

BFF

 ENTERED



DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER
JOINT BASE SAN ANTONIO LACKLAND TEXAS



Mr. Scott Clark
Chief, Environmental Restoration
AFCEC/CZOW
2050 Wyoming Blvd SE
Kirtland AFB NM 87117-5270

JUL 26 2017

Ms. Michelle Hunter
Ground Water Quality Bureau (GWQB)
New Mexico Environment Department (NMED)
Harold Runnels Building
1190 Saint Francis Drive
Santa Fe, New Mexico 87502

Dear Ms. Hunter

This letter serves as the Corrective Action Report for the golf course pond vegetation clearing coolant leak associated with the Bulk Fuels Facility Spill, Solid Waste Management Unit ST-106/SS-111, Kirtland Air Force Base (AFB), New Mexico. This report is submitted pursuant to 20.6.2.1203.A(6) NMAC, "Notification of Discharge-Removal". The two- to three-gallon leak of engine coolant (water and ethylene glycol) from a contractor's vehicle near the golf course ponds was originally reported to NMED via email on July 11, 2017, a few hours after the release was discovered.

The leak occurred as a result of a punctured radiator when the contractor's vehicle hit a non-potable water sign near Pond #2 at the Tijeras Arroyo Golf Course, Kirtland AFB. The leak soaked into two locations, one near the sign (Location 1) and approximately 40 feet (ft) east of the sign (Location 2) where the truck was initially moved following the incident. Approximately two gallons were leaked at Location 1 and an additional 0.5 gallons at Location 2. Immediately upon discovery, a bucket was placed under the radiator to catch any dripping coolant and a total of approximately four gallons of wetted soil was removed from both locations. All wetted soil and captured coolant were transferred to five-gallon buckets, which are stored in EA's IDW yard pending waste disposal approval. On July 12, 2017 approximately 5.3 cubic feet of soil was excavated and removed from the surface release areas (Location 1: Excavated 1.2 ft x 3.5 ft by 8 inches in depth; Location 2 excavated 2 ft x 2.5 ft x 4 inches in depth). Soil was placed into a 55-gallon polyethylene drum. Photographs of the cleanup operations are provided as Attachment 1. Two confirmation samples (SP-01 and SP-02) were collected (one from each location) to be analyzed by EPA Method 8015 (for ethylene glycol specifically) following soil removal to ensure that the residual soil did not pose a risk to human health or the environment.

Both sample locations had low residual detections of ethylene glycol. Location 1 (SP-01) contained 12 milligrams per kilogram (mg/kg) and Location 2 contained an estimated concentration of 1.3 mg/kg (Table 1). Both samples contain residual ethylene glycol; below the EPA Regional Screening Levels (RSL) Protection of Groundwater, Risk-based Soil Screening Level (162 mg/kg) and the EPA RSL for Residential Use (13,500 mg/kg). The laboratory analytical report is provided as Attachment 2. Since the laboratory data confirm that the samples contained minimal coolant contamination, in such quantity as may with reasonable probability not to injure or be detrimental to human health, animal or plant life, or property, or unreasonably interfere with the public welfare or the use of property, Kirtland AFB is proposing no further corrective action.



If you have any questions or concerns, please contact me at (505) 846-9017 or at scott.clark@us.af.mil or Ms. Holly O'Grady at (505) 853-3484 or at holly.ogrady@us.af.mil.

Sincerely



Scott Clark
Chief, Environmental Restoration

Attachments:

Attachment 1 – Photographic Log

Attachment 2 – Laboratory Analytical Report for Excavated Soil

cc:

NMED (Borrego) letter only

NMED-GWQB (Agnew, Pullen)

NMED-HWB (Kieling)

SAF-IEE (Lynnes) electronic only

AFCEC/CZ (Renaghan, Bodour, O'Grady) electronic only

USACE-ABQ District Office (Simpler, Phaneuf, Dreeland; Sanchez; Salazar) electronic only

Public Info Repository, AR/IR, and File

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-140922-1
Client Project/Site: Kirtland Vadose Zone - Golf Course Spill

For:
EA Engineering, Science, and Technology
7995 E. Prentice Ave, Suite 206E
Greenwood Village, Colorado 80111

Attn: Ms. Shelley Rice

Stephanie Rothmeyer

Authorized for release by:
7/19/2017 10:09:31 AM

Stephanie Rothmeyer, Project Manager I
(303)736-0182
stephanie.rothmeyer@testamericainc.com

LINKS

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results through
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Have a Question?

