Phase 2 Investigation Report
NMED PFAS Investigation
Holloman Air Force Base and Surrounding Area

Prepared for

New Mexico Environment Department
Hazardous Waste Bureau
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1. Introduction

To better understand the scope of potential and existing environmental contamination associated with per- and polyfluoroalkyl substances (collectively referred to as PFAS) around the state, the New Mexico Environment Department (NMED) has worked with state and federal partners to conduct sampling for PFAS in sediment, surface water, and groundwater around the state. The NMED Hazardous Waste Bureau (HWB) contracted with Daniel B. Stephens & Associates, Inc. (DBS&A) to characterize PFAS in groundwater on and in the vicinity of Holloman Air Force Base (AFB) in Otero County (the Holloman site). The Phase 1 work performed under this contract is discussed by DBS&A (2022). This report presents the results of the Phase 2 work conducted for the Holloman site between March and June 2023, including U.S. Air Force (USAF) and private landowner coordination, analysis of additional biological samples, and atmospheric dispersion and deposition modeling, as well as identifying recommendations for Phase 3 project activities.

2. Site Description

The NMED-directed Holloman site PFAS investigation project area is roughly bounded by the western Holloman AFB boundary to the west, the west side of the Sacramento Mountains to the east, the City of Alamogordo (the City) to the north, and water supply well fields to the south. Primary residential areas in the project area include housing on Holloman AFB, in the City, and in outlying communities, which are located along the base of the Sacramento Mountains. Principal well fields that supply potable water to Holloman AFB are located south of Alamogordo.

Significant zones of fresh groundwater occur in the Tularosa Basin, and the most widely developed aquifer in the basin is the alluvial basin fill. The basin-fill aquifer exists under water table conditions in the first saturated zone. Depth to the water table in the basin fill aquifer is more than 200 feet below ground surface (bgs) near the Sacramento Mountains, but ranges from about 5 to 50 feet bgs at Holloman AFB. Water in the alluvial deposits of the Tularosa Basin is freshest near the mountain front and generally increases in salinity with distance from the mountain front and with depth (Meinzer and Hare, 1915; Hood, 1958; McLean, 1970; Ballance, 1976; Garza and McLean, 1977; Orr and Myers, 1986, Nationview/Bhate, 2009). Groundwater beneath Holloman AFB is non-potable, with total dissolved solids (TDS) concentrations often in excess of 10,000 milligrams per liter (mg/L).

Holloman AFB is located a few miles west of Alamogordo and occupies approximately 50,763 acres of federally owned land. The base is southeast of and contiguous to the much larger (2.2 million-acre) White Sands Missile Range. U.S. Highway 70 (US 70), which runs southwest-northeast across New Mexico, borders the south end of Holloman AFB (Figure 1). The Holloman site Phase 1 PFAS investigation report (DBS&A, 2022) includes a thorough discussion of the environmental setting. A vicinity map showing Holloman AFB and the surrounding area is provided as Figure 1.

3. Background

PFAS are a large family (perhaps more than 8,000 [Buck et al., 2021]) of manmade organofluorine compounds that were developed in the early 1940s. Certain PFAS, such as perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), are mobile, persistent, and bioaccumulative, and are not known to degrade in the environment. The chemical structure of PFAS gives them unique and valuable properties, including the ability to reduce friction and make products more resistant to soil, stain, grease, water, fire, and temperature. These chemical properties make them useful components in a wide array of industrial and commercial applications, such as textiles and leather products, metal plating, the photographic industry, photolithography, semiconductors, paper and packaging, non-stick cookware, food packaging, waterproof clothing, fabric stain protectors, lubricants, and pesticides. Some PFAS are also used as high-performance surfactants in products where an even flow is essential, such as paints, coatings, cleaning products, and fire-fighting foams, such as aqueous film-forming foam (AFFF), for use on liquid (hydrocarbon) fuel fires (U.S. EPA, 2009 and 2021b).

PFAS are characterized by linear or branched carbon-fluorine chains connected to a functional group, and can vary in length from 4 to 14 molecules. The number of carbon atoms, and therefore the length of the chain comprising a particular PFAS, affects its toxicity and persistence and behavior in humans, wildlife, and the environment. Perfluorosulfonic acids (PFSAs) with six or more carbons (e.g., PFOS) and perfluorinated carboxylic acids (PFCAs) with seven or more carbon atoms (e.g., PFOA) are considered long-chain substances (Buck et al., 2011; U.S. EPA, 2021b; ATSDR, 2021). In general, as chain length increases, the bioaccumulation potential of PFAS appears to increase. For reference, the names, acronyms, and families of PFAS discussed in this report are provided in Table 1.

PFAS are extremely persistent in environmental media because the highly stable carbon-fluorine structure of PFAS can only be broken down at very high temperature. Larger PFAS compounds may transform in the environment to so-called "terminal" PFAS compounds, which are typically less than or equal to eight carbon-chain molecules such as PFOA and PFOS, and are resistant to environmental degradation processes such as biodegradation, atmospheric photo-oxidation, direct photolysis, and hydrolysis (ITRC, 2021). Dissipation is by advection, dispersion, and sorption to particulate matter. PFOS has low volatility in ionized form, but can adsorb under limited hydrogeochemical conditions to positively charged sediment particles and be deposited on the ground and into surface water bodies. Because of its persistence, it can be transported long distances in air or water (U.S. EPA, 2016a).

Of particular concern at the Holloman site is the use of AFFF to extinguish fires involving highly flammable liquids. AFFF creates a vapor-sealing film on a hydrocarbon fuel surface, cooling the liquid fuel, depriving the fuel of oxygen, and providing protection against reignition by preventing evaporation (Leeson et al., 2021). In 1970, the USAF began purchasing and using AFFF containing PFOS and PFOA for extinguishing petroleum fires and during firefighting training activities (AFIMSC, 2017). By mid-2018, the USAF had transitioned to a new AFFF formula, Phos-Check 3 Percent, which is PFOS-free and contains only trace amounts of PFOA (AFCEC, 2018), although it is possible that stockpiles of old AFFF were used after that time. The USAF restricts use of AFFF to emergency responses and treats all releases as hazardous spills. AFFF contained in aircraft hangar fire protection systems was scheduled to be replaced by the end of 2018 (AFCEC, 2018).

The results of sampling for PFAS conducted by various parties in the Holloman-Alamogordo area indicate that releases of PFAS have occurred from several sources at Holloman AFB, including the AFFF source areas identified by the USAF, as well as Petroleum, Oils, and Lubricants (POL) site 2, and from as yet undetermined sources at the Alamogordo PFAS site in southwest Alamogordo. Additional investigations are required to determine the extent of PFAS contamination in both areas. In 2022, the NMED Ground Water Quality Bureau (GWQB) Superfund Oversight section was planning an additional investigation at the Alamogordo PFAS site, but the schedule for this work had not been determined (DBS&A, 2022).

The Phase 1 work performed under this contract, discussed by DBS&A (2022), included the following:

- Providing the background on PFAS sampling requirements, PFAS compounds and their use, toxicity, persistence, and human health effects, and regulatory framework

- Providing discussions of the project area, including Alamogordo and Holloman AFB, including the physical setting, climate, soil conditions, and the regional and local geology and hydrogeology
- Providing a brief discussion of the sources of PFAS contamination in the project area, factors controlling PFAS migration in soil and groundwater, and likely exposure pathways
- Summarizing the results of sampling for PFAS in the local area conducted by various parties
- Describing the NMED Phase I investigation work performed by DBS&A, including compilation of relevant information, development of the work plan, sediment, surface water, groundwater, and bird and small mammal sampling, sample analysis, and data review
- Identification of data gaps and recommendations for further work

4. Regulatory Framework

In November 2009, the U.S. Environmental Protection Agency (EPA) issued residential soil screening levels (SSLs) of 16,000 micrograms per kilogram (µg/kg) for PFOA and 6,000 µg/kg for PFOS, which were derived using EPA's regional screening level (RSL) calculator (U.S. EPA, 2009). In May 2016, the EPA issued lifetime drinking water health advisories (HAs) of 0.07 micrograms per liter (µg/L) (70 nanograms per liter [ng/L]) for PFOS and PFOA, both individually and combined (U.S. EPA, 2016a, 2016b, and 2017).

On June 15, 2022, EPA issued lifetime drinking water HAs for four perfluoroalkyl substances. These include two HAs that replace the HAs that EPA issued in 2016, and final HAs for two other PFAS: perfluorobutanesulfonic acid (PFBS) and hexafluoropropylene oxide dimer acid (HFPO-DA, also referred to as GenX chemicals (U.S. EPA, 2022). These EPA HAs, which identify the concentration of chemicals in drinking water at or below which adverse health effects are not anticipated to occur, were 0.004 ng/L for PFOA, 0.02 ng/L for PFOS, 10 ng/L for HFPO-DA, and 2,000 ng/L for PFBS (FRL 9855-OW). These updated HAs were based on new science that indicated that some negative health effects may occur with concentrations of PFOA or PFOS in water that are near zero (U.S. EPA, 2022). These interim HAs will remain in place until EPA adopts a National Primary Drinking Water Regulation (U.S. EPA, 2022).

On March 14, 2023, EPA announced non-enforceable proposed maximum contaminant levels (MCLs) for PFOA and PFOS of 4 ng/L, and proposed maximum contaminant level goals (MCLGs) of zero. At that time, EPA also announced a proposed MCL and MCLG for mixtures containing

the following: perfluorononanoic acid (PFNA), perfluorohexane sulfonic acid (PFHxS), PFBS, and HFPO-DA (U.S. EPA, 2023). These proposed MCLs are higher than what the U.S. EPA had released previously as a health goal. For PFNA, PFHxS, PFBS, and HFPO-DA, the combined hazard index (HI) must be less than 1 (U.S. EPA, 2023). The HI is made up of a sum of fractions for PFNA, PFHxS, PFBS, and HFPO-DA, comparing the measured levels to the levels determined not to cause health effects (U.S. EPA, 2023).

In 2018, the New Mexico Water Quality Control Commission (NMWQCC) added PFOA, PFOS, and PFHxS to the list of toxic pollutants as they relate to groundwater and surface water [20.6.2.3103(A)(2) NMAC and 20.6.2.7(T)(2)(s) NMAC]. In 2019, NMED established preliminary SSLs for PFOA, PFOS, and PFHxS in residential, industrial, and construction worker exposure scenarios at 1.56 milligrams per kilogram (mg/kg), 2.60 mg/kg, and 7.08 mg/kg, respectively. NMED also established a preliminary screening level for these three PFAS compounds in tap water at 0.07 µg/L (NMED, 2019). These preliminary screening levels applied to each compound individually or in combination (NMED, 2019).

In June 2022, NMED issued updated preliminary SSLs for PFAS. These include cancer SSLs for perfluorooctanoate and PFOA for residential, industrial/occupational, and construction worker exposure scenarios of 76.1 mg/kg, 498 mg/kg, and 2,690 mg/kg, respectively, as well as a cancer screening level of 11.1 µg/L for tap water (NMED, 2022). Noncancer SSLs were also issued for 12 PFAS compounds, as follows (NMED, 2022):

- Noncancer SSLs of 18.5 mg/kg, 374 mg/kg, and 80.7 mg/kg, respectively, for residential, industrial/occupational, and construction worker exposure scenarios, and a noncancer screening level of 6.02 µg/L for tap water for PFBS and potassium perfluorobutanesulfonate.
- Noncancer SSLs of 1.23 mg/kg, 24.9 mg/kg, and 5.38 mg/kg, respectively, for residential, industrial/occupational, and construction worker exposure scenarios, and a noncancer screening level of 0.401 µg/L for tap water for perfluorohexanesulfonate and PFHxS.
- Noncancer SSLs of 0.185 mg/kg, 3.74 mg/kg, and 0.807 mg/kg, respectively, for residential, industrial/occupational, and construction worker exposure scenarios, and a noncancer screening level of 0.0602 µg/L for tap water, for perfluorononanoate, perfluorononanoic acid (PFNA), perfluorooctanesulfonate, PFOS, perfluorooctanoate, PFOA, and potassium perfluorooctanesulfonate.

EPA issued the final toxicity assessments for PFBS (U.S. EPA, 2021a) and GenX chemicals in 2021 (U.S. EPA, 2021d) and planned to issue drinking water HAs for these constituents in spring 2022

(U.S. EPA, 2021c). EPA is currently developing toxicity assessments for five other PFAS—perfluorobutanoic acid (PFBA), perfluorohexanoic acid (PFHxA), PFHxS, PFNA, and perfluorodecanoic acid (PFDA) (U.S. EPA, 2021c).

Table 2 summarizes the EPA and NMED PFAS regulatory levels.

In October 2021, EPA issued its PFAS Strategic Roadmap, which establishes timelines for specific actions to protect human health and the environment from PFAS contamination. This effort was to include establishing enforceable MCLs for PFOA and PFOS, while evaluating additional PFAS and groups of PFAS (U.S. EPA, 2021c). EPA anticipated issuing proposed rules in fall 2022, with final rules in fall 2023 (U.S. EPA, 2021c). At least 28 states have established advisory or regulatory limits or screening levels for two or more PFAS (ITRC, 2021 and 2022).

5. Exposure Pathways

Soil and groundwater data indicate that the most significant PFAS source areas at Holloman AFB are the firefighting training area northeast of the main base and the evaporation pond used to test firefighting equipment in the West Area of the main base (Figure 2) (DBS&A, 2022). PFAS released to soil at these locations (and potentially other source areas not yet investigated) migrated vertically through the vadose zone, and impacted groundwater in the basin fill aquifer at and downgradient of the areas (DBS&A, 2022). The USAF investigation of the base-wide sewer system indicates that the sewer is probably leaking, and sampling has confirmed that wastewater contains PFAS, making this another source of PFAS contamination in groundwater (DBS&A, 2022). Wastewater was also discharged directly to the unlined sewage lagoons and eventually to Lake Holloman before the wastewater treatment plant (WWTP) was constructed in 1996 (DBS&A, 2022). After 1996, treated wastewater (containing PFAS) was discharged to Lagoon G, eventually reaching Lake Holloman (DBS&A, 2022). During a part of this time, treated effluent from the WWTP was used to water the base golf course (DBS&A, 2022). The initial assessment conducted by the USAF in 2017 identified impacts to soil, surface water, and groundwater. The USAF has not determined the extent of PFAS contamination at the base, but impacts reported at Lake Holloman likely extend off-site beyond the lake (DBS&A, 2022).

The NMED GWQB is investigating the PFAS contamination identified at the Brackish Groundwater National Desalination Research Facility (BGNDRF) and the old Alamogordo landfill (DBS&A, 2022). Potential sources identified so far include a former facility where Presto Manufacturing produced non-stick coated cookware, an area where Presto may have disposed

of plant wastewater, a former Alamogordo landfill, a former Alamogordo wastewater treatment facility, and a former evaporation pond operated by the City (DBS&A, 2022).

6. Planning Documents

The project field sampling plan (FSP) and quality assurance project plan (QAPP) were prepared during Phase 1 and were combined into a single sampling and analysis plan (SAP). This document detailed sample collection procedures and analytical methods to be used at the sites during the investigations. DBS&A prepared the SAP in accordance with the applicable EPA guidance documents. The SAP describes procedures to assure that the project-specific data quality objectives (DQOs) are met, and that the quality of data is known and documented. The SAP presents the project description, project organization and responsibilities, and quality assurance (QA) objectives associated with the sampling and analytical services to be provided. For the Holloman AFB site, no samples were collected during fiscal year (FY) 2023.

DBS&A prepared a site-specific health and safety plan (HASP) in accordance with the requirements of Title 29, Code of Federal Regulations (CFR), Part 1910.120 to govern the field activities performed. The site-specific HASP was written to address health and safety issues associated with the proposed project activities. The Phase 1 HASP was used for the project's Phase 2 continuation.

