, Inc Contract #: *G012
Field Sample ID: RFR-11 Lab Sample ID: AY56668 Matrix: Water
% Solids: NA Initial Calibration ID: 120314A
Date Received: 09-Mar-12 Date Prepared: 13-Mar-12 Date Analyzed: 14-Mar-12
Concentration Units: ug/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
MERCURY (HG) (DISSOLVED)	0.1	0.2	0.1	1	J

Comments: ARF: 67173

AFCEE
WET CHEM ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 9056 AAB #: 120328B-165320
Lab Name: APPL, Inc Contract #: *G012
Field Sample ID: RFR-11 Lab Sample ID: AY56668 Matrix: Water
% Solids: NA Initial Calibration ID: 120315
Date Received: 09-Mar-12 Date Prepared: 29-Mar-12 Date Analyzed: 29-Mar-12
Concentration Units: mg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
CHLORIDE	0.08	1.000	11.97	1	
SULFATE	0.26	1.000	23.72	1	

Comments: ARF: 67173

AFCEE
WET CHEM ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM 2320B
AAB #: 120320A-165127
Lab Name: APPL, Inc
Contract #: *G012
Field Sample ID: RFR-11
Lab Sample ID: AY56668
Matrix: Water
% Solids: NA
Date Received: 09-Mar-12
Date Prepared: 20-Mar-12
Date Analyzed: 20-Mar-12
Concentration Units: mg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
BICARBONATE AS CACO3	0.3	2.0	317.5	1	
TOTAL ALKALINITY AS CACO3	0.85	2.0	317.54	1	

Comments: ARF: 67173

AFCEE
WET CHEM ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM4500S2F AAB #: 120312A-164761
Lab Name: APPL, Inc Contract #: *G012
Field Sample ID: RFR-11 Lab Sample ID: AY56668 Matrix: Water
% Solids: NA Initial Calibration ID: na
Date Received: 09-Mar-12 Date Prepared: 12-Mar-12 Date Analyzed: 12-Mar-12
Concentration Units: mg/L

Analyte	MDL	RL	Concentration	Dilution	Qualifier
SULFIDE	2.53	5.0	2.53	1	U

Comments: ARF: 67173

AFCEE FORM W-2

AFCEE
WET CHEM ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM4500HB AAB #: 120309a-165080
Lab Name: APPL, Inc Contract #: *G012
Field Sample ID: RFR-11 Lab Sample ID: AY56668 Matrix: Water
% Solids: NA Initial Calibration ID: 120309A
Date Received: 09-Mar-12 Date Prepared: 09-Mar-12 Date Analyzed: 09-Mar-12
Concentration Units: pH Units

Analyte	MDL	RL	Concentration	Dilution	Qualifier
PH		1.0	7.1@15.6C	1	

Comments: ARF: 67173