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The
Expert**

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www.testamericainc.com

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

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

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

Definitions/Glossary

TestAmerica Job ID: 680-140922-1

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland Vadose Zone - Golf Course Spill

Qualifiers

GC VOA

| Qualifier | Qualifier Description |
|-----------|---|
| J | Estimated: The analyte was positively identified; the quantitation is an estimation |

Glossary

| Abbreviation | These commonly used abbreviations may or may not be present in this report. |
|----------------|---|
| □ | Listed under the "D" column to designate that the result is reported on a dry weight basis |
| %R | Percent Recovery |
| CFL | Contains Free Liquid |
| CNF | Contains No Free Liquid |
| DER | Duplicate Error Ratio (normalized absolute difference) |
| Dil Fac | Dilution Factor |
| DL | Detection Limit (DoD/DOE) |
| DL, RA, RE, IN | Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample |
| DLC | Decision Level Concentration (Radiochemistry) |
| EDL | Estimated Detection Limit (Dioxin) |
| LOD | Limit of Detection (DoD/DOE) |
| LOQ | Limit of Quantitation (DoD/DOE) |
| MDA | Minimum Detectable Activity (Radiochemistry) |
| MDC | Minimum Detectable Concentration (Radiochemistry) |
| MDL | Method Detection Limit |
| ML | Minimum Level (Dioxin) |
| NC | Not Calculated |
| ND | Not Detected at the reporting limit (or MDL or EDL if shown) |
| PQL | Practical Quantitation Limit |
| QC | Quality Control |
| RER | Relative Error Ratio (Radiochemistry) |
| RL | Reporting Limit or Requested Limit (Radiochemistry) |
| RPD | Relative Percent Difference, a measure of the relative difference between two points |
| TEF | Toxicity Equivalent Factor (Dioxin) |
| TEQ | Toxicity Equivalent Quotient (Dioxin) |

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland Vadose Zone - Golf Course Spill

TestAmerica Job ID: 680-140922-1

| Lab Sample ID | Client Sample ID | Matrix | Collected | Received |
|---------------|------------------|--------|----------------|----------------|
| 680-140922-1 | SP02-071217 | Solid | 07/12/17 13:12 | 07/13/17 08:21 |
| 680-140922-2 | SP01-071217 | Solid | 07/12/17 13:25 | 07/13/17 08:21 |



Case Narrative

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland Vadose Zone - Golf Course Spill

TestAmerica Job ID: 680-140922-1

Job ID: 680-140922-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: Kirtland Vadose Zone - Golf Course Spill

Report Number: 680-140922-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 7/13/2017 at 8:21 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2° C.

GLYCOLS- DIRECT INJECTION

Samples SP02-071217 (680-140922-1) and SP01-071217 (680-140922-2) were analyzed for Glycols- Direct Injection in accordance with 8015C. The samples were leached on 07/17/2017 and analyzed on 07/17/2017.

Ethylene glycol was detected in method blank MB 680-488050/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged "J". However, because the result concentration was less than ½ the reporting limit, no corrective action was necessary.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Client Sample Results

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland Vadose Zone - Golf Course Spill

TestAmerica Job ID: 680-140922-1

Client Sample ID: SP02-071217

Date Collected: 07/12/17 13:12

Date Received: 07/13/17 08:21

Lab Sample ID: 680-140922-1

Matrix: Solid

Method: 8015C GLY - Glycols- Direct Injection (GC/FID) - Soluble

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-----------------|--------|-----------|-----|------|-------|---|----------|----------------|---------|
| Ethylene glycol | 1.3 | J | 5.1 | 0.67 | mg/Kg | - | - | 07/17/17 20:08 | 1 |

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Client Sample ID: SP01-071217

Date Collected: 07/12/17 13:25

Date Received: 07/13/17 08:21

Lab Sample ID: 680-140922-2

Matrix: Solid

Method: 8015C GLY - Glycols- Direct Injection (GC/FID) - Soluble

| Analyte | Result | Qualifier | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-----------------|--------|-----------|-----|------|-------|---|----------|----------------|---------|
| Ethylene glycol | 12 | | 5.1 | 0.67 | mg/Kg | - | - | 07/17/17 20:46 | 1 |