7. Phase 1 Investigation Report Recommendations

The Holloman site Phase 1 PFAS investigation report, dated June 30, 2022, recommended that additional Phase 2 PFAS investigations occur in FY 2023. The Phase 2 Holloman site PFAS investigation project objectives that were outlined in the Phase 1 report include the following:

- Expanding the monitoring network, installing new wells where necessary, and establishing a regular groundwater monitoring program
- Providing better definition of existing groundwater plume geometry and modeling simulated predictions of future plume migration and surface water contamination, including empirically derived rates of movements of PFAS contaminants

- Investigating the extent to which resident and migratory waterfowl at the Lake Holloman Wetlands Complex are contaminated with or otherwise adversely affected by PFAS, as well as the potential for human PFAS exposure

The Phase 1 report recommended that the Phase 2 field activities include drilling new monitor wells and collecting sediment, surface water, and groundwater samples from a number of locations. Other proposed Phase 2 Holloman site PFAS investigation activities included the following:

- Additional analytical or numerical groundwater (and potentially surface water) modeling activities to assess PFAS transport and better define the nature and extent of PFAS contamination at the Holloman site
- Laboratory analysis of additional biological samples that were collected during Phase 1 and further comparison to biological samples from other areas to better define the extent to which resident and migratory waterfowl and small mammals at the Lake Holloman Wetlands Complex are contaminated with or otherwise adversely affected by PFAS
- Atmospheric dispersion and deposition modeling

8. Phase 2 Project Activities

The Phase 2 PFAS investigation purchase order was not issued until spring 2023. Given that the fiscal year ends on June 30, 2023, it was not possible to accomplish most of the project objectives that were outlined in the Phase 1 report. This section summarizes the work conducted during the Phase 2 investigation.

8.1 USAF Coordination

DBS&A prepared the Holloman AFB Phase 3 (FY 2024) site access request letter, with associated figures, and provided the draft letter to NMED for review (Appendix A). This letter was mailed by NMED on June 20, 2023 (Shean, 2023). Access will need to be secured for drilling on-site at Holloman AFB during Phase 3 (FY 2024) after the FY 2024 work plan has been approved and the purchase order has been issued by NMED.

8.2 Hurtz Spring Sampling

One spring, Hurtz Spring, was identified in the Holloman site area during the Phase 1 investigation, located in a rock and gravel pit west of Lake Holloman (Figure 3). This pit was once used as a rock quarry by the State Highway Department (Radian, 1989). No existing chemistry data were identified for Hurtz Spring, and sampling Hurtz Spring was included as a FY 2023 recommendation in the Holloman AFB Phase 1 PFAS investigation report (DBS&A, 2022).

Hurtz Spring is located on private property, and access to this spring is not controlled by Holloman AFB (Nuss, 2023). DBS&A staff made a trip to the area on April 5, 2023 in an attempt to contact the private landowner, but contact was not made. DBS&A prepared a site access request letter for water quality sampling and provided it to NMED for review. NMED mailed the access request letter to the private landowner in April 2023. To date, no response to this letter has been received.

8.3 Biological Sample Analysis

8.3.1 Methods

During Phase 1 of the NMED PFAS Investigation, The UNM Museum of Southwestern Biology (MSB), under subcontract to DBS&A, surveyed and sampled the birds and small mammals of Lake Holloman and its immediate vicinity for the purpose of assessing the effects of PFAS on avian and mammalian ecology and the resulting implications for human health (DBS&A, 2022). The Lake Holloman bird surveys occurred on 23 separate days between December 2021 and June 2022. In total, UNM MSB collected 128 birds from Holloman Lake, distributed among three distinct seasons (winter, migration, and breeding), representing 37 species.

The UNM MSB also surveyed the small mammal community around Lake Holloman using independent traplines of varied trap type designed to sample the various habitat types and the full small mammal community (DBS&A, 2022). In addition, a creosote/mesquite shrubland at the Oliver Lee Memorial State Park site in Otero County was sampled to serve as a local control site. Three seasonal collection events were conducted in October 2021, March 2022, and May 2022, and consisted of more than 3,000 trap nights. A total of 282 small mammal specimens from 11 species were collected during these events (see Appendix F in DBS&A [2022] for full summaries of the FY 2022 biological sampling). Capture locations for birds and small mammals are shown in Figures 4 and 5.

A small subset of the biological samples was sent for PFAS analyses during Phase 1 (DBS&A, 2022). This subset consisted of 20 avian tissue samples and 20 small mammal paired blood and tissue samples. Specifically, the biological samples consisted of the following:

- 20 game bird muscle samples, including 11 Lake Holloman and 9 control samples
- Paired blood and liver tissue samples for 2 cotton rats (genus *Hispidus*) found in a wetland along the northern shoreline of Lake Holloman (Figure 4)
- Paired blood and liver tissue samples for 2 Merriam's kangaroo rats (*Dipodomys merriami*) collected in upland desert vegetation at Holloman Lake
- Control blood and liver tissue samples (1 each) from a Merriam's kangaroo rat collected at Oliver Lee Memorial State Park
- Paired blood and liver tissue samples for a grasshopper mouse (grasshopper mice are carnivorous and feed on other rodents, allowing for potential bioaccumulation of PFAS)
- Paired blood and liver samples from 4 additional rodent species collected at Holloman Lake

Avian samples that were analyzed during Phase 1 were selected from representative game species that are hunted at Holloman Lake and consumed by people (DBS&A, 2022). Game bird species that were analyzed for PFAS during FY 2022 included green-winged teal (*Anas crecca*) (2 samples), redhead (*Aythya americana*) (2 samples), American coot (*Fulica americana*) (1 sample), common merganser (*Mergus merganser*) (2 samples), ruddy duck (*Oxyura jamaicensis*) (1 sample), and northern shoveler (*Spatula clypeata*) (2 samples). Control samples from some of the same species and from mallards (*Anas platyrhynchos*) were collected at other wetlands around the state. Muscle tissue was screened because it is representative of the tissue consumed by people, and is therefore immediately relevant to human health.

Small mammal samples were selected from representative species found along the shoreline of Lake Holloman and its inflows, in addition to surrounding uplands characterized by desert vegetation. Small mammals from the surrounding uplands were included to evaluate the possibility of PFAS soil contamination from windblown dust. During Phase 1, the unit of measurement for PFAS concentrations was µg/kg in muscle tissue and nanograms per milliliter (ng/mL) in liver and blood samples. The laboratory report for the Phase 1 biological samples was provided in Appendix G of the Phase 1 report (DBS&A, 2022).

No new animal blood or tissue samples were collected during Phase 2 of the NMED PFAS investigation. However, a total of 58 bird and small-mammal tissue samples collected earlier

were analyzed for PFAS in FY 2023. In FY 2023, 29 samples each were analyzed for bird and small mammal tissues. DBS&A contracted directly with Eurofins Environment Testing Northern California, LLC (Eurofins) for these analyses. The numbers of samples analyzed in FY 2023 for each bird species are included in Table 3. The numbers of samples analyzed in FY 2023 for each small-mammal species are included in Table 4. During Phase 2, the unit of measurement for PFAS concentrations in the biological samples was µg/kg. Tables 5 and 6 list the laboratory sample identification numbers, sample type, species, and date collected for the bird and small mammal tissue samples that were analyzed in FY 2023. Of those 58 samples, 51 were collected during FY 2022 along Lake Holloman. Of the other 7 samples, 2 bird samples were collected in January 2023, 1 bird sample used as control was collected in Tijeras, New Mexico in 2020, and 4 small mammal samples were collected in 1994 on Holloman AFB—3 of them at Lagoon G. These last 4 samples provide some historical background on PFAS contamination in the area.

Of the 29 bird samples that were analyzed in FY 2023, 6 consisted of muscle tissue. The other 23 bird samples and all small-mammal samples that were analyzed in FY 2023 corresponded to liver tissue.

On May 17, 2023, DBS&A collected plant tissue (leaves and stems) along two of the more inland small-mammal traplines along the eastern side of Lake Holloman (Figure 6). The vegetation along these two traplines was dominated by fourwing saltbush (*Atriplex canescens*) and alkali sacaton (*Sporobolus airoides*), with smaller numbers of purple prickly pear (*Opuntia macrocentra*) and Ephedra also present (Figure 7). Leaves and stems were collected only from fourwing saltbushes, warm-season shrubs with deep taproots that may reach groundwater as they extend up to 30 feet or more below the soil surface. Along each of the two traplines, leaves and stems from multiples saltbushes were collected and compiled into two composite samples that were sent to Eurofins for PFAS analysis.

All samples were analyzed for PFAS using the branched, linear, total (B/L/T) method with isotope dilution analyte (IDA) recovery. Eurofins reported linear (L) and branched (Br) isomers for PFOA, PFOS, and PFHxS. One recent area of interest in PFAS analysis is the distribution of linear to branched isomers. Differences in production lead to different distribution of the linear and branched isomers. For example, PFAS produced using the electrochemical fluorination (ECF) process have both linear and branched isomers with even and odd chain lengths. However, PFAS produced by the fluorotelomerization (FT) process creates mainly linear isomers with a fluorinated and nonfluorinated carbon chain (Benskin et al., 2007; Schulz et al., 2020; ITRC, 2020).

8.3.2 Results

8.3.2.1 Animal Tissue Results

Concentrations of PFAS concentrations were generally very high in liver samples analyzed during FY 2023, in both birds and small mammals (Figures 8 and 9; Tables 7 and 8). The compound contributing the most to the sum total PFAS (ΣPFAS) was the legacy, long-chain compound PFOS. PFOS was detected in every sample collected in the vicinity of Lake Holloman, at concentrations as high as 97,000 µg/kg in the liver of a white-footed mouse (*Peromyscus leucopus*) captured at Lagoon G in 1994. Liver samples more recently collected and analyzed during FY 2023 also reached very high PFOS concentrations. PFOS concentrations of 38,000 µg/kg and 23,000 µg/kg, respectively were detected in the livers of an American wigeon (a species of dabbling duck) collected at Lake Holloman in January 2022 and a juvenile killdeer collected in June 2022. Among small mammals, concentrations of 65,000 µg/kg and 57,000 µg/kg were reported for the livers of two house mice (*Mus musculus*) collected in October 2021 along Lake Holloman (Figure 9). High concentrations (>1,000 µg/kg) of other long-chain PFAS compounds were detected in other liver samples, particularly PFNA and PFOA (observed in several house mice). PFHxS, another legacy PFAS compound, was detected at concentrations exceeding 5,000 µg/kg in the livers of two house mice (Figure 9).

Short-chain PFAS compounds (e.g., PFBA) were also detected in liver tissue samples, but at concentrations that were three to four orders of magnitude lower than those of long-chain PFAS.

Among passerine birds, the horned lark (*Eremophila alpestris*) exhibited smaller concentrations of PFAS in two liver samples. By comparison, the common yellowthroat (*Geothlypis trichas*) exhibited much higher PFAS liver concentrations. The common yellowthroat is a riparian bird that tends to be found in saltcedar (*Tamarix* sp.) vegetation along the Lake Holloman outfall, whereas the horned lark is associated with uplands vegetation.

Although contamination was detected in the northern pintail collected at Tijeras, New Mexico (and sent as a control sample during FY 2023), liver PFAS concentrations in that bird were relatively low (Figure 8).

8.3.2.2 Composite Plant Tissue Results

The same PFAS compounds were detected in the two composite plant tissue samples (Table 9). In both samples, the highest contribution to ΣPFAS was made by five compounds: PFBA, PFPeA, PFHxS, PFOS, and 6:2 FTS. PFAS compounds detected in plant tissue samples matched those

already reported in soil, surface water, and groundwater samples in the Lake Holloman area (DBS&A, 2022). They also corresponded to the same compounds found in bird and small mammal blood and tissue samples. No significant positive correlation was found between plant tissue and surface water samples.

8.3.3 Discussion

Two years of investigation have shown evidence of significant contamination in blood and tissue samples collected in birds and small mammals at Lake Holloman. With few exceptions, PFOS, PFOA, PFNA, PFDA, and PFHxS concentrations have been higher by two or more orders of magnitude in blood, liver, and muscle tissue samples from Lake Holloman compared to control samples. Samples from Lake Holloman have also led to the detection of PFAS chemicals not found in control samples (e.g., PFHpA, PFUnA, and PFPeS). PFOS was detected at relatively low concentrations in two common mergansers from Holloman Lake (51 µg/kg and 17 µg/kg in muscle tissue) (DBS&A, 2022). However, compared to the other waterfowl species sampled, common mergansers are continuously present at Lake Holloman for only a short period of the year (January and February, and for another two weeks around mid-March and again in mid-April). The two birds included in the PFAS analysis were collected in mid and late January 2022, and would therefore have been exposed to contaminants at Lake Holloman for only a short duration.

PFAS contamination in small mammals from Lake Holloman Lake was also elevated compared to the control sample results. During FY 2022, a PFOS concentration of 16,000 µg/kg was detected in the liver of a house mouse collected along the Lake Holloman shoreline (DBS&A, 2022). Concentrations far above 10,000 µg/kg were detected as a result of FY 2023 analyses.

For the samples that were analyzed during FY 2022, up to 15 PFAS chemicals were detected in the blood and liver samples of hispid cotton rats (*Sigmodon hispidus*) from Lake Holloman (Table 8), a finding that was not surprising given the species' association with water and wetlands. However, high PFOS concentrations were detected in the blood and liver of Merriam's kangaroo rats collected away from the shoreline in desert vegetation. This last finding raised the possibility that soils are also being contaminated by windblown dust from the lake, especially as Merriam's kangaroo rats can meet their water requirements from a diet of dry seeds alone. Contamination of fourwing saltbush plant tissue nonetheless indicates that contamination of plants from the groundwater is a likely possibility.

Waterfowl from Lake Holloman appear to be contaminated with PFAS at concentrations orders of magnitude greater than the control sample results (Figure 8; DBS&A, 2022). High levels of contamination of muscle tissues in waterfowl from Lake Holloman suggest that consumption of these birds may represent a risk to human health.

Long-chain PFAS compounds include (PFOS and PFOA, which both consist of linear chains of 8 carbon atoms ["C8-chains"]). With its 6-carbon fluorocarbon chain, PFHxS is also considered a long-chain PFAS compound. Long-chain PFAS compounds have long known to be persistent in the environment while also bioaccumulating in wildlife (and humans) (U.S. EPA, 2009). In a study conducted in Belgium, the PFAS profiles in soil and invertebrates were mainly dominated by PFOA and PFOS, whereas short-chained PFAS (<6 carbons in PFSAs; <7 carbons in PFCAs) were more abundant in plant tissues (Groffen et al., 2023). In that same study, both long-chained and, to lesser extent, short-chained PFAS were detected in herbivorous invertebrate taxa, but the carnivorous invertebrates only accumulated long-chained PFAS.

In our investigation, observed contamination of plant tissue is mixed, and involves both short-chain and long-chain PFAS compounds. Animal blood and tissue sample results reported here and in the Phase 1 investigation report (DBS&A, 2022) primarily show that PFOS and, to a lesser extent, PFHxS, contribute the most to ΣPFAS. However, health-related impacts of short-chain PFAS compounds remain a concern (e.g., Brendel et al., 2018).

8.4 Atmospheric Dispersion and Deposition Modeling

Air dispersion modeling was performed to determine how PFAS emitted into the air during AFFF spraying at Holloman AFB might be influencing concentrations of PFAS found in soil samples, sediment and surface water samples from Lake Holloman, and biota in the vicinity. The air dispersion modeling was performed by Sanborn, Head and Associates, Inc. (Sanborn Head) under subcontract to DBS&A. The Sanborn Head report is provided as Appendix C, and is summarized in this section.

