



Lahontan Regional Water Quality Control Board

February 11, 2019

File: George AFB (Basewide GMR)

Mr. and Mrs. Kenneth Culberton
16815 Century Plant
Apple Valley, CA 92307

Laboratory Results for Sampling Wells Along Shay Road,
Collected on September 10, 2018 at 18399 Shay Road, Victorville,
San Bernardino County

The Lahontan Regional Water Quality Control Board (Water Board) staff sampled your private groundwater supply well at 18399 Shay Road on September 10, 2018. The groundwater sample was analyzed for per- and polyfluoroalkyl substances (PFAS), including the individual compounds perfluorooctanesulfonate (PFOS) and perfluorooctanoic acid (PFOA), before and after the laboratory oxidized the sample. The U.S. Environmental Protection Agency (USEPA) has established a lifetime health advisory (HA) level of 70 parts per trillion (ppt) for PFOS and PFOA. This same HA level applies to the combined concentration of PFOS and PFOA when both chemicals are present. The post-oxidation results provide additional information about other PFAS compounds, in addition to PFOS and PFOA, present in the groundwater sample when the sample is oxidized in the laboratory. The laboratory analytical report is provided in the enclosure with the blank areas (redacted information to protect privacy) corresponding to a water sample from another property and laboratory quality control information.

Below is a summary table comparing the results of PFOS and PFOA detected in your well to the USEPA HA level and the California Office of Environmental Health Hazard Assessment (OEHHA) notification levels. If you have health-related questions regarding your water supply, please call the San Bernardino County Department of Environmental Health Services, Safe Drinking Water Section, at (800) 442-2283.

Table with 5 columns: Constituent, Result, Post-Oxidation Result, USEPA Health Advisory Level, and OEHHA Notification Level. Rows include PFOS, PFOA, and PFOS + PFOA.

PETER C. PUMPHREY, CHAIR | PATTY Z. KOJYOUMDJIAN, EXECUTIVE OFFICER



- Notes: 1. Units are nanograms per liter or parts per trillion  
2. The J flag indicates the concentration is estimated because the detected value is below the laboratory's reporting detection limit.

Based on the Air Force's interview with you, we understand that you and your tenant use bottled water as your water source, and this well is being used only for irrigation purposes. The comparison of the combined PFOS and PFOA concentration with USEPA's HA level (see the table above) suggests that this well water may not be suitable for human consumption as it exceeds the lifetime HA level.

We appreciate your allowing Water Board staff to collect the sample to help evaluate the quality of water from your well. If you have questions regarding the sampling event, please contact me at (760) 241-7340, ([todd.battey@waterboards.ca.gov](mailto:todd.battey@waterboards.ca.gov)), or William Muir, Senior Engineering Geologist at (760) 241-3523, ([william.muir@waterboards.ca.gov](mailto:william.muir@waterboards.ca.gov)).



Todd Battey, P.G.  
Engineering Geologist

Enclosures: September 10, 2018 PFAS Analytical Results

cc w/enclosure: Don Gronstall, U.S. Air Force BRAC Environmental Coordinator  
([donald.gronstal@us.af.mil](mailto:donald.gronstal@us.af.mil))  
San Bernardino County, Department of Environmental Health Services  
([EHS.customerservice@DPH.SBCounty.gov](mailto:EHS.customerservice@DPH.SBCounty.gov))

R:\RB6\RB6Victorville\Shared\Units\DOD Unit\Todd\Residential Well Sampling Along Shay Rd\WB TOP Assay Results\Letters for Shay Road Well Results\Shay Rd PFAS TOP Assay Results x3 - Feb\_2019 transmittals\_v3.docx

