



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

May 3, 2012

U-023-12

[REDACTED]
8902 Cedar Trail
Boerne, TX 78006

SUBJECT: Sampling of Water Well OFR-3, Located at 25617 Old Fredericksburg Rd.
[REDACTED]

Camp Stanley Storage Activity (CSSA) collected a groundwater sample from your well (OFR-3) 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.

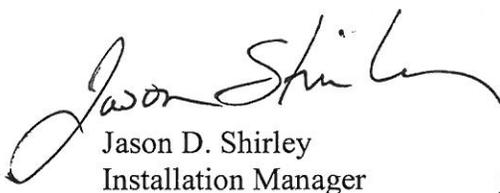
On 3/8/12, CSSA collected a sample from your well (OFR-3) after the water was processed through the GAC filter system. This sample is representative of the water being delivered to your home for daily use. Based on the analytical data, no VOCs related to CSSA's groundwater investigation were identified 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 OFR-3-A2, located at 25617 Old Fredericksburg Rd. | | | |
| 3/8/12 | PCE | <0.06 (non-detect) | 5 |
| | TCE | <0.05 (non-detect) | 5 |
| | <i>cis</i> -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 OFR-3,
25617 Old Fredericksburg Rd.**

| Compound | Result (see footnotes for explanation of data flags) | MCL, Action Level, or Secondary MCL |
|--------------------------------------|---|--|
| Tetrachloroethene (PCE) | 5.19 ppb | 5 ppb |
| Trichloroethene (TCE) | 3.32 ppb | 5 ppb |
| <i>cis</i> -1,2-Dichloroethene (DCE) | 0.17F ppb | 70 ppb |
| Total Antimony | <1.8 ppb (non-detect) | 6 ppb |
| Dissolved Antimony | 5.5B 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 | 1.6F ppb | 100 ppb |
| Dissolved Chromium | <1.0 ppb (non-detect) | |
| Total Copper | 7 ppb | 1,300 ppb |
| Dissolved Copper | 6.1 ppb | |
| Total Lead | <1.9 ppb (non-detect) | 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 | 0.1J 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 | 79 ppb | 5,000 ppb ² |
| Dissolved Zinc | 82.4 ppb | |
| Chloride | 10.73 ppm | 250 ppm ² |
| Sulfate | 13.81 ppm | 250 ppm ² |
| Sulfide | <2.53 ppm (non-detect) | -- |
| Bicarbonate / Total Alkalinity | 286.9 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.



0 200 400 800 Feet

-  Water Supply Well Location
-  CSSA Fence Line
-  Trench

Figure 1

Trench Location Map
Camp Stanley Storage Activity

PARSONS

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 8260B Preparatory Method: 5030B AAB #: 120314AN-164940
 Lab Name: APPL, Inc Contract #: *G012
 Field Sample ID: OFR-3 Lab Sample ID: AY56689 Matrix: Water
 % Solids: NA Initial Calibration ID: N120309
 Date Received: 09-Mar-12 Date Prepared: 14-Mar-12 Date Analyzed: 14-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 | 0.17 | 1 | | F |
| TCE | 0.05 | 1.0 | 3.32 | 1 | | |
| TETRACHLOROETHENE | 0.06 | 1.4 | 5.19 | 1 | | |
| 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- | 97.3 | 69-139 | |
| SURROGATE: 4-BROMOFLUOROBENZ | 85.2 | 75-125 | |
| SURROGATE: DIBROMOFLUOROMET | 104 | 75-125 | |
| SURROGATE: TOLUENE-D8 (S) | 80.1 | 75-125 | |

| Internal Std | Qualifier |
|----------------------------|-----------|
| 1,4-DICHLOROENZENE-D4 (IS) | |
| CHLOROENZENE-D5 (IS) | |
| FLUROENZENE (IS) | |