Although there are a variety of PFAS found in AFFF firefighting foam that have been detected in and around Lake Holloman and Holloman AFB, the air dispersion modeling analysis focused on PFOS due to its historical presence in AFFF and the elevated PFOS concentrations detected in Lake Holloman biota samples. In addition, the evaluation focused on direct AFFF-based spraying that is reported to have occurred at the FT-31 and Evaporation Pond 2 areas. A particle size was specified to model the deposition of airborne particles and predict how solid particles will settle over long distances. For the purposes of this analysis, a single diameter was assumed

for all particles to simplify relevant calculations and model inputs. The initial spray of AFFF was estimated to generate mostly large (millimeter to centimeter) aqueous droplets that settle very quickly (generally within 1 to 100 meters). However, some small droplets (sub-millimeter) would likely be produced by fog nozzles and by other droplets being broken up by turbulence over a fire. Droplet evaporation from heat absorption would result in smaller residual particles of PFAS-containing salts capable of longer suspension times and greater travel distances.

Modeling of PFOS releases from Holloman AFB and subsequent atmospheric deposition was performed using the "BEEST" suite of air pollution modeling software. BEEST incorporates a number of U.S. EPA-approved guideline air modeling programs, including AERMOD, AERMET, and AERMAP, to predict air concentrations and deposition of airborne environmental contaminants at any number of chosen receptor locations based on specified emission sources. Input data for each source included geospatial coordinates, emission rates, particle size distributions, and release elevations. Other data inputs used by the model include hourly meteorological data and USGS elevation data in an area around the site that is interpolated by BEEST based on local terrain. Meteorological data for 2013-2017 were used and extrapolated over a 30-year period, and indicate that the most prominent wind direction is from the south/southwest, suggesting that the PFOS plume created by the source areas would most frequently travel to north and east of the release areas. Multiple receptor grid arrays were created in BEEST to predict deposition distributions in a large area around each key site location, with additional discrete receptor points added adjacent to the two source areas to assess close-proximity PFOS deposition and compare soil concentration values at these points to the available soil sampling data. Emission rates were adjusted to predict deposition rates that, when translated to concentrations in soil, matched the levels measured in limited soil measurements collected close to the source areas.

There is a lack of detailed information available about the spraying of AFFF at Holloman AFB in both the FT-31 training area and the Evaporation Pond 2 equipment testing area. The type, volume, and schedule of AFFF spraying are all unknown, and this information would be necessary to more accurately constrain emission rates for AERMOD, which directly affects deposition outputs and modeled sediment /water concentrations. There are also limited sediment sampling data available for the area.

The air dispersion modeling study indicates that atmospheric deposition may have been responsible for adding PFOS to soils over a wide area of Holloman AFB. The modeled patterns of deposition and inferred concentrations in soil suggest the presence of PFOS of the order of

0.001 mg/kg, or 1 part per billion (ppb), over an extensive area, which may be taken up by local biota. Predicted PFOS levels in soil (and sediment derived from soil runoff) resulting from localized atmospheric deposition may be measurable with current laboratory analysis methods, which are capable of detecting low or even sub-ppb concentrations. Therefore, atmospheric historical PFOS deposition may be responsible for the widespread presence of PFOS across the base. However, in terms of PFOS loading to Lake Holloman, the predicted deposition rates were likely minor compared to direct water discharge inputs to the lake.

9. Recommendations

Recommendations from the Phase 1 PFAS investigation report that were not addressed during Phase 2 include the following:

- Expanding the monitoring network, installing and sampling new wells where necessary, and establishing a regular groundwater monitoring program.
- Additional analytical or numerical groundwater (and potentially surface water) modeling activities to assess PFAS transport and better define the nature and extent of PFAS contamination at the Holloman site.
- Providing better definition of existing groundwater plume geometry and modeling simulated predictions of future plume migration and surface water contamination, including empirically derived rates of movements of PFAS contaminants.

Prior to conducting the Phase 1 sampling activities, a Holloman AFB site visit was held to discuss potential sampling locations with the USAF, and DBS&A was notified by Holloman AFB personnel that many of the groundwater monitor wells that were proposed for sampling in the southwest portion of the base either could not be located or had been abandoned. It will be necessary to install a number of new monitor wells to better define the nature and extent of PFAS contamination at the Holloman site.

To date, access to Holloman AFB has not been obtained from the USAF for installation and sampling of new monitor wells. DBS&A drafted a FY 2024 access request letter (Section 8.1 and Appendix A) proposing to collect surface water and sediment samples from 5 base-wide locations, collect sediment and groundwater quality samples from 10 temporary direct-push wells along the southern and western base boundaries, install 13 new monitor wells and collect sediment and groundwater quality samples, and conduct two semiannual groundwater sampling

events including the 13 new and 3 existing monitor wells. Obtaining access and completing these activities should be the highest priority action for the Holloman site in FY 2024.

During Phase 1, preliminary Holloman AFB groundwater modeling was conducted to assess potential PFAS groundwater plume lengths downgradient of the source areas given available data. This work was performed once it was clear that Holloman AFB access would not be obtained in time for drilling to occur during FY 2022 and project resources could be redirected. The modeling results provide bounding cases for potential downgradient plume length, and could be used to guide future modeling and data collection efforts. DBS&A proposes to discuss the Phase 1 modeling and results with NMED before outlining potential future modeling activities.

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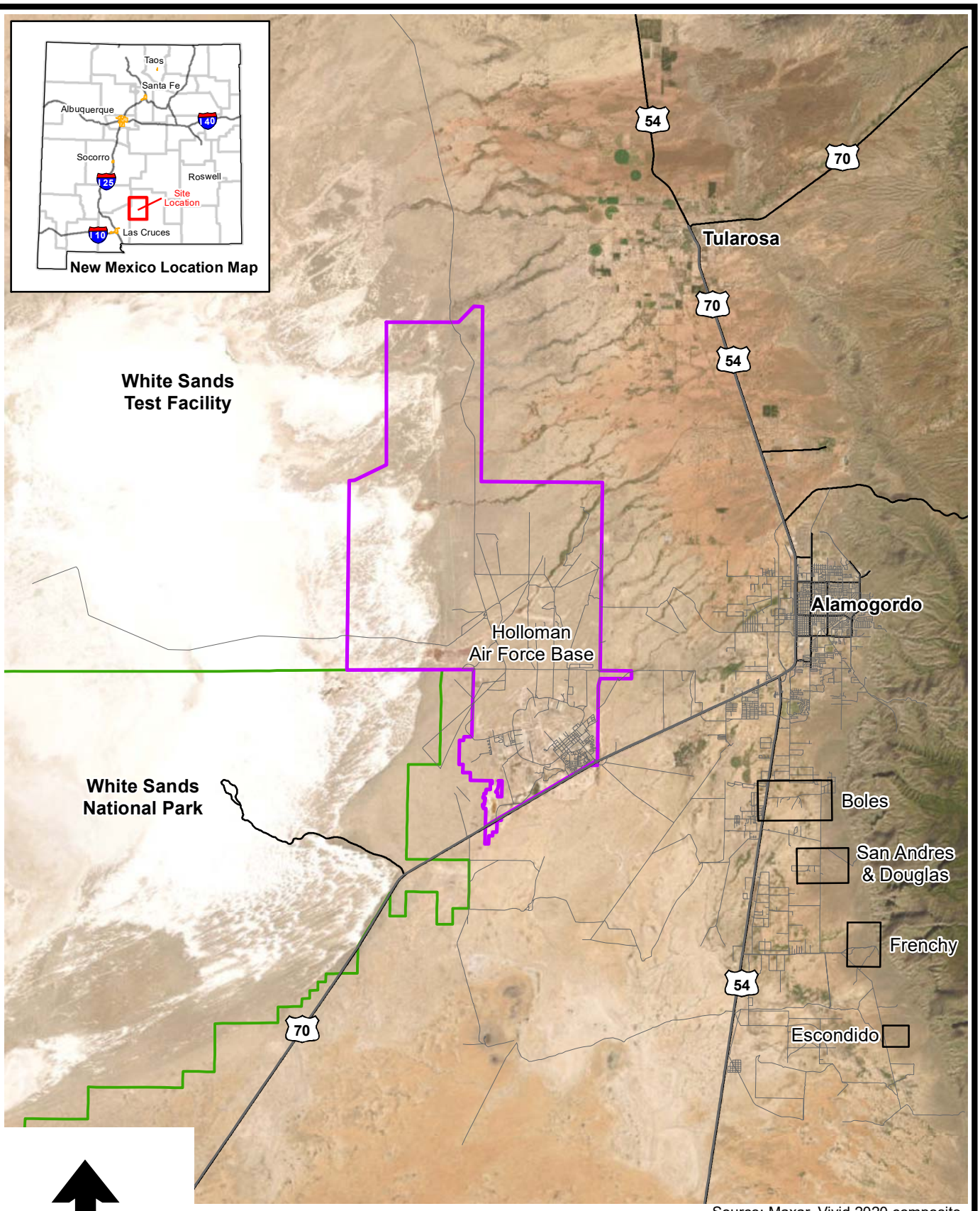
Figures



Source: Maxar, Vivid 2020 composite

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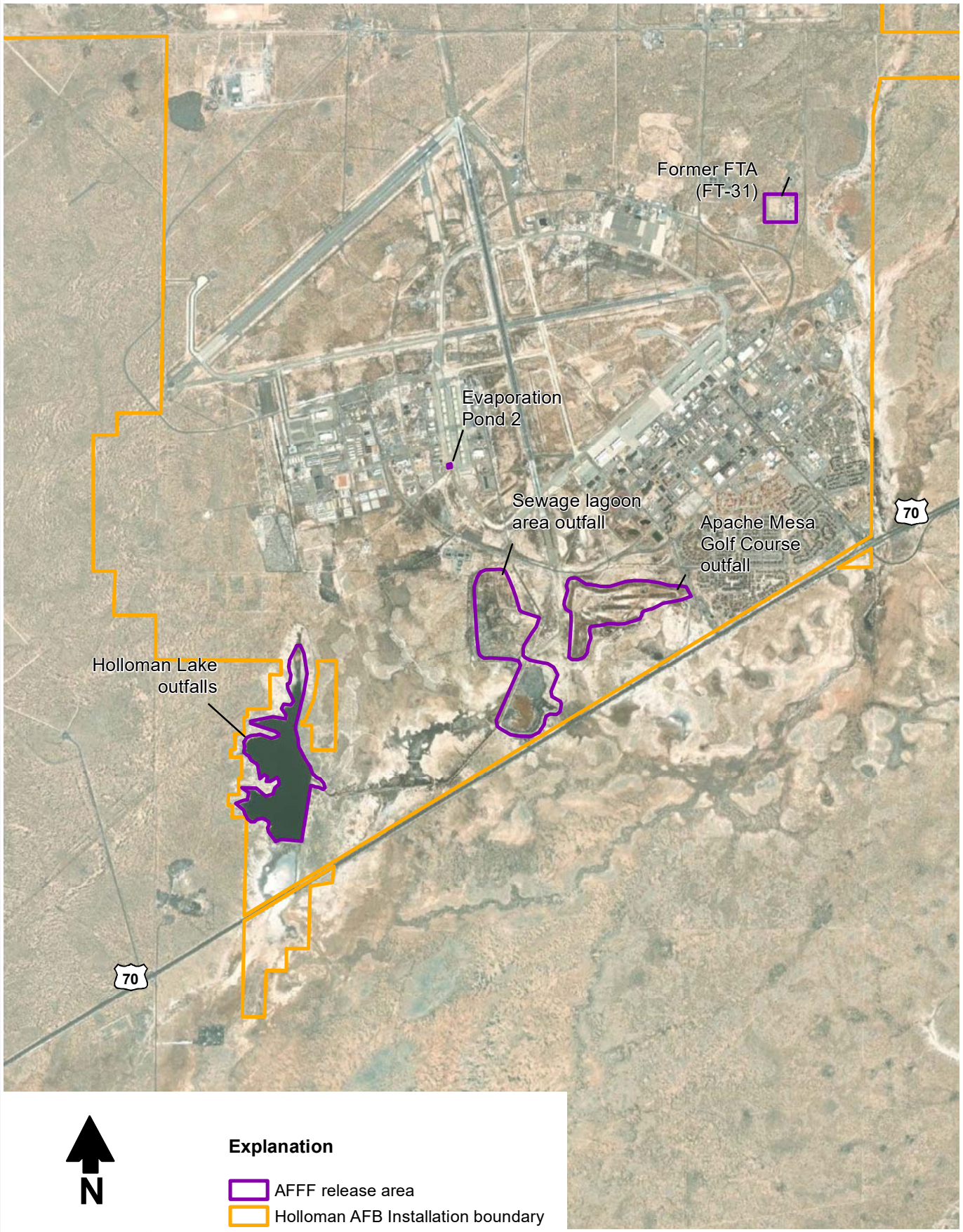
NMED PFAS INVESTIGATION, HOLLOMAN AFB

Vicinity Map

Figure 1



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NMED PFAS INVESTIGATION, HOLLOMAN AFB

AFFF Release Areas

Figure 2

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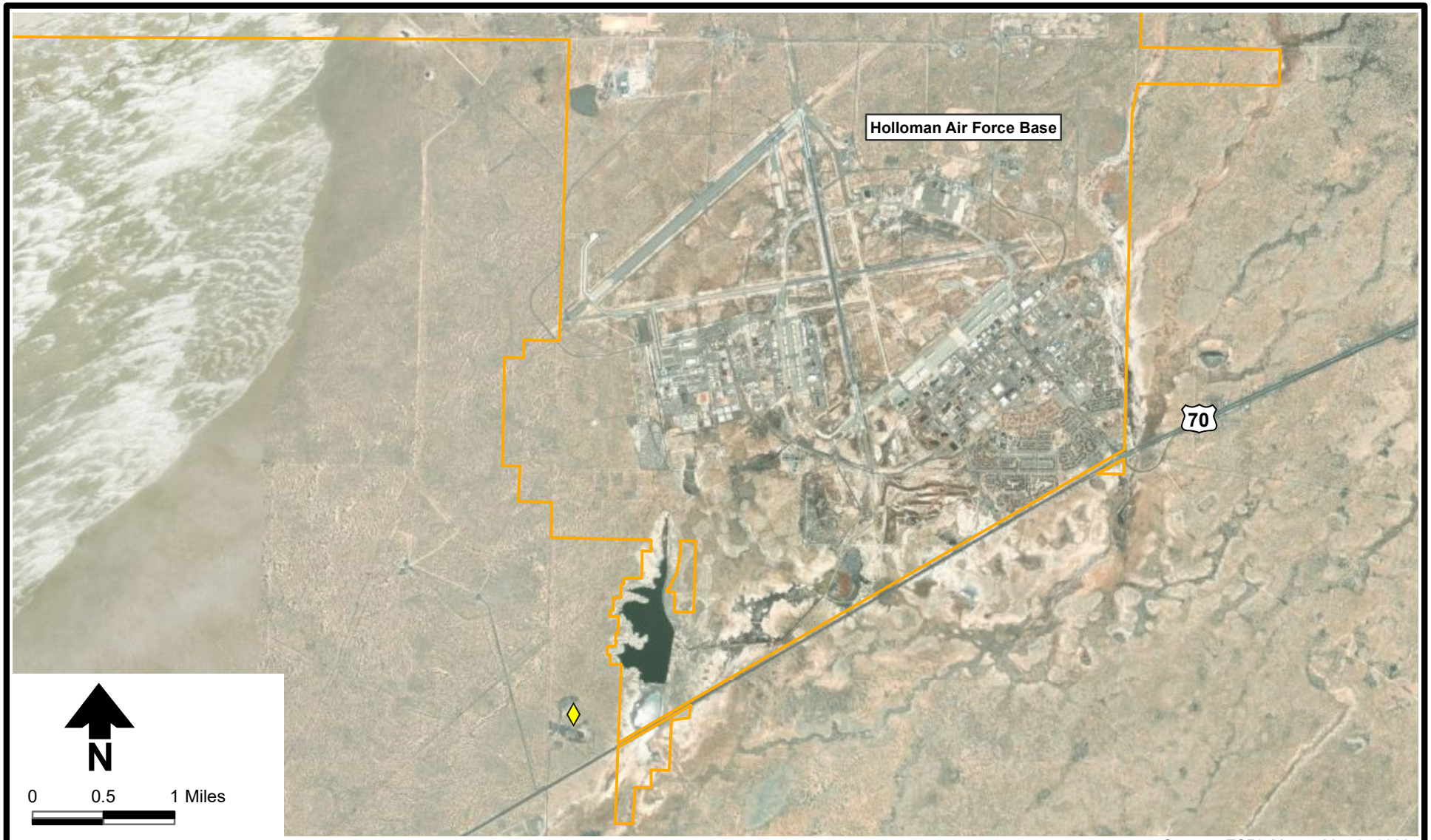