**RESULTS OF ANALYSES OF WATER**

|                      |              |                     |
|----------------------|--------------|---------------------|
| <b>Maxxam ID</b>     |              | HSW890              |
| <b>Sampling Date</b> |              | 2018/09/10<br>14:20 |
| <b>COC Number</b>    |              | 682098-01-01        |
|                      | <b>UNITS</b> | <b>B8I1135-01</b>   |

|            |            |                 |
|------------|------------|-----------------|
|            |            |                 |
|            |            |                 |
|            |            |                 |
| <b>RDL</b> | <b>MDL</b> | <b>QC Batch</b> |

| <b>Miscellaneous Parameters</b>                  |      |          |
|--|------|----------|
| 6:2 Fluorotelomer sulfonate                      | ug/L | 0.0066 U |
| Post Oxidation 6:2 Fluorotelomer sulfonate       | ug/L | 0.013 U  |
| 8:2 Fluorotelomer sulfonate                      | ug/L | 0.0066 U |
| Post Oxidation 8:2 Fluorotelomer sulfonate       | ug/L | 0.013 U  |
| EtFOSA   | ug/L | 0.010 U  |
| Post Oxidation EtFOSA                            | ug/L | 0.020 U  |
| EtFOSAA  | ug/L | 0.0033 U |
| Post Oxidation EtFOSAA                           | ug/L | 0.0066 U |
| EtFOSE   | ug/L | 0.0079 U |
| Post Oxidation EtFOSE                            | ug/L | 0.016 U  |
| MeFOSA   | ug/L | 0.013 U  |
| Post Oxidation MeFOSA                            | ug/L | 0.026 U  |
| MeFOSAA  | ug/L | 0.0029 U |
| Post Oxidation MeFOSAA                           | ug/L | 0.0058 U |
| MeFOSE   | ug/L | 0.012 U  |
| Post Oxidation MeFOSE                            | ug/L | 0.024 U  |
| Perfluorobutanoic acid                           | ug/L | 0.013 J  |
| Post Oxidation Perfluorobutanoic acid            | ug/L | 0.032 J  |
| Perfluorobutane Sulfonate (PFBS)                 | ug/L | 0.020    |
| Post Oxidation Perfluorobutane Sulfonate (PFBS)  | ug/L | 0.029 J  |
| Perfluorodecane Sulfonate                        | ug/L | 0.0060 U |
| Post Oxidation Perfluorodecane Sulfonate         | ug/L | 0.012 U  |
| Perfluoroheptanoic Acid (PFHpA)                  | ug/L | 0.037    |
| Post Oxidation Perfluoroheptanoic Acid (PFHpA)   | ug/L | 0.043    |
| Perfluoroheptane sulfonate                       | ug/L | 0.0080 U |
| Post Oxidation Perfluoroheptane sulfonate        | ug/L | 0.016 U  |
| Perfluorohexanoic Acid (PFHxA)                   | ug/L | 0.072    |
| Post Oxidation Perfluorohexanoic Acid (PFHxA)    | ug/L | 0.14     |
| Perfluorohexane Sulfonate (PFHxS)                | ug/L | 0.54     |
| Post Oxidation Perfluorohexane Sulfonate (PFHxS) | ug/L | 0.45     |
| Perfluorononanoic Acid (PFNA)                    | ug/L | 0.0087 U |
| Post Oxidation Perfluorononanoic Acid (PFNA)     | ug/L | 0.017 U  |
| Perfluorooctane Sulfonamide (PFOSA)              | ug/L | 0.0034 U |

|       |        |         |
|-------|--------|---------|
| 0.020 | 0.0066 | 5744681 |
| 0.040 | 0.013  | 5739379 |
| 0.020 | 0.0066 | 5744681 |
| 0.040 | 0.013  | 5739379 |
| 0.020 | 0.010  | 5744681 |
| 0.040 | 0.020  | 5739379 |
| 0.020 | 0.0033 | 5744681 |
| 0.040 | 0.0066 | 5739379 |
| 0.020 | 0.0079 | 5744681 |
| 0.040 | 0.016  | 5739379 |
| 0.020 | 0.013  | 5744681 |
| 0.040 | 0.026  | 5739379 |
| 0.020 | 0.0029 | 5744681 |
| 0.040 | 0.0058 | 5739379 |
| 0.020 | 0.012  | 5744681 |
| 0.040 | 0.024  | 5739379 |
| 0.020 | 0.0055 | 5744681 |
| 0.040 | 0.011  | 5739379 |
| 0.020 | 0.0054 | 5744681 |
| 0.040 | 0.011  | 5739379 |
| 0.020 | 0.0060 | 5744681 |
| 0.040 | 0.012  | 5739379 |
| 0.020 | 0.0074 | 5744681 |
| 0.040 | 0.015  | 5739379 |
| 0.020 | 0.0080 | 5744681 |
| 0.040 | 0.016  | 5739379 |
| 0.020 | 0.0035 | 5744681 |
| 0.040 | 0.0070 | 5739379 |
| 0.020 | 0.0056 | 5744681 |
| 0.040 | 0.011  | 5739379 |
| 0.020 | 0.0087 | 5744681 |
| 0.040 | 0.017  | 5739379 |
| 0.020 | 0.0034 | 5744681 |