QC Sample Results

Client: EA Engineering, Science, and Technology
 Project/Site: Kirtland Vadose Zone - Golf Course Spill

TestAmerica Job ID: 680-140922-1

Method: 8015C GLY - Glycols- Direct Injection (GC/FID)

Lab Sample ID: MB 680-488050/1-A
Matrix: Solid
Analysis Batch: 487969

Client Sample ID: Method Blank
Prep Type: Soluble

| Analyte | MB MB | | LOQ | DL | Unit | D | Prepared | Analyzed | Dil Fac |
|-----------------|--------|-----------|-----|------|-------|---|----------|----------------|---------|
| | Result | Qualifier | | | | | | | |
| Ethylene glycol | 1.18 | J | 5.1 | 0.67 | mg/Kg | | | 07/17/17 19:30 | 1 |

Lab Sample ID: LCS 680-488050/2-A
Matrix: Solid
Analysis Batch: 487969

Client Sample ID: Lab Control Sample
Prep Type: Soluble

| Analyte | Spike Added | LCS Result | LCS Qualifier | Unit | D | %Rec | %Rec. Limits |
|---------|-------------|------------|---------------|------|---|------|--------------|
| | | | | | | | |

Lab Sample ID: LCSD 680-488050/3-A
Matrix: Solid
Analysis Batch: 487969

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

| Analyte | Spike Added | LCSD Result | LCSD Qualifier | Unit | D | %Rec | %Rec. Limits | RPD | |
|-----------------|-------------|-------------|----------------|-------|---|------|--------------|-----|-------|
| | | | | | | | | RPD | Limit |
| Ethylene glycol | 40.2 | 34.1 | | mg/Kg | | 85 | 61 - 140 | 5 | 50 |

QC Association Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland Vadose Zone - Golf Course Spill

TestAmerica Job ID: 680-140922-1

GC VOA

Analysis Batch: 487969

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------------|------------------------|-----------|--------|-----------|------------|
| 680-140922-1 | SP02-071217 | Soluble | Solid | 8015C GLY | 488050 |
| 680-140922-2 | SP01-071217 | Soluble | Solid | 8015C GLY | 488050 |
| MB 680-488050/1-A | Method Blank | Soluble | Solid | 8015C GLY | 488050 |
| LCS 680-488050/2-A | Lab Control Sample | Soluble | Solid | 8015C GLY | 488050 |
| LCSD 680-488050/3-A | Lab Control Sample Dup | Soluble | Solid | 8015C GLY | 488050 |

Leach Batch: 488050

| Lab Sample ID | Client Sample ID | Prep Type | Matrix | Method | Prep Batch |
|---------------------|------------------------|-----------|--------|----------|------------|
| 680-140922-1 | SP02-071217 | Soluble | Solid | DI Leach | |
| 680-140922-2 | SP01-071217 | Soluble | Solid | DI Leach | |
| MB 680-488050/1-A | Method Blank | Soluble | Solid | DI Leach | |
| LCS 680-488050/2-A | Lab Control Sample | Soluble | Solid | DI Leach | |
| LCSD 680-488050/3-A | Lab Control Sample Dup | Soluble | Solid | DI Leach | |

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Lab Chronicle

Client: EA Engineering, Science, and Technology
 Project/Site: Kirtland Vadose Zone - Golf Course Spill

TestAmerica Job ID: 680-140922-1

Client Sample ID: SP02-071217

Lab Sample ID: 680-140922-1

Date Collected: 07/12/17 13:12

Matrix: Solid

Date Received: 07/13/17 08:21

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|----------------------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Soluble | Leach | DI Leach | | | 4.90 g | 5 mL | 488050 | 07/17/17 16:05 | SMC | TAL SAV |
| Soluble | Analysis | 8015C GLY | | 1 | 1 mL | 1 mL | 487969 | 07/17/17 20:08 | KAB | TAL SAV |
| Instrument ID: CVGG2 | | | | | | | | | | |