Source: ESRI, Maxar, March, 2022

Explanation

◊ Proposed sample location

Figure 3

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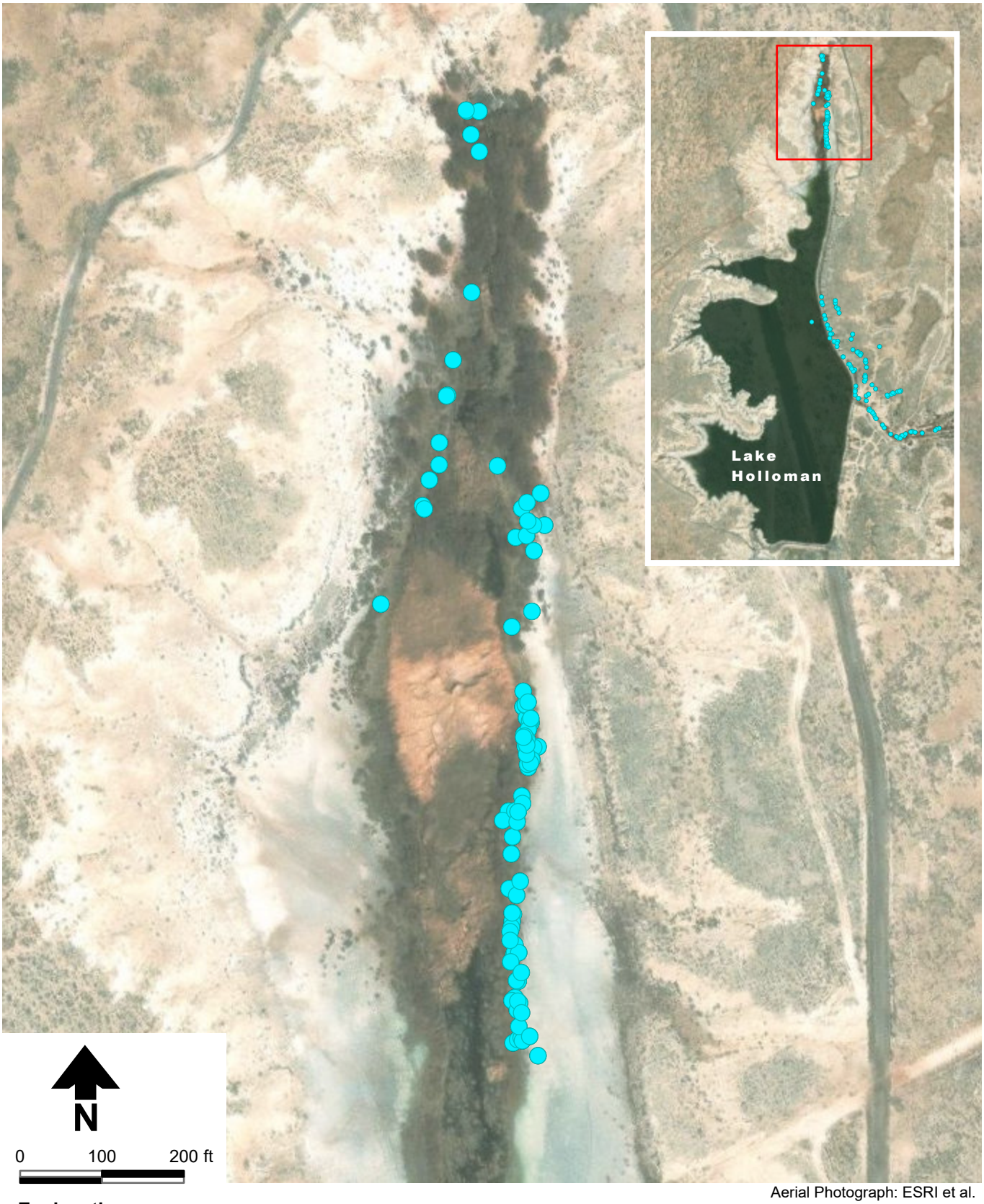
NMED PFAS INVESTIGATION, HOLLOMAN AFB

Proposed Hurtz Spring Sampling Location



Aerial Photograph: ESRI et al.

Explanation

- Lake Holloman capture

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NMED PFAS INVESTIGATION, HOLLOMAN AFB

Lake Holloman
Northern Shoreline Captures

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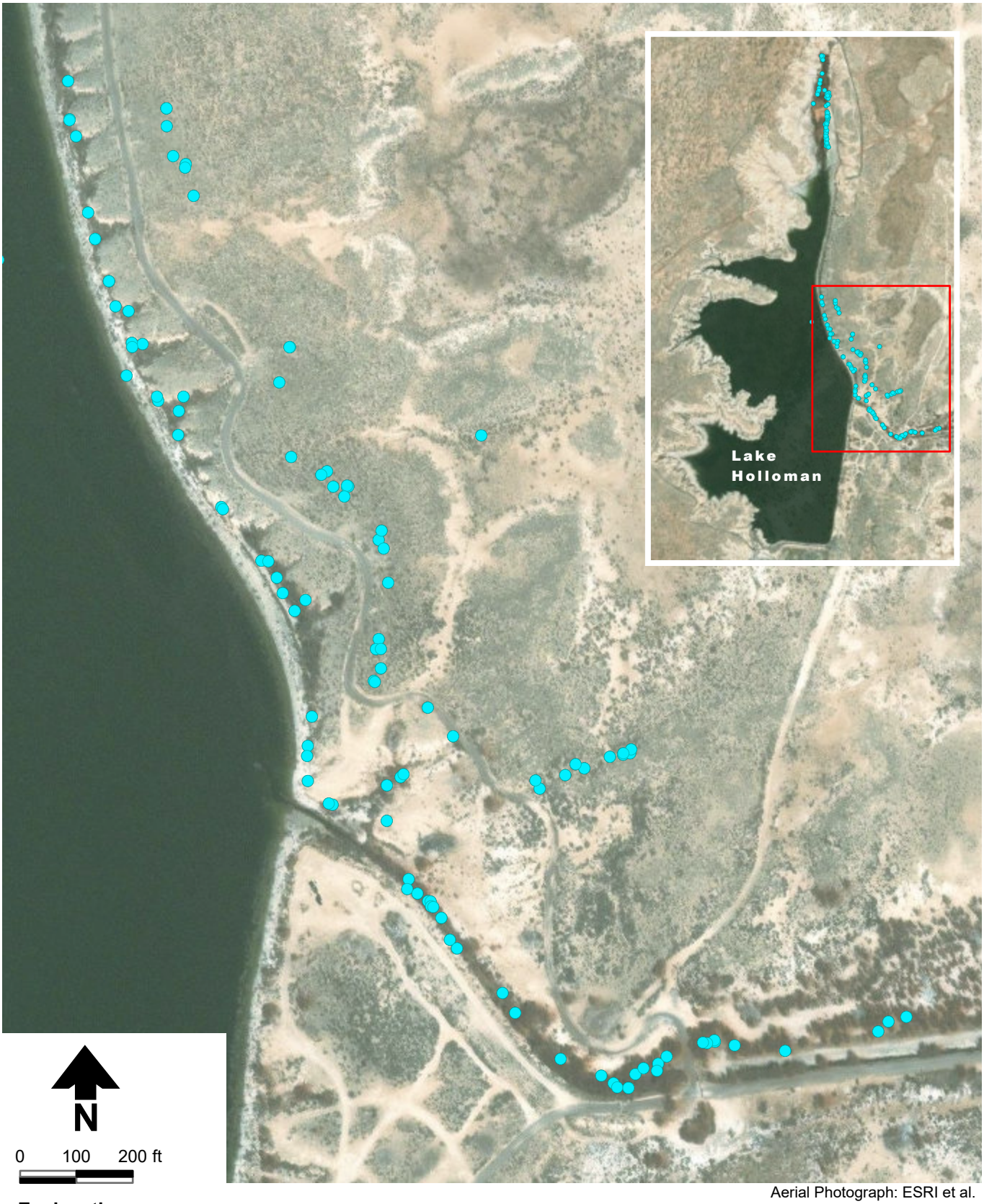
Figure 4



Aerial Photograph: ESRI et al.

Explanation

- Lake Holloman capture

NMED PFAS INVESTIGATION, HOLLOMAN AFB

Lake Holloman
East-Central Shoreline Captures

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Figure 5

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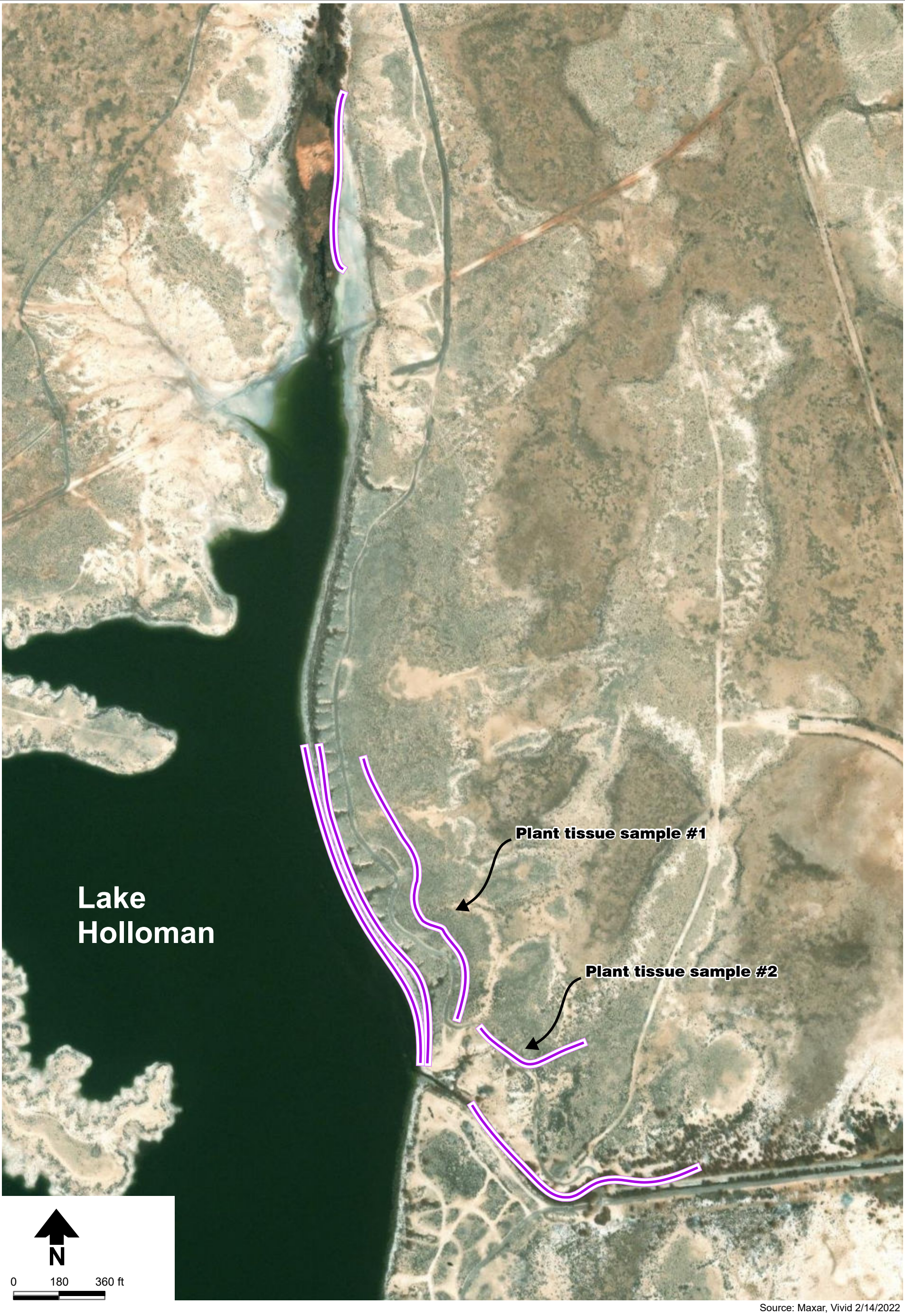

Source: Maxar, Vivid 2/14/2022

Explanation

Trapline

Figure 6

NMED PFAS INVESTIGATION, HOLLOMAN AFB

Location of Small Mammal Traplines and Composite Plant Tissue Samples

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6/16/2023 DB23.1087

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Figure 7

NMED PFAS INVESTIGATION, HOLLOMAN AFB

Upland Vegetation along the Eastern Side of Lake Holloman

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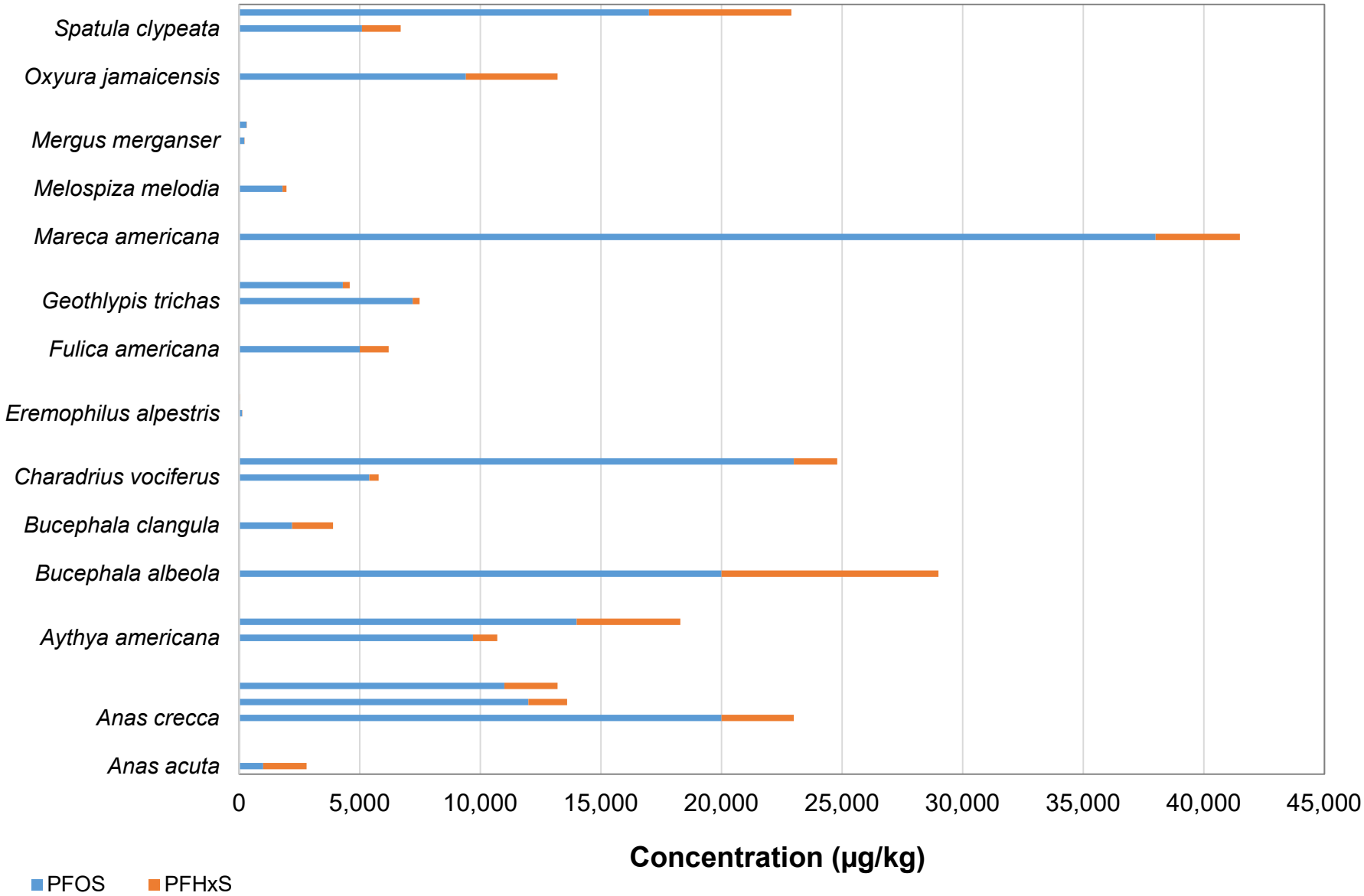