RDL = Reportable Detection Limit  
 QC Batch = Quality Control Batch  
 Lab-Dup = Laboratory Initiated Duplicate  
 N/A = Not Applicable

**RESULTS OF ANALYSES OF WATER**

|  |              |                     |
|--|--------------|---------------------|
| <b>Maxxam ID</b>                                   |              | HSW890              |
| <b>Sampling Date</b>                               |              | 2018/09/10<br>14:20 |
| <b>COC Number</b>                                  |              | 682098-01-01        |
|  | <b>UNITS</b> | <b>B8I1135-01</b>   |
| Post Oxidation Perfluorooctane Sulfonamide (PFOSA) | ug/L         | 0.0068 U            |
| Perfluoropentanoic Acid (PFPeA)                    | ug/L         | 0.031               |
| Post Oxidation Perfluoropentanoic Acid (PFPeA)     | ug/L         | 0.051               |
| Perfluorotetradecanoic Acid                        | ug/L         | 0.0027 U            |
| Post Oxidation Perfluorotetradecanoic Acid         | ug/L         | 0.0054 U            |
| Perfluorotridecanoic Acid                          | ug/L         | 0.0038 U            |
| Post Oxidation Perfluorotridecanoic Acid           | ug/L         | 0.0076 U            |
| Perfluoroundecanoic Acid (PFUnA)                   | ug/L         | 0.0025 U            |
| Post Oxidation Perfluoroundecanoic Acid (PFUnA)    | ug/L         | 0.0050 U            |
| Perfluorodecanoic Acid (PFDA)                      | ug/L         | 0.0061 U            |
| Post Oxidation Perfluorodecanoic Acid (PFDA)       | ug/L         | 0.012 U             |
| Perfluorododecanoic Acid (PFDoA)                   | ug/L         | 0.0050 U            |
| Post Oxidation Perfluorododecanoic Acid (PFDoA)    | ug/L         | 0.010 U             |
| Perfluoro-n-Octanoic Acid (PFOA)                   | ug/L         | 0.069               |
| Post Oxidation Perfluoro-n-Octanoic Acid (PFOA)    | ug/L         | 0.071               |
| Perfluorooctane Sulfonate (PFOS)                   | ug/L         | 0.014 J             |
| Post Oxidation Perfluorooctane Sulfonate (PFOS)    | ug/L         | 0.019 J             |

| RDL   | MDL    | QC Batch |
|-------|--------|----------|
| 0.040 | 0.0068 | 5739379  |
| 0.020 | 0.0075 | 5744681  |
| 0.040 | 0.015  | 5739379  |
| 0.020 | 0.0027 | 5744681  |
| 0.040 | 0.0054 | 5739379  |
| 0.020 | 0.0038 | 5744681  |
| 0.040 | 0.0076 | 5739379  |
| 0.020 | 0.0025 | 5744681  |
| 0.040 | 0.0050 | 5739379  |
| 0.020 | 0.0061 | 5744681  |
| 0.040 | 0.012  | 5739379  |
| 0.020 | 0.0050 | 5744681  |
| 0.040 | 0.010  | 5739379  |
| 0.020 | 0.0033 | 5744681  |
| 0.040 | 0.0066 | 5739379  |
| 0.020 | 0.0060 | 5744681  |
| 0.040 | 0.012  | 5739379  |