Client Sample ID: SP01-071217

Lab Sample ID: 680-140922-2

Date Collected: 07/12/17 13:25

Matrix: Solid

Date Received: 07/13/17 08:21

| Prep Type | Batch Type | Batch Method | Run | Dil Factor | Initial Amount | Final Amount | Batch Number | Prepared or Analyzed | Analyst | Lab |
|----------------------|------------|--------------|-----|------------|----------------|--------------|--------------|----------------------|---------|---------|
| Soluble | Leach | DI Leach | | | 4.91 g | 5 mL | 488050 | 07/17/17 16:05 | SMC | TAL SAV |
| Soluble | Analysis | 8015C GLY | | 1 | 1 mL | 1 mL | 487969 | 07/17/17 20:46 | KAB | TAL SAV |
| Instrument ID: CVGG2 | | | | | | | | | | |

Laboratory References:

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

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland Vadose Zone - Golf Course Spill

TestAmerica Job ID: 680-140922-1

Laboratory: TestAmerica Savannah

The accreditations/certifications listed below are applicable to this report.

| Authority | Program | EPA Region | Identification Number | Expiration Date |
|-----------|----------|------------|-----------------------|-----------------|
| L-A-B | DoD ELAP | | L2463 | 09-22-19 |

Laboratory: TestAmerica Denver

The accreditations/certifications listed below are applicable to this report.

| Authority | Program | EPA Region | Identification Number | Expiration Date |
|-----------|----------|------------|-----------------------|-----------------|
| A2LA | DoD ELAP | | 2907.01 | 10-31-17 |

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: Kirtland Vadose Zone - Golf Course Spill

TestAmerica Job ID: 680-140922-1

| Method | Method Description | Protocol | Laboratory |
|-----------|------------------------------------|----------|------------|
| 8015C GLY | Glycols- Direct Injection (GC/FID) | SW846 | TAL SAV |

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

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

Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 680-140922-1

Login Number: 140922

List Number: 1

Creator: Flanagan, Naomi V

List Source: TestAmerica Savannah

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



Location: Location 2
Description: Bucket Placed Under Truck to Capture Residual Coolant
Date: 12 July 2017

Direction: Northwest



Location: Location 1
Description: Soil Removal
Date: 12 July 2017

Direction: Down



Location: Location 2
Description: Soil Removal
Date: 12 July 2017

Direction: Down



Location: Location 1
Description: Damaged Sign
Date: 12 July 2017

Direction: West



Location: Location 1
Description: Location 1 Post Soil Removal
Date: 12 July 2017

Direction: North



Location: Location 2
Description: Location 2 Post Soil Removal
Date: 12 July 2017

Direction: North

TABLE 1. SUMMARY OF ANALYTICAL RESULTS FOR SOIL CONFIRMATION SAMPLES COLLECTED FROM ETHYLENE GLYCOL LEAK

| | | | | Field Sample ID: | SP01-071217 | SP02-071217 | | |
|-----------------|------------|----------|--|------------------------------|----------------|-------------|----------------|-------------|
| | | | | Sample Date: | 7/12/2017 | 7/12/2017 | | |
| | | | | Sample Type: | Soil | Soil | | |
| Analyte | EPA Method | CASRN | EPA RSL Residential ^a (mg/kg) | EPA SSL ^b (mg/kg) | Result (mg/kg) | LOQ (mg/kg) | Result (mg/kg) | LOQ (mg/kg) |
| Ethylene Glycol | SW8015C | 107-21-1 | 13,500 | 162 | 12 | 5.1 | 1.3J | 5.1 |

NOTES:

Analytical data generated by TestAmerica Laboratories, Inc., Savannah, Georgia.

^a USEPA Regional Screening Levels (RSLs) Residential Use for hazard index = 1.0 for noncarcinogens, June 2017.

^b EPA Regional Screening Levels Protection of Groundwater, Risk-based Soil Screening Level (SSL) based on dilution attenuation factor (DAF) 20, June 2017

CASRN = Chemical Abstracts Service Registry Number

EPA = U.S. Environmental Protection Agency

LOQ = Limit of quantitation (method reporting limit)

mg/kg = milligram per kilogram

SW = EPA SW-846 Test Methods for Evaluating Solid Waste, Third Edition, 1986 and Updates

Bold = reported concentration exceeds the EPA RSL or SSL.