Figure 8

NMED PFAS INVESTIGATION, HOLLOMAN AFB

PFOS and PFHxS Concentrations in Bird Liver Samples

DBS&A a Geo-Logic Company

6/23/2023 DB23.1087

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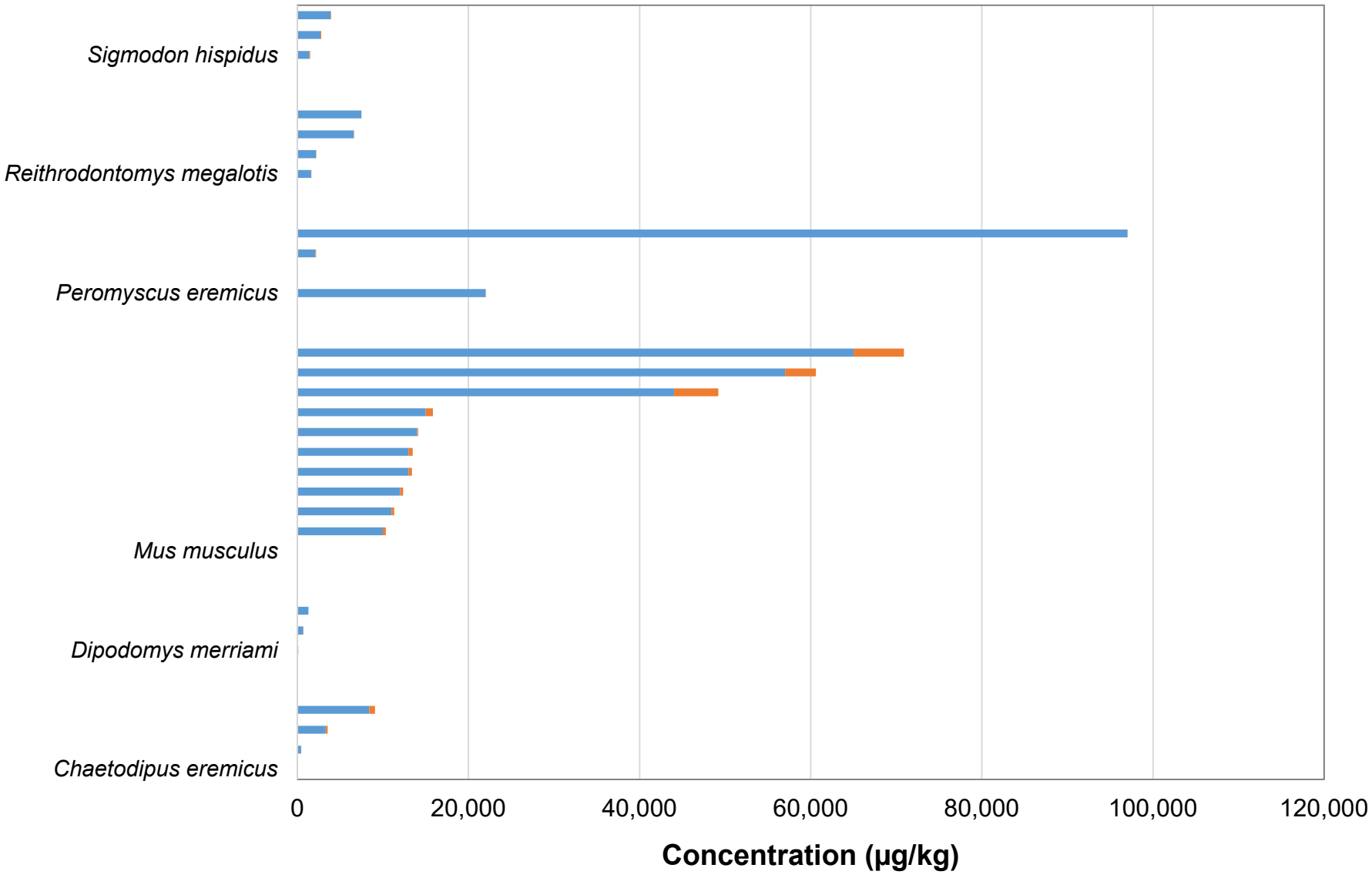

Figure 9

NMED PFAS INVESTIGATION, HOLLOMAN AFB

PFOS and PFHxS Concentrations in Small Mammal Liver Samples

DBS&A a Geo-Logic Company

6/23/2023 DB23.1087

Tables

Table 1. PFAS Target Analytes
Page 1 of 2

PFAS Group	No. of Carbons	Acronym(s)	CAS No.	Chemical Name
PFCA	4	PFBA	375-22-4	Perfluorobutanoic acid
PFCA	5	PFPeA	2706-90-3	Perfluoropentanoic acid
PFCA	6	PFHxA	307-24-4	Perfluorohexanoic acid
PFCA	7	PFHpA	375-85-9	Perfluoroheptanoic acid
PFCA	8	PFOA	335-67-1	Perfluorooctanoic acid
PFCA	9	PFNA	375-95-1	Perfluorononanoic acid
PFCA	10	PFDA	335-76-2	Perfluorodecanoic acid
PFCA	11	PFUnA, PFUnDA	2058-94-8	Perfluoroundecanoic acid
PFCA	12	PFDoA, PFDoDA	307-55-1	Perfluorododecanoic acid
PFCA	13	PFTrDA, PFTriA, PFTrA	72629-94-8	Perfluorotridecanoic acid
PFCA	14	PFTeDA, PFTreA, PFTeA	376-06-7	Perfluorotetradecanoic acid
PFSA	4	PFBS	375-73-5	Perfluorobutane sulfonic acid
PFSA	5	PFPeS	2706-91-4	Perfluoropentane sulfonic acid
PFSA	6	PFHxS	355-46-4	Perfluorohexane sulfonic acid
PFSA	7	PFHpS	375-92-8	Perfluoroheptane sulfonic acid
PFSA	8	PFOS	1763-23-1	Perfluorooctane sulfonic acid
PFSA	9	PFNS	68259-12-1	Perfluorononane sulfonic acid
PFSA	10	PFDS	335-77-3	Perfluorodecane sulfonic acid
FOSA	8	PFOSA	754-91-6	Perfluorooctane sulfonamide
FTSA		4:2 FTS, 4:2 FTSA	757124-72-4	4:2 fluorotelomer sulphonic acid
FTSA	8	6:2 FTS, 6:2 FTSA	27619-97-2	6:2 Fluorotelomer sulphonic acid
FTSA	10	8:2 FTS, 8:2 FTSA	39108-34-4	8:2 Fluorotelomer sulphonic acid
FTSA		10:2 FTS	120226-60-0	10:2 Fluorotelomer sulphonic acid
FOSA	8	NMeFOSA	31506-32-8	N-methylperfluorooctanesulfonamide
FOSA	8	NEtFOSA	4151-50-2	N-ethylperfluorooctanesulfonamide
FASAA	11	NMeFOSAA, MeFOSAA	2355-31-9	N-methyl perfluorooctane sulfonamido acetic acid
FASAA	12	NEtFOSAA, NEtFOSA	2991-50-6	N-ethyl perfluorooctane sulfonamido acetic acid
	8	NMeFOSE	24448-09-7	N-methylperfluorooctanesulfonamido ethanol
	8	NEtFOSE	1691.99-2	N-ethylperfluorooctanesulfonamido ethanol
PFECA		HFPO-DA (Gen X)	13252-13-6	Hexafluoropropylene oxide dimer acid
PFECA		PFMPA	377-73-1	Perfluoro-3-methoxypropanoic acid

Notes are provided at the end of the table.

Table 1. PFAS Target Analytes
Page 2 of 2

PFAS Group	No. of Carbons	Acronym(s)	CAS No.	Chemical Name
PFECA		PFMBA	863090-89-5	Perfluoro-4-methoxybutanoic acid
PFECA		NFDHA	151772-58-6	Perfluoro-3,6-dioxaheptanoic acid
PFESA		11Cl-PF3OUdS	763051-92-9	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
PFESA		9Cl-PF3ONS	756426-58-1	9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid
PFESA		PFEESA	113507-82-7	Perfluoro(2-ethoxyethane) sulfonic acid
PFEA		ADONA (Gen X)	919005-14-4	Ammonium 4,8-dioxa-3H-perfluorononanoate
		F-53B Major, 9Cl-PF3ONS	756426-58-1	9-chlorohexadecafluoro-3-oxanonane-1-sulfonate
		F-53B Minor, 11Cl-PF3OUdS	763051-92-9	11-chloroeicosafluoro-3-oxaundecane-1-sulfonate

Sources: ITRC, 2021, Table 4-1; U.S. EPA, 2021b
CAS = Chemical Abstract Service
PFCA = Perfluoroalkyl carboxylic acid
PFSA = Perfluoroalkane sulfonic acid
FOSA = Perfluoroalkane sulfonamide
FTSA = Fluorotelomer sulfonic acid
FASAA = Perfluorooctane sulfonamido acetic acid
PFECA = Perfluoroalkyl ether carboxylic acid
PFESA = Perfluoroalkyl ether sulfonic acid
PFEA = Polyfluoroalkyl ether acid

Table 2. EPA and NMED PFAS Regulatory Levels

PFAS	Concentration (ng/L)						
	2016 EPA Lifetime Drinking Water Health Advisory Levels [a]	2022 EPA Updated Lifetime Drinking Water Health Advisory Levels [b]	2023 EPA Proposed MCL [c]	2023 EPA Proposed MCLG [c]	2019 NMED Preliminary Tap Water Screening Level [d]	2022 NMED Tap Water Cancer Screening Level [e]	2022 NMED Tap Water Noncancer Screening Level [e]
PFOA	70	0.004	4.0	0.0	70	11.1	0.0602
PFOS	70	0.02	4.0	0.0	70	—	0.0602
PFNA	—	—	—[f]	—[f]	—	—	0.0602
PFHxS	—	—	—[f]	—[f]	70	—	0.401
PFBS	—	2,000	—[f]	—[f]	—	—	6.02
HFPO-DA (GenX)	—	10	—[f]	—[f]	—	—	—
Perfluorobutanesulfonate							6.02
Perfluorohexanesulfonate							0.401
Perfluorononanoate							0.0602
Perfluorooctanesulfonate							0.0602
Perfluorooctanoate							0.0602
Potassium perfluorobuttanesulfonate							6.02
Potassium perfluorooctanesulfonate							0.0602

[a] Issued May 2016
[b] Issued June 15, 2022
[c] Issued March 14, 2023
[d] Issued June 19, 2019
[e] Issued June 22, 2022
[f] Combined toxicity of these analytes used to determine if they exceed a Hazard Index of 1.0

EPA = U.S. Environmental Protection Agency
NMED = New Mexico Environment Department
ng/L = Nanograms per liter
MCL = Maximum contaminant level
MCLG = Maximum contaminant level goal
— = Not applicable

Table 3. Bird Tissue Samples Analyzed during FY 2023

Species	Number of Samples	Sample Type
Northern pintail (*Anas acuta*) [a]	3	Liver (1), muscle (2)
Eurasian teal (*Anas crecca*)	3	Liver
Northern shoveler (*Spatula clypeata*)	3	Liver, muscle
Bufflehead (*Bucephala albeola*)	2	Liver, muscle
Common goldeneye (*Bucephala clangula*)	2	Liver, muscle
Common merganser (*Mergus merganser*)	2	Liver
Killdeer (*Charadrius vociferus*)	2	Liver
Horned lark (*Eremophila alpestris*)	2	Liver
Redhead (*Aythya americana*)	2	Liver
American wigeon (*Mareca americana*)	2	Liver, muscle
Common yellowthroat (*Geothlypis trichas*)	2	Liver
Song sparrow (*Melospiza melodia*)	2	Liver
American coot (*Fulica Americana*)	1	Liver
Ruddy duck (*Oxyura jamaicensis*)	1	Liver

[a] One of the three northern pintail samples was collected in Tijeras, New Mexico in 2020 and was sent for analysis to serve as control.

Table 4. Small Mammal Tissue Samples Analyzed during FY 2023

Species	Number of Samples	Sample Type
House mouse (*Mus musculus*)	11	Liver
Chihuahuan pocket mouse (*Chaetodipus eremicus*) [a]	4	Liver
Western harvest mouse (*Reithrodontomys megalotis*) [b]	4	Liver
Merriam's kangaroo rat (*Dipodomys merriami*) [c]	3	Liver
White-footed mouse (*Peromyscus leucopus*) [d]	3	Liver
Hispid cotton rat (*Sigmodon hispidus*) [e]	3	Liver
Cactus mouse (*Peromyscus eremicus*)	1	Liver

[a] Two of the Chihuahuan pocket mouse liver samples were collected southwest of Oliver Lee State Park in October 2021.
[b] One of the western harvest mouse liver samples was collected at Lagoon G on Holloman AFB in 1994.
[c] One of the Merriam's kangaroo rat liver samples was collected at Dog Canyon dispersed campground, Otero County in May 2022.
[d] Two of the white-footed mouse liver samples were collected on Holloman AFB (including one at Lagoon G) in 1994.
[e] One of the hispid cotton rat liver samples was collected at Lagoon G on Holloman AFB in 1994.