Comments: ARF: 67176

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 8260B Preparatory Method: 5030B AAB #: 120314AN-164940
 Lab Name: APPL, Inc Contract #: *G012
 Field Sample ID: OFR-3-A2 Lab Sample ID: AY56691 Matrix: Water
 % Solids: NA Initial Calibration ID: N120309
 Date Received: 09-Mar-12 Date Prepared: 14-Mar-12 Date Analyzed: 14-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- | 92.2 | 69-139 | |
| SURROGATE: 4-BROMOFLUOROBENZ | 91.3 | 75-125 | |
| SURROGATE: DIBROMOFLUOROMET | 98.3 | 75-125 | |
| SURROGATE: TOLUENE-D8 (S) | 84.6 | 75-125 | |

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

Comments: ARF: 67176

AFCEE
ORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 8260B Preparatory Method: 5030B AAB #: 120314AN-164940
 Lab Name: APPL, Inc Contract #: *G012
 Field Sample ID: OFR-3-A2 FD Lab Sample ID: AY56690 Matrix: Water
 % Solids: NA Initial Calibration ID: N120309
 Date Received: 09-Mar-12 Date Prepared: 14-Mar-12 Date Analyzed: 14-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- | 101 | 69-139 | |
| SURROGATE: 4-BROMOFLUOROBENZ | 87.0 | 75-125 | |
| SURROGATE: DIBROMOFLUOROMET | 105 | 75-125 | |
| SURROGATE: TOLUENE-D8 (S) | 84.3 | 75-125 | |

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

Comments: ARF: 67176

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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: OFR-3 Lab Sample ID: AY56666 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 | 3 | 1 | U |
| LEAD (PB) | 1.9 | 5.0 | 1.9 | 1 | U |
| 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 | 79 | 1 | |

Comments: ARF: 67173

AFCEE
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: OFR-3 Lab Sample ID: AY56666 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 | 5.5 | 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 | 3.0 | 1 | U |
| 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 | 82.4 | 1 | |

Comments: ARF: 67173

AFCEE
INORGANIC ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 7470A Preparatory Method: 7470A AAB #: 120314A-164884
Lab Name: APPL, Inc Contract #: *G012
Field Sample ID: OFR-3 Lab Sample ID: AY56666 Matrix: Water
% Solids: NA Initial Calibration ID: 120315B
Date Received: 09-Mar-12 Date Prepared: 14-Mar-12 Date Analyzed: 15-Mar-12
Concentration Units: ug/L

| Analyte | MDL | RL | Concentration | Dilution | Qualifier |
|--------------|-----|-----|---------------|----------|-----------|
| MERCURY (HG) | 0.1 | 0.2 | 0.1 | 1 | U |

Comments: ARF: 67173

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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: OFR-3 Lab Sample ID: AY56666 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

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WET CHEM ANALYSES DATA SHEET 2
RESULTS

Analytical Method: EPA 9056

AAB #: 120328B-165320

Lab Name: APPL, Inc

Contract #: *G012

Field Sample ID: OFR-3

Lab Sample ID: AY56666

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 | 10.73 | 1 | |
| SULFATE | 0.26 | 1.000 | 13.81 | 1 | |

Comments: ARF: 67173

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WET CHEM ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM 2320B

AAB #: 120320A-165127

Lab Name: APPL, Inc

Contract #: *G012

Field Sample ID: OFR-3

Lab Sample ID: AY56666

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 CaCO ₃ | 0.3 | 2.0 | 286.9 | 1 | |
| TOTAL ALKALINITY AS CaCO ₃ | 0.85 | 2.0 | 286.87 | 1 | |

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WET CHEM ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM4500S2F

AAB #: 120312A-164761

Lab Name: APPL, Inc

Contract #: *G012

Field Sample ID: OFR-3

Lab Sample ID: AY56666

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 |

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WET CHEM ANALYSES DATA SHEET 2
RESULTS

Analytical Method: SM4500HB

AAB #: 120309a-165080

Lab Name: APPL, Inc

Contract #: *G012

Field Sample ID: OFR-3

Lab Sample ID: AY56666

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@14.9C | 1 | |

Comments: ARF: 67173
