



THE STATE  
of **ALASKA**  
GOVERNOR MICHAEL J. DUNLEAVY

**Department of  
Environmental Conservation**

DIVISION OF SPILL PREVENTION AND RESPONSE  
Contaminated Sites Program

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July 1, 2019

Via Electronic Mail Only

Lori Sowa  
City and Borough of Juneau  
155 South Seward Street  
Juneau, AK 99801

Re: *PFAS Preliminary Site Investigation Report*  
CBJ Hagevig Fire Training Center PFAS  
Hazard ID: 27107

Dear Ms. Sowa:

The Alaska Department of Environmental Conservation (ADEC) Juneau Office has reviewed the *PFAS Preliminary Site Investigation Report*, dated June 2019 and prepared by Cox Environmental Services (CES) on behalf of the City and Borough of Juneau (CBJ). The report was received in our office on June 27, 2019 via electronic mail. The report documents the results of an initial per- and polyfluoroalkyl substances (PFAS) site investigation at the Hagevig Fire Training Center. The investigation was completed according to the *PFAS Sampling and Analysis Plan (SAP)*, dated April 2019, the 2017 ADEC *Field Sampling Guidance*, and the 2013 ADEC *Groundwater Monitoring Guidance*. In addition, PFAS-specific protocols were completed according to Environmental Protection Agency (EPA), Interstate Technology & Regulatory Council (ITRC), Department of Defense (DOD), and other applicable guidance documents, therefore, the report is approved in accordance with 18 AAC 75.335(d).

PFAS are emerging contaminants of concern and as such regulations regarding remedial actions and other pertinent activities are evolving. Pertinent memos that apply to this site are the following:

- *Alaska Department of Environmental Conservation Technical Memorandum Action Levels for PFAS in Water and Guidance on Sampling Groundwater and Drinking Water* dated August 20, 2018.
- *State of Alaska Department of Environmental Conservation Memorandum Re: March 19, 2019 meeting* dated March 28, 2019.
- *Alaska Department of Environmental Conservation Technical Memorandum Action Levels for PFAS in Water and Guidance on Sampling Groundwater and Drinking Water* dated August 20, 2018, Updated April 9, 2019.

Please note that if changes to the current regulation of PFAS occur, these will potentially apply to the site. The cleanup levels for soil at the site are those found in 18 AAC 75.340 Table B1 for the migration to groundwater exposure pathway. The cleanup level for groundwater and hydrologically connected surface water on site is the EPA Lifetime Health Advisory level (LHA) of 70 parts-per-trillion (ppt)(70 nanograms per liter (ng/L)) for the sum of perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) only. These are default cleanup levels and may be modified in the future if regulations and/or exposure pathways are reevaluated.

The investigation involved the installation of seven soil borings that were completed as groundwater monitoring wells using a Geoprobe drill. The wells were composed of GeoProbe 2.0 inch Slim prepack wells. GeoProbe wells have been used in other PFAS investigations and are composed of polyvinyl chloride (PVC) and steel. Soil from the groundwater interface was collected from each of the soil borings and analyzed for PFAS using Modified Method 537 at TestAmerica. Groundwater was collected from each well and analyzed for PFAS using Method 537 at TestAmerica. The following field quality control measures were used to ensure quality data collection: field sample duplicates, equipment blanks, field blanks, and temperature blanks. These included four equipment blanks using CBJ public water; the PFAS results were below the laboratory's detection limits. All data met the project goals and are sufficient to be used in the decision-making process.

The soil borings were advanced at various locations on site. Borehole one (BH-1), BH-2, and BH-3 (and subsequent groundwater monitoring wells MW-1, MW-2, and MW-3) were driven on the south end of the property in a wetland area downgradient from aqueous film-forming foam (AFFF) releases; AFFF often contains PFAS. BH-4 through BH-7 were all closer to the site features and were adjacent to the east-west edge of the paved area of the facility.

The results of the investigation found PFAS contamination (PFOS specifically) in soil above default ADEC cleanup levels in all of the boreholes with the exceptions of BH-1, BH-2, and BH-3; these boreholes were located farthest away from the release area(s). The cleanup level for PFOS in soil is 3.0 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) or parts-per-billion. The maximum reported PFOS in soil concentration was 34  $\mu\text{g}/\text{kg}$ . Less than one  $\mu\text{g}/\text{kg}$  for each of the other PFAS compounds analyzed was detected.

The groundwater sampling results found PFAS contamination in all of the wells to varying degrees. The ADEC groundwater cleanup level for PFOS (400 ng/L) was exceeded in MW3 through MW-7. The highest reported PFOS value was 11,000 ng/L in MW-6 located near the fire draft pond. The other PFOS values were a factor of ten lower. The ADEC groundwater cleanup level for PFOA (400 ng/L) was not exceeded for any wells and the maximum reported PFOA concentration in groundwater was 320 ng/L. The LHA was exceeded in all of the wells with the exception of MW-1 located near the southwest corner of the site. The sum of PFOA and PFOS values ranged from 350 ng/L to 11,000 ng/L. The groundwater PFAS contamination was dominated by PFOS at concentrations up to 11,000 ng/L. The secondary contaminant (having the second highest concentration) was perfluorohexanesulfonic acid (PFHxS) having a maximum concentration of 2,100 ng/L.

Investigative derived solid waste (non-hazardous) was placed in a municipal refuse dumpster. Potentially PFAS contaminated soil cuttings were containerized in a 55-gallon drum to be transported to NRC Alaska for disposal. The liquid wastes (rinse water, purged groundwater, etc.) were placed in a 55-gallon drum and then filtered on-site using a portable granular activated carbon system (GAC) at least 100 ft. from drinking water wells and surface water.

### Conclusions

The results of the investigation are consistent with the use of AFFF during training activities on site as AFFF is a known source of PFAS contamination. According to the report, historical AFFF release locations and subsequent PFAS sources are likely the decommissioned oil water separator outflow, the fire draft pond and its outflow, and adjacent to the paved areas on the south and west sides of the site. AFFF is no longer used on site for training. Instead, Dawn soap or training foam is used to prevent additional PFAS contamination.

CBJ public drinking water service is available to the surrounding properties. CES has been contracted by CBJ to conduct a door to door and letter based private well search to confirm that there are no wells in use in the area (within a half mile). This search area may be extended in the future if the data indicates a potential risk to human health. If wells are discovered, CES recommends and the ADEC concurs that these should be sampled and analyzed for PFAS. If well water used for drinking water has a PFAS concentration above the LHA, the CBJ will be required to provide alternative water and/or connect the site to CBJ public drinking water.

CES will continue the investigation with the objective to delineate the vertical and horizontal extent of PFAS contamination in groundwater. CES recommended surveying the groundwater monitoring wells to determine the groundwater flow direction and the ADEC concurs that this is useful information.

If you have any questions regarding this letter or concerns please feel free to contact me by telephone at 907-465-5207 or email at [Danielle.Duncan@alaska.gov](mailto:Danielle.Duncan@alaska.gov).

Sincerely,



Danielle Duncan  
Project Manager

cc: Jolene Cox, Cox Environmental, via electronic mail  
Mike Vigue, CBJ, via electronic mail