Table 5. Bird Tissue Sample Information
Page 1 of 2

Sample ID	Sample Type	Species	Date Collected	Location Collected
NK 283603	Liver	American coot (*Fulica Americana*)	12/10/2021	Lake Holloman
NK 283604-Liver	Liver	Northern pintail (*Anas acuta*)	12/10/2021	Lake Holloman
NK 283604-Muscle	Muscle	Northern pintail (*Anas acuta*)	12/10/2021	Lake Holloman
NK 283609-Liver	Liver	Common goldeneye (*Bucephala clangula*)	1/16/2022	Lake Holloman
NK 283609-Muscle	Muscle	Common goldeneye (*Bucephala clangula*)	1/16/2022	Lake Holloman
NK 283610	Liver	Northern shoveler (*Spatula clypeata*)	1/16/2022	Lake Holloman
NK 283612	Liver	Common merganser (*Mergus merganser*)	1/16/2022	Lake Holloman
NK 283623-Liver	Liver	American wigeon (*Mareca americana*)	1/15/2022	Lake Holloman
NK 283623-Muscle	Muscle	American wigeon (*Mareca americana*)	1/15/2022	Lake Holloman
NK 283628	Liver	Redhead (*Aythya americana*)	1/20/2022	Lake Holloman
NK 283630	Liver	Ruddy duck (*Oxyura jamaicensis*)	1/15/2022	Lake Holloman
NK 283634	Liver	Eurasian teal (*Anas crecca*)	1/31/2022	Lake Holloman
NK 283635	Liver	Eurasian teal (*Anas crecca*)	1/30/2022	Lake Holloman
NK 283637	Liver	Common merganser (*Mergus merganser*)	1/31/2022	Lake Holloman
NK 283645	Liver	Horned lark (*Eremophila alpestris*)	2/25/2022	Lake Holloman
NK 283648	Liver	Horned lark (*Eremophila alpestris*)	1/21/2022	Lake Holloman
NK 283666	Liver	Northern shoveler (*Spatula clypeata*)	1/8/2022	Lake Holloman
NK 283668	Liver	Redhead (*Aythya americana*)	1/8/2022	Lake Holloman
NK 283675	Liver	Eurasian teal (*Anas crecca*)	1/8/2022	Lake Holloman
NK 283680	Liver	Song sparrow (*Melospiza melodia*)	2/25/2022	Lake Holloman
NK 283693-Liver	Liver	Bufflehead (*Bucephala albeola*)	1/30/2022	Lake Holloman

Table 5. Bird Tissue Sample Information
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Sample ID	Sample Type	Species	Date Collected	Location Collected
NK 283693-Muscle	Muscle	Bufflehead (*Bucephala albeola*)	1/30/2022	Lake Holloman
NK 283752	Muscle	Northern pintail (*Anas acuta*)	10/29/2020	Tijeras, New Mexico, I-40 at Zuzax exit
NK 283754	Liver	Common yellowthroat (*Geothlypis trichas*)	6/20/2022	Lake Holloman
NK 283756	Liver	Common yellowthroat (*Geothlypis trichas*)	6/20/2022	Lake Holloman
NK 283770	Liver	Killdeer (*Charadrius vociferus*)	6/20/2022	Lake Holloman
NK 283771	Liver	Killdeer (*Charadrius vociferus*)	6/20/2022	Lake Holloman
NK 284404	Liver	Song sparrow (*Melospiza melodia*)	1/29/2023	Lake Holloman
NK 284405	Muscle	Northern shoveler (*Spatula clypeata*)	1/29/2023	Lake Holloman

Table 6. Small Mammal Tissue Sample Information
Page 1 of 2

Sample ID	Sample Type	Species	Date Collected	Location Collected
NK 10440	Liver	White-footed mouse (*Peromyscus leucopus*)	11/6/1994	Holloman AFB in 1994
NK 31806	Liver	White-footed mouse (*Peromyscus leucopus*)	8/16/1994	Lagoon G on Holloman AFB in 1994
NK 31807	Liver	Western harvest mouse (*Reithrodontomys megalotis*)	8/16/1994	Lagoon G on Holloman AFB in 1994
NK 31808	Liver	Hispid cotton rat (*Sigmodon hispidus*)	8/16/1994	Lagoon G on Holloman AFB in 1994
NK 310831	Liver	Chihuahuan pocket mouse (*Chaetodipus eremicus*)	3/3/2022	Lake Holloman, east side
NK 310837	Liver	White-footed mouse (*Peromyscus leucopus*)	3/3/2022	Lake Holloman, north inflow
NK 310840	Liver	Merriam's kangaroo rat (*Dipodomys merriami*)	3/3/2022	Lake Holloman, east side
NK 310873	Liver	Hispid cotton rat (*Sigmodon hispidus*)	3/4/2022	Lake Holloman, north inflow
NK 310882	Liver	House mouse (*Mus musculus*)	3/4/2022	Lake Holloman, north inflow
NK 310883	Liver	House mouse (*Mus musculus*)	3/4/2022	Lake Holloman, north inflow
NK 310884	Liver	House mouse (*Mus musculus*)	3/4/2022	Lake Holloman, north inflow
NK 310892	Liver	Chihuahuan pocket mouse (*Chaetodipus eremicus*)	3/4/2022	Lake Holloman, east side
NK 310912	Liver	House mouse (*Mus musculus*)	5/5/2022	Lake Holloman, east side
NK 310922	Liver	House mouse (*Mus musculus*)	5/5/2022	Lake Holloman, north inflow
NK 310939	Liver	Merriam's kangaroo rat (*Dipodomys merriami*)	5/5/2022	Dog Canyon dispersed campground, Otero County, NM
NK 310959	Liver	House mouse (*Mus musculus*)	5/6/2022	Lake Holloman, north inflow
NK 310963	Liver	Western harvest mouse (*Reithrodontomys megalotis*)	5/6/2022	Lake Holloman, north inflow
NK 311390	Liver	Western harvest mouse (*Reithrodontomys megalotis*)	10/29/2021	Lake Holloman, east side
NK 311395	Liver	Cactus mouse (*Peromyscus eremicus*)	10/29/2021	Lake Holloman, east side
NK 311397	Liver	Hispid cotton rat (*Sigmodon hispidus*)	10/29/2021	Lake Holloman, east side
NK 311406	Liver	Merriam's kangaroo rat (*Dipodomys merriami*)	10/29/2021	Lake Holloman, east side

Table 6. Small Mammal Tissue Sample Information
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Sample ID	Sample Type	Species	Date Collected	Location Collected
NK 311422	Liver	House mouse (*Mus musculus*)	10/30/2021	Lake Holloman, east side
NK 311423	Liver	House mouse (*Mus musculus*)	10/30/2021	Lake Holloman, east side
NK 311426	Liver	House mouse (*Mus musculus*)	10/30/2021	Lake Holloman, east side
NK 311435	Liver	Chihuahuan pocket mouse (*Chaetodipus eremicus*)	10/30/2021	Southwest of Oliver Lee State Park, Otero County, NM
NK 311437	Liver	Chihuahuan pocket mouse (*Chaetodipus eremicus*)	10/30/2021	Southwest of Oliver Lee State Park, Otero County, NM
NK 311886	Liver	House mouse (*Mus musculus*)	5/5/2022	Lake Holloman, north inflow
NK 311887	Liver	House mouse (*Mus musculus*)	5/5/2022	Lake Holloman, north inflow
NK 311891	Liver	Western harvest mouse (*Reithrodontomys megalotis*)	5/5/2022	Lake Holloman, north inflow

Table 7. PFAS in Bird Tissue Samples
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Analyte	Concentration [a] (µg/kg)														
	NK 283603	NK 283604-Liver	NK 283604-Muscle	NK 283609-Liver	NK 283609-Muscle	NK 283610	NK 283612	NK 283623-Liver	NK 283623-Muscle	NK 283628	NK 283630	NK 283634	NK 283635	NK 283637	NK 283645
Sample Type	Liver	Liver	Muscle	Liver	Muscle	Liver	Liver	Liver	Muscle	Liver	Liver	Liver	Liver	Liver	Liver
PFBA	0.87 J	2.0	1.0	2.1	2.6	2.7	1.3	1.3 CI	<0.92	3.0	1.1 J CI	0.72 J	0.45 J	0.95 CI	<4.5
PFPeA	0.59 J	0.70 J	<1.0	0.21 J	0.60 J	0.36 J	<1.3	0.40 J	<0.92	0.46 J	0.27 J	0.33 J	<0.95	<0.93	<4.5
PFHxA	0.95 J	0.74 J	<1.0	0.35 J	1.0 J	0.50 J	<1.3	0.50 J	<0.92	0.66 J	<1.3	0.55 J	0.29 J	<0.93	<4.5
PFHpA	0.70 J	0.63 J	0.17 J	0.62 J	1.9	0.62 J	<1.3	0.68 J	0.13 J	1.7	0.38 J	0.66 J	0.90 J	<0.93	<4.5
L-PFOA	17	21	4.9	100	380	81	<1.3	39	5.2	120	170	46	97	<0.93	1.7 J
Br-PFOA	0.59 J	0.67 J	<1.0	1.9	<110	1.4	<1.3	0.96 J	<0.92	<99	<130	1.1	<95	<0.93	<4.5
Total PFOA	*17*	*22*	*4.9*	*100*	*380*	*83*	*<1.3*	*40*	*5.2*	*120*	*170*	*47*	*97*	*<0.93*	*1.7 J*
PFNA	34	150	27	70	270	240	12	530	57	130	300	490	250	14	0.94 J
PFDA	9.3	17	3.0	6.0	24	22	10	57	7.2	15	28	46	24	53	<4.5
PFUnA	1.7	1.8	0.39 J	0.67 J	2.1	1.9	2.8	5.9	0.81 J	1.3	2.5	4.5	3.1	16	<4.5
PFBS	0.39 J	0.79 J	0.19 J	0.23 J	0.70 J	0.60 J	<1.3	0.82 J	<0.92	1.3	<1.3	0.75 J	0.63 J	<0.93	<4.5
PFPeS	4.4	14	3.0	9.9	37	23	<1.3	21	2.8	48	19	29	39	<0.93	<4.5
L-PFHxS	1,100	1,700	380	1,700	4,500	1,500	0.38 J	3,400	480	880	3,700	2,800	1,400 I	0.57 J	9.4
Br-PFHxS	74 J	96 J	17 J	65	200	150	<1.3	100 J	13 J	160	190	160	220	<0.93	<4.5
Total PFHxS	*1,200*	*1,800*	*400*	*1,700*	*4,700*	*1,600*	*0.38 J*	*3,500*	*500*	*1,000*	*3,800*	*3,000*	*1,600*	*0.57 J*	*9.4*
PFHpS	84 J	140	32	82	230	130	0.88 J	330	61	130	190	330	120	0.53 J	<4.5
L-PFOS	3,500	7,400	1,000	1,700	6,600	3,900	190	29,000 E	1,600	7,700	7,300	16,000 E	9,300 E	300	83 J
Br-PFOS	1,500	2,500	300	430	2,200	1,200	33	9,500	450	2,000	2,100	4,300	3,000	17 J	45 J
Total PFOS	*5,000*	*10,000*	*1,300*	*2,200*	*8,800*	*5,100*	*220*	*38,000*	*2,100*	*9,700*	*9,400*	*20,000*	*12,000*	*310*	*130*
4:2 FTS	<1.1	<1.3	<1.0	<1.2	<1.1	<0.93	<1.3	<1.3	<0.92	<0.99	<1.3	<0.95	<0.95	<0.93	<4.5
6:2 FTS	2.1	1.1 J	<1.0	<1.2	0.71 J	0.46 J	<1.3	0.95 J	<0.92	<0.99	0.55 J	0.50 J	0.67 J	<0.93	<4.5
8:2 FTS	13	8.3	1.8	3.3	12	6.7	<1.3	20	2.7	5.2	11	24	7.2	<0.93	<4.5
10:2 FTS	0.35 J	0.22 J	0.12 J B	0.14 J B	0.21 J	0.17 J	<1.3	0.39 J B	0.095 J I	0.13 J I	0.20 J	0.58 J	0.11 J	<0.93	<4.5

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Br = Branched chain compound
Total = Total of linear and branched chain analyses

Table 7. PFAS in Bird Tissue Samples
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Analyte	Concentration [a] (µg/kg)													
	NK 283648	NK 283666	NK 283668	NK 283675	NK 283680	NK 283693-Liver	NK 283693-Muscle	NK 283752	NK 283754	NK 283756	NK 283770	NK 283771	NK 284404	NK 284405
Sample Type	Liver	Liver	Liver	Liver	Liver	Liver	Muscle	Muscle	Liver	Liver	Liver	Liver	Liver	Muscle
PFBA	1.8 J	2.8	2.4	1.1	3.3 CI	2.2	1.6	1.6 J CI	1.4 J	1.0 J	1.1 J CI	1.3 J	2.8	<1.2
PFPeA	<2.0	0.69 J	0.36 J	0.32 J	<1.8	0.30 J	<1.4	<5.6	<2.7	<3.8	<1.9	<5.6	0.45 J	<1.2
PFHxA	<2.0	1.1 J	0.71 J	0.52 J	<1.8	0.64 J	<1.4	<5.6	<2.7	<3.8	<1.9	1.9 J	<2.5	<1.2
PFHpA	<2.0	1.7	1.3 J	0.95 J	<1.8	3.9	1.3 J	<5.6	<2.7	1.1 J	0.55 J	7.4	0.70 J	<1.2
L-PFOA	<2.0	360	200	54	1.2 J	940	200	11	7.3	10	14	130	16	0.27 J
Br-PFOA	<2.0	<140	<200	1.4	<1.8	37 J	<68	<5.6	<2.7	1.0 J	1.8 J	9.2	1.3 J	<1.2
Total PFOA	*<2.0*	*360*	*200*	*55*	*1.2 J*	*980*	*200*	*11*	*7.3*	*11*	*15*	*140*	*17*	*0.27 J*
PFNA	0.50 J	630	400	280	11	610	93	850	51	42	68	470	83	1.2
PFDA	<2.0	53	39	36	4.1	51	8.6	31	6.9	3.9	10	32	6.6	1.4
PFUnA	<2.0	4.3	3.9	4.8	1.4 J	4.7	1.3 J	13	2.7	1.9 J	7.9	6.9	3.2	<1.2
PFBS	<2.0	1.4	0.92 J	0.74 J	<1.8	1.0 J	0.27 J	<5.6	<2.7	<3.8	<1.9	<5.6	<2.5	<1.2
PFPeS	<2.0	58	33	31	0.46 J	77	17	<5.6	0.50 J	0.80 J	0.64 J	3.0 J	0.67 J	<1.2
L-PFHxS	0.60 J	5,500	4,100	2,000	170	8,600	2,900	<5.6	280	270	390	1,800	420	1.4
Br-PFHxS	<2.0	370	210	240	<36	450	100	<5.6	<140	21	<190	<560	12 J	<1.2
Total PFHxS	*0.60 J*	*5,900*	*4,300*	*2,200*	*170*	*9,000*	*3,000*	*<5.6*	*280*	*290*	*390*	*1,800*	*430*	*1.4*
PFHpS	<2.0	370	250	150	35	480	110	1.2 J	76 J	55	170	430	70	0.32 J
L-PFOS	16 J	14,000 E	11,000	8,300	1,400	16,000 E	2,200	52	5,400	3,500	3,600	16,000	2,900	12
Br-PFOS	6.7 J	3,700	2,900	3,000	320	3,900	480	6.5 J	1,800	770	1,800	7,200	1,000	2.4 J
Total PFOS	*23 J*	*17,000*	*14,000*	*11,000*	*1,800*	*20,000*	*2,700*	*59*	*7,200*	*4,300*	*5,400*	*23,000*	*3,900*	*14*
4:2 FTS	<2.0	<1.4	<2.0	<1.0	<1.8	<1.1	<1.4	<5.6	<2.7	<3.8	<1.9	<5.6	<2.5	<1.2
6:2 FTS	<2.0	1.3 J	1.1 J	1.1	1.2 J	0.75 J	<1.4	<5.6	2.2 J	2.9 J	1.5 J	<5.6	8.6	<1.2
8:2 FTS	<2.0	18	17	13	2.8	21	3.9	<5.6	47	13	70	66	26	<1.2
10:2 FTS	<2.0	0.32 J B	0.30 J B	0.85 J B	0.89 J B	0.36 J B	1.2 J B	<5.6	1.9 J B	2.6 J B	4.5 B	1.7 J B	<50	0.13 J

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Table 8. PFAS in Small Mammal Tissue Samples
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Analyte	Concentration [a] (µg/kg)														
	NK 10440	NK 31806	NK 31807	NK 31808	NK 310831	NK 310837	NK 310840	NK 310873	NK 310882	NK 310883	NK 310884	NK 310892	NK 310912	NK 310922	NK 310939
Sample Type	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver
PFBA	<5.6	1.7 Cl	<9.1	<1.4	<17	<25	<33	<0.70	<14	<4.3	<9.1	<4.8	<5.6	1.0 J	<1.3
PFPeA	<5.6	0.85 J	<9.1	<1.4	<17	<25	<33	1.1	<14	<4.3	<9.1	<4.8	<5.6	<2.0	<1.3
PFHxA	<5.6	<1.6	<9.1	<1.4	<17	<25	<33	0.75	<14	<4.3	<9.1	<4.8	<5.6	0.63 J	<1.3
PFHpA	<5.6	<1.6	<9.1	<1.4	<17	<25	<33	0.14 J	<14	3.0 J	<9.1	<4.8	<5.6	1.7 J	<1.3
L-PFOA	<5.6	<1.6	<9.1	0.60 J	4.2 J	15 J	<33	0.45 J	33	50	22	41	3.1 J	83	1.6
Br-PFOA	<5.6	<1.6	<9.1	<1.4	<17	<25	<33	<0.70	<14	4.4	<9.1	5.7	<5.6	4.3	<1.3
Total PFOA	*<5.6*	*<1.6*	*<9.1*	*0.60 J*	*4.2 J*	*15 J*	*<33*	*0.45 J*	*33*	*54*	*22*	*47*	*3.1 J*	*87*	*1.6*
PFNA	<5.6	76	<9.1	15	4.6 J	15 J	<33	6.9	120	94	180	56	6.9	180	1.9
PFDA	<5.6	17	6.3 J	5.8	<17	3.2 J	5.0 J	12	16	24	34	4.3 J	2.7 J	55	0.42 J
PFUnA	<5.6	3.9	10	4.2	<17	<25	<33	7.5	4.4 J	9.8	9.5	<4.8	2.7 J	23	<1.3
PFBS	<5.6	<1.6	<9.1	<1.4	<17	<25	<33	<0.70	<14	<4.3	<9.1	<4.8	<5.6	<2.0	<1.3
PFPeS	<5.6	<1.6	<9.1	0.35 J	<17	<25	<33	0.48 J	<14	2.0 J	<9.1	1.5 J	<5.6	1.8 J	<1.3
L-PFHxS	0.86 J	13	<9.1	82	34	87	<33	89	290	320	110	630	2.2 J	400	8.1
Br-PFHxS	<5.6	<1.6	<9.1	2.1	<17	5.9 J	<33	8.8 J	27	38	9.2	43 J	<5.6	<200	0.54 J
Total PFHxS	*0.86 J*	*13*	*<9.1*	*84*	*34*	*93*	*<33*	*98*	*320*	*360*	*120*	*680*	*2.2 J*	*400*	*8.6*
PFHpS	<5.6	410	2.9 J	7.2	4.0 J	9.3 J	6.6 J	16	35	51	44	71	<5.6	110	1.0 J
L-PFOS	18	74,000 E	6,700	1,100	310	1,600	950	2,200	7,200	8,600	11,000	6,300	47	9,900	67
Br-PFOS	6.1 J	22,000 E	800	280	130	520	330	480	3,800	3,500	2,800	2,100	14	3,400	34
Total PFOS	*24*	*97,000*	*7,500*	*1,400*	*440*	*2,100*	*1,300*	*2,700*	*11,000*	*12,000*	*14,000*	*8,400*	*61*	*13,000*	*100*
4:2 FTS	<5.6	<1.6	<9.1	<1.4	<17	<25	<33	<0.70	<14	<4.3	<9.1	<4.8	<5.6	<2.0	<1.3
6:2 FTS	<5.6	<1.6	<9.1	0.70 J	<17	<25	<33	1.1	15	110	6.7 J	<4.8	<5.6	71	2.5
8:2 FTS	<5.6	28	4.5 J	44	<17	<25	<33	18	9.4 J	22	2.2 J	2.8 J	<5.6	62	0.38 J
10:2 FTS	<5.6	0.26 J	1.7 J	1.8	<17	<25	<33	0.68 J	1.6 J	1.1 J	<9.1	<4.8	0.65 J I	1.1 J	0.15 J

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L = Linear chain compound
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Total = Total of linear and branched chain analyses

Table 8. PFAS in Small Mammal Tissue Samples
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Analyte	Concentration [a] (µg/kg)													
	NK 310959	NK 310963	NK 311390	NK 311395	NK 311397	NK 311406	NK 311422	NK 311423	NK 311426	NK 311435	NK 311437	NK 311886	NK 311887	NK 311891
Sample Type	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver	Liver
PFBA	<6.7	2.3 J	1.9 J	1.0 J	<0.71	0.37 J CI	2.5	0.50 J	<2.0	<2.9	<5.0	1.0 J	2.5 J	<20
PFPeA	<6.7	<5.0	<4.3	0.44 J	0.16 J	<1.1	2.5	0.95	0.62 J	<2.9	<5.0	1.2 J	1.5 J	<20
PFHxA	<6.7	<5.0	<4.3	0.56 J	<0.71	<1.1	1.7	2.9	0.69 J	<2.9	<5.0	<4.3	1.6 J	<20
PFHpA	3.6 J	<5.0	<4.3	0.45 J	<0.71	<1.1	12	30	7.1	<2.9	<5.0	1.5 J	3.5	<20
L-PFOA	58	<5.0	<4.3	3.0	0.39 J	<1.1	3,500	1,400	1,100	<2.9	59	70	290	<20
Br-PFOA	5.3 J	<5.0	<4.3	0.35 J	<0.71	<1.1	170	130	92 J	<2.9	5.2	2.9 J	15	<20
Total PFOA	*63*	*<5.0*	*<4.3*	*3.3*	*0.39 J*	*<1.1*	*3,600*	*1,500*	*1,200*	*<2.9*	*64*	*72*	*310*	*<20*
PFNA	130	9.1	2.7 J	19	4.5	19	2,000	700	610	<2.9	35	230	500	<20
PFDA	26	1.9 J	1.3 J	13	5.3	7.9	120	57	60	0.33 J	3.7 J	11	57	<20
PFUnA	7.2	<5.0	<4.3	2.7	6.2	1.6	6.4	4.1	4.6	<2.9	<5.0	2.8 J	18	<20
PFBS	<6.7	<5.0	<4.3	<1.5	<0.71	<1.1	0.27 J	0.68 J	<2.0	<2.9	<5.0	<4.3	<3.4	<20
PFPeS	<6.7	<5.0	<4.3	<1.5	<0.71	<1.1	19	29	11	<2.9	<5.0	2.5 J	3.5	<20
L-PFHxS	470	32	13	36	35	3.3	5,300	4,500	3,300	0.64 J	210	280	770	13 J
Br-PFHxS	22	1.1 J	<4.3	2.2	1.4	<1.1	590	690	390	<2.9	24	49	79 J	<20
Total PFHxS	*490*	*33*	*13*	*38*	*36*	*3.3*	*5,900*	*5,200*	*3,600*	*0.64 J*	*230*	*330*	*850*	*13 J*
PFHpS	64	32	11	74 J	16	3.4	760	630	630	<2.9	39	56	130	8.2 J
L-PFOS	9,400	5,300	1,200	17,000 E	3,500	460	39,000 E	26,000 E	37,000 E	22 I	2,200	7,400	10,000	1,700
Br-PFOS	3,700	1,200	350	4,400	400	250	25,000 E	18,000 E	20,000 E	6.2 J	1,100	2,500	4,800	470
Total PFOS	*13,000*	*6,600*	*1,600*	*22,000*	*3,900*	*700*	*65,000*	*44,000*	*57,000*	*28*	*3,300*	*10,000*	*15,000*	*2,200*
4:2 FTS	<6.7	<5.0	<4.3	<1.5	<0.71	<1.1	<1.4	<0.77	<2.0	<2.9	<5.0	<4.3	<3.4	<20
6:2 FTS	210	<5.0	<4.3	20	<0.71	<1.1	2,200	620	290	<2.9	23	14	730	<20
8:2 FTS	21	4.6 J	0.79 J	26	7.1	0.36 J	53	37	49	<2.9	3.0 J	2.8 J	36	<20
10:2 FTS	0.80 J I	<100	<4.3	0.28 J	0.83	<1.1	0.21 J	0.15 J	0.31 J	<2.9	<5.0	<4.3	0.86 J	<20

Analyses performed by Eurofins Environment Testing Northern California, LLC.
See Table 1 for explanation of PFAS acronyms.
[a] See Table 5 for sample information, including species and collection dates.
µg/kg = Micrograms per kilogram
J = Result is less than the reporting limit but greater than or equal to the method detection limit; considered an approximate value
CI = The peak identified by the data system exhibited chromatographic interference that could not be resolved; there is reason to suspect there may be a high bias
E = Result exceeded calibration range
I = Value is estimated maximum possible concentration (EMPC)
L = Linear chain compound
Br = Branched chain compound
Total = Total of linear and branched chain analyses

Table 9. PFAS in Composite Plant Tissue Samples from Lake Holloman

Analyte	Concentration (µg/kg)	
	Sample #1 5/17/2023	Sample #2 5/17/2023
PFBA	14	3
PFPeA	9.2	8.8
PFHxA	3.5	1.9
PFHpA	1	0.39 J
L-PFOA	0.80 J	0.54 J
Br-PFOA	<0.98	<0.98
Total PFOA	*0.80 J*	*0.54 J*
PFNA	<0.98	<0.98
PFDA	<0.98	<0.98
PFUnA	<0.98	<0.98
PFBS	0.40 J	0.23 J
PFPeS	0.47 J	0.33 J
L-PFHxS	6.3	5.2
Br-PFHxS	1.2	0.76 J
Total PFHxS	*7.5*	*5.9*
PFHpS	0.22 J	0.20 J
L-PFOS	4.5	3.1
Br-PFOS	3.6	2.8
Total PFOS	*8.0*	*6.0*
4:2 FTS	<0.98	<0.98
6:2 FTS	16	4.3
8:2 FTS	<0.98	<0.98
10:2 FTS	<0.98	<0.98

Analyses performed by Eurofins Environment Testing Northern California, LLC.
Refer to Table 1 for explanation of PFAS acronyms.
µg/kg = Micrograms per kilogram
J = Result is less than the reporting limit but greater than or equal to the method detection limit; considered an approximate value

Appendix A

Fiscal Year 2024
Holloman AFB
Access Request Letter

DBS&A
a Geo-Logic Company

<Date>

Mr. Adam Kusmak
Chief, Installation Management Flight
49th CES/CEI
550 Tabosa Avenue
Holloman AFB, NM 88330

Re: Groundwater monitor well installation, groundwater and surface water sampling access request, Summer 2023-Spring 2024, Holloman Air Force Base, New Mexico

Dear Mr. Kusmak:

The New Mexico Environment Department (NMED) requests that the U.S. Air Force (Permittee) grant access to on-site surface water and existing and future groundwater monitor wells on Holloman Air Force Base (AFB) for the purpose of collecting sediment, groundwater, and surface water samples. The sediment and water quality samples will be collected by Daniel B. Stephens & Associates, Inc. (DBS&A), a NMED contractor.

We are requesting access from the U.S. Air Force for the following activities, to be conducted during the State's fiscal year 2024 (between July 1, 2023 and June 30, 2024):

1. Collect surface water and sediment samples at the locations described below and shown on Figure 1.
    a. SW-1, current evaporation pond at the current fire training area
    b. SW-2, concrete lined evaporation pond on the south flight line
    c. SW-3, potential evaporation pond on west side of base
    d. SW-4, upper reach of Lost River (Malone Draw) near where it enters the base
    e. SW-5, near outfall of Lost Lake

2. Install and collect sediment and groundwater quality samples from 10 temporary direct-push wells to be located in the U.S. Route 70 right of way south of the base, and along the western boundary of Holloman AFB, as shown on Figure 2. These temporary wells will be sampled once, and then plugged.

3. Install and collect sediment and groundwater samples from 13 new monitor wells, as described below and shown on Figures 2, 3, and 4.
    a. GW-1, south of the current evaporation pond at the current fire training area.
    b. GW-2, at the former chrome plating facility and spill site (Building 281, ERP Site 18).
    c. GW-3, upgradient of the Main Base and downgradient of the munition's bunkers, at the corner of Saber Road and Douglas Road.
    d. GW-4, GW-5, and GW-6 to replace those monitor wells previously located on the west side of the sewage lagoons.

e. GW-7, GW-8, GW-9 to be installed downgradient (west and southwest) of Evaporation Pond 2.
f. GW-10, to be installed north of GW-7.
g. GW-11, GW-12, and GW-13 to be located downgradient (west) of Lake Holloman.

DBS&A will oversee the installation of the new monitor wells, to be performed by a drilling contractor licensed in the State of New Mexico, under subcontract to DBS&A.

4. Collect groundwater quality samples from 16 monitor wells twice during the State's Fiscal year 2024 (by June 30, 2024). This will include the 13 new monitor wells described above, as well as the following 3 existing monitor wells (Figure 3):
   a. DP-20, an existing 1-inch dimeter monitor well at Environmental Restoration Program (ERP) Site SS-2&5
   b. MW-02&05-06, downgradient of petroleum, oil, and lubricants (POL) site 2
   c. MW-02&05-09a, downgradient of POL site 2

The coordinates for the proposed sampling locations are provided in Table 1.

Table 1. Proposed Holloman AFB Sampling Locations

Sampling Location Identification	Location	
	X or Easting or Longitude	Y or Northing or Latitude
SED-1/SW-1	-106.076101	32.860882
SED-2/SW-2	-106.087846	32.842304
SED-3/SW-3	-106.11631	32.840785
SED-4/SW-4	-106.086446	32.928062
SED-5/SW-5	-106.1562	32.882697
DP-20	-106.070813	32.853525
MW-02&05-06	-106.068618	32.852532
MW-02&05-09a	-106.069642	32.852538
GW-1	-106.075851	32.860628
GW-2	-106.086073	32.842407
GW-3	-106.083796	32.873397
GW-4	-106.10665	32.828479
GW-5	-106.10663	32.82494
GW-6	-106.106372	32.822075

Sampling Location Identification	Location	
	X or Easting or Longitude	Y or Northing or Latitude
GW-7	-106.11019	32.837443
GW-8	-106.109956	32.836808
GW-9	-106.108936	32.836628
GW-10	-106.110253	32.838075
GW-11	-106.124237	32.817594
GW-12	-106.125302	32.812343
GW-13	-106.125952	32.807966
DP-1	-106.141004	32.838555
DP-2	-106.140893	32.833731
DP-3	-106.138982	32.829053
DP-4	-106.134201	32.824011
DP-5	-106.114789	32.807613
DP-6	-106.107635	32.811261
DP-7	-106.101198	32.81455
DP-8	-106.094263	32.818065
DP-9	-106.086634	32.821886
DP-10	-106.080408	32.825

NMED appreciates the U.S. Air Force's cooperation in this effort. Please contact John Bunch at DBS&A (505-822-9400, jbunch@geo-logic.com) if you have any questions regarding this request.

Sincerely,

<Name>
<Title>

cc: Sarah Nuss (518-322-8478, sarah.nuss@us.af.mil)

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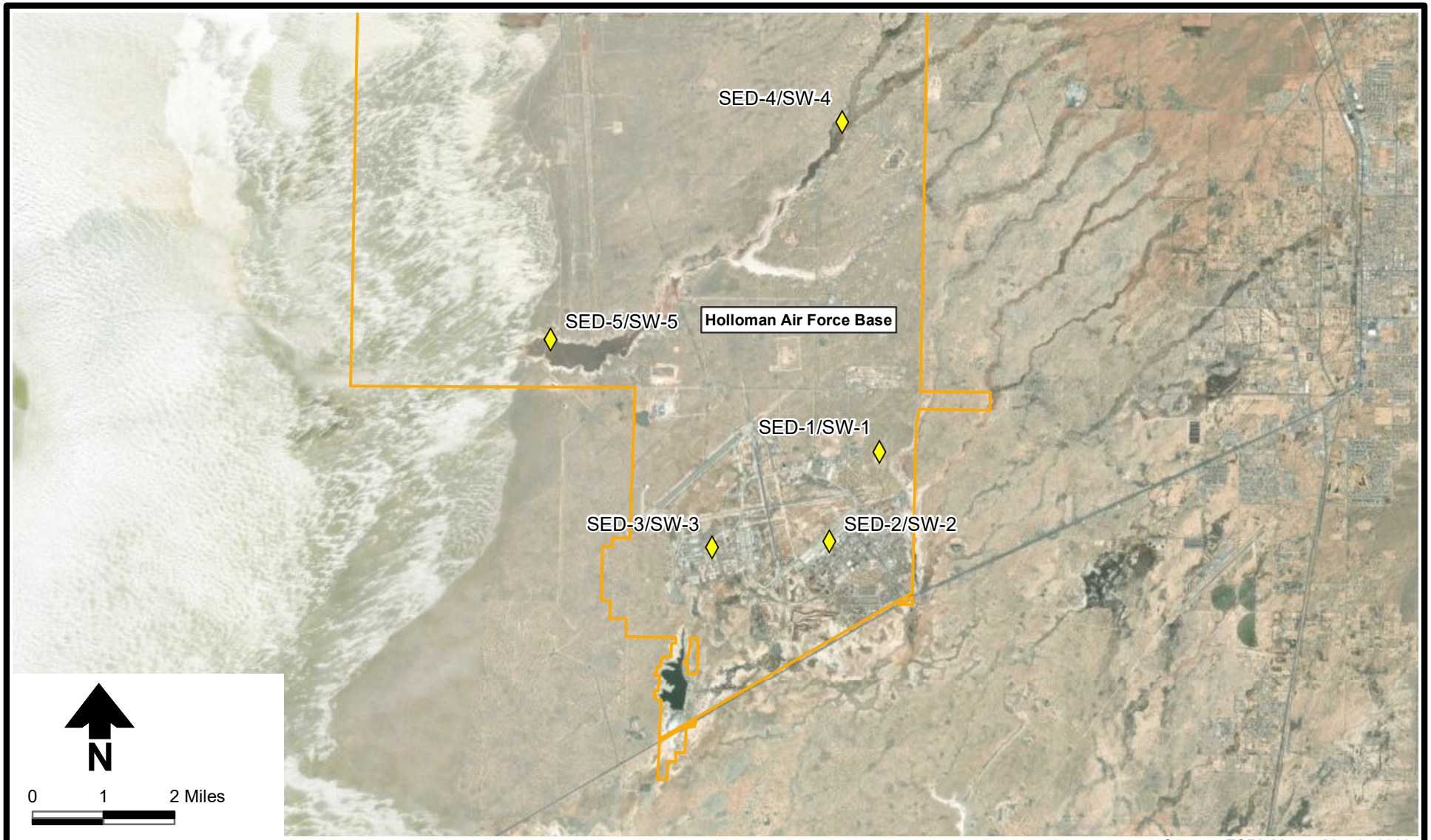

Source: ESRI, Maxar, March, 2022

Explanation

Sample location

Figure 1

NMED PFAS INVESTIGATION, HOLLOMAN AFB

Proposed Sediment & Surface Water Sample Locations for FY 2024

DBS&A a Geo-Logic Company

3/29/2023 DB23.1087

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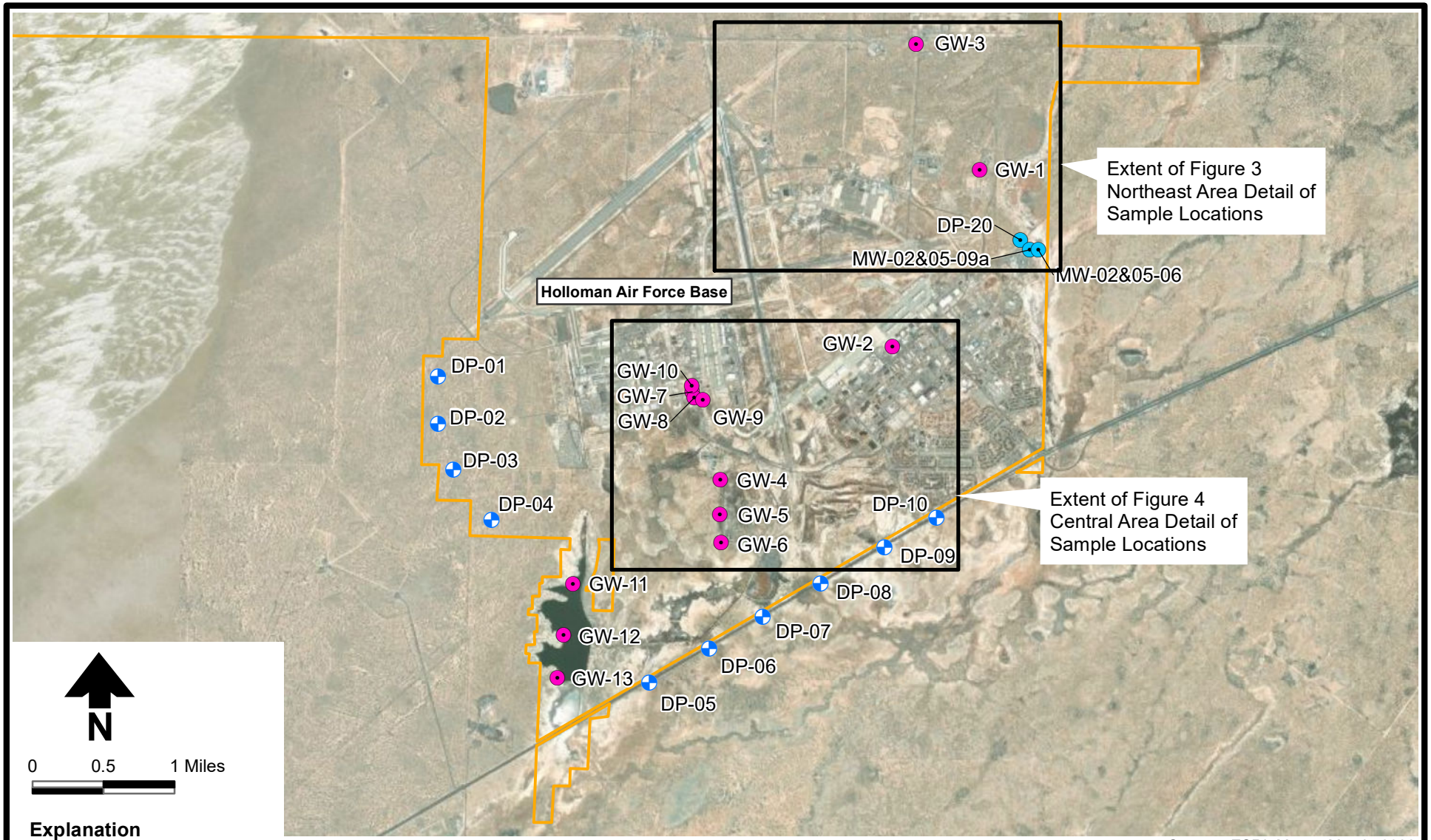

Source: ESRI, Maxar, March, 2022

Figure 2

NMED PFAS INVESTIGATION, HOLLOMAN AFB

Proposed Groundwater Sample Locations for FY 2024

DBS&A
a Geo-Logic Company

3/29/2023 DB23.1087

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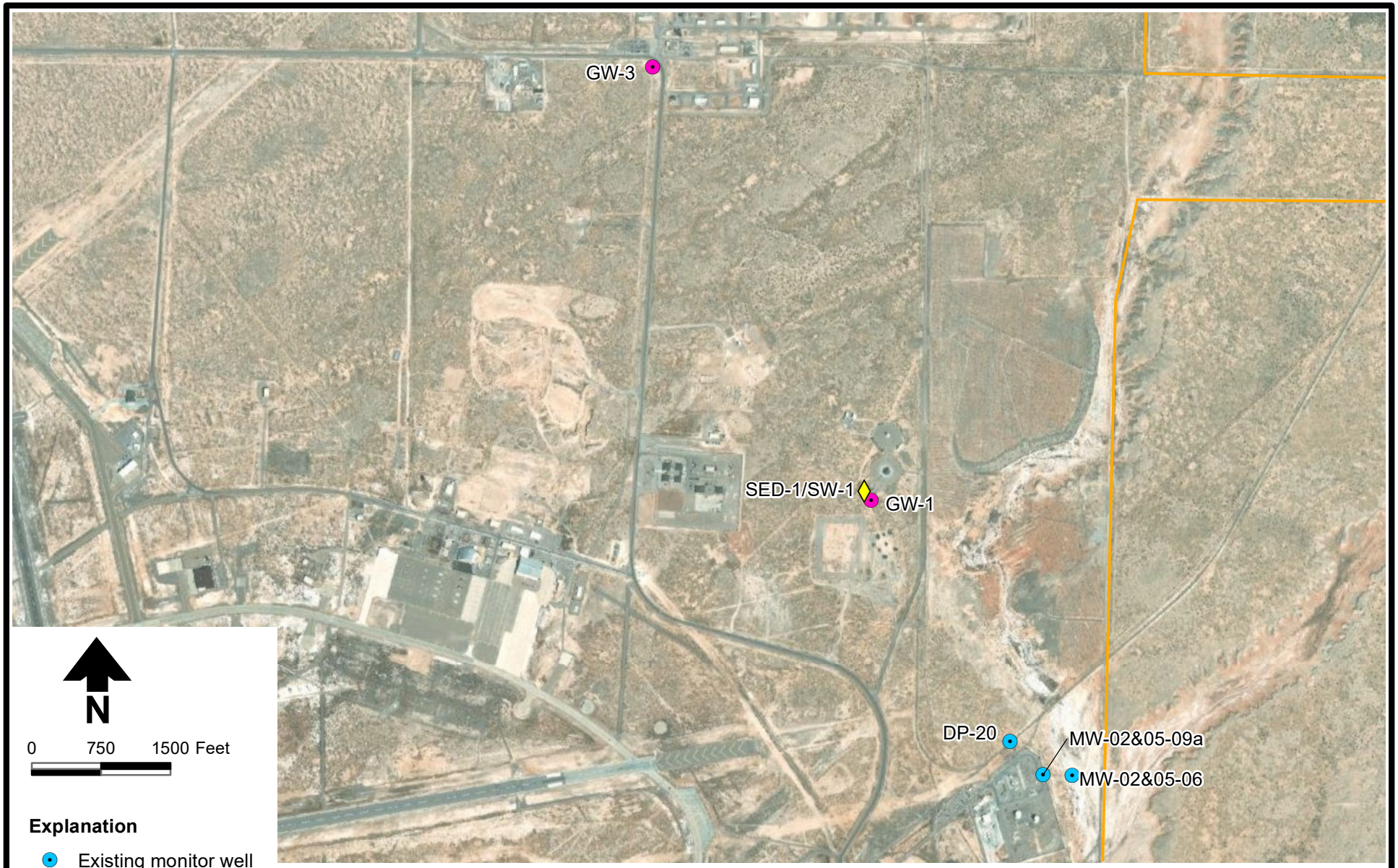

Source: ESRI, Maxar, March, 2022

Figure 3

DBS&A
a Geo-Logic Company

3/29/2023 DB23.1087

NMED PFAS INVESTIGATION, HOLLOMAN AFB

Northeast Area Detail of Sample Locations

S:\PROJECTS\DB23.1087_NMED_PFAS_FY2023\GIS\MXDS\FIG04_GROUNDWATER_SAMPLE_LOCATIONS_CENTRAL_AREA_DETAIL.MXD

Explanation

- Proposed monitor well
- Proposed direct-push location
- Sediment and surface water sample

Source: ESRI, Maxar, March, 2022

Figure 4

DBS&A
a Geo-Logic Company

3/29/2023 DB23.1087

NMED PFAS INVESTIGATION, HOLLOMAN AFB

Central Area Detail of Sample Locations

Appendix B

Biological Laboratory Reports

DBS&A
a Geo-Logic Company

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Jean-Luc Cartron
University of New Mexico
Museum of Southwestern Biology
Division of Mammals
CERIA Bldg 83, Room 204
Albuquerque, New Mexico 87131

Generated 5/26/2023 10:25:23 AM

JOB DESCRIPTION

Holloman PFAS (Samples 1-32 of 58)

JOB NUMBER

320-98863-1

Eurofins Sacramento
880 Riverside Parkway
West Sacramento CA 95605

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northern California, LLC Project Manager.

Authorization

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5/26/2023 10:25:23 AM

Authorized for release by
Linda C. Laver, Senior Project Manager
Linda.Laver@et.eurofinsus.com
(916)374-4362

Table of Contents

Definitions/Glossary

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Qualifiers

LCMS

Qualifier	Qualifier Description
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
CI	The peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.
E	Result exceeded calibration range.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Job ID: 320-98863-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative
320-98863-1

Comments
This report contains PFAS data for the following samples: NK 311397 (320-98863-1), NK 311406 (320-98863-2), NK 310837 (320-98863-3), NK 310873 (320-98863-4), NK 310884 (320-98863-5), NK 310892 (320-98863-6), NK 310831 (320-98863-7), NK 310840 (320-98863-8), NK 310883 (320-98863-9), NK 310882 (320-98863-10), NK 311886 (320-98863-11), NK 311891 (320-98863-12), NK 10440 (320-98863-13), NK 31807 (320-98863-14), NK 31808 (320-98863-15), NK 31806 (320-98863-16), NK 311426 (320-98863-17), NK 311437 (320-98863-18), NK 311390 (320-98863-19), NK 311395 (320-98863-20), NK 311423 (320-98863-21), NK 311435 (320-98863-22), NK 311422 (320-98863-23), NK 311887 (320-98863-24), NK 310922 (320-98863-25), NK 310912 (320-98863-26), NK 310959 (320-98863-27), NK 310963 (320-98863-28), NK 310939 (320-98863-29), NK 284404 (320-98863-30), NK 284405 (320-98863-31), NK 283752 (320-98863-32).

Receipt
The samples were received on 4/13/2023 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -46.0º C.

Receipt Exceptions
Paperwork received with the samples included three pages of Eurofins Chain of Custody Records (COC) that listed 32 samples. Paperwork also included two pages of a spreadsheet titled "LoanIntemDownload 2023.014.Mamm" and two pages titled "LoanIntemDownload 2023.014.Bird", which listed 58 samples. The 32 samples listed on the Eurofins COC pages are also listed on the spreadsheets.

The COC pages were not complete and missing information including collection date and time, matrix, requested analysis, and they were not signed at the time samples were relinquished by shipper. The lab logged in the samples with a collection date and time of 4/11/23 at 00:00 using the shipping date and a default time. The spreadsheet indicates samples are muscle or liver tissue and have been logged in for the analysis of PFAS, as Quoted. Two sample were also selected for NTA; however, the lab received only 1 container for NK 31142 (320-98863-23) and could not be analyzed for NTA..

LCMS
Method B/L/T PFAS: Some results for the following samples were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits. NK 311397 (320-98863-1), NK 311406 (320-98863-2), NK 310873 (320-98863-4), NK 310884 (320-98863-5), NK 310892 (320-98863-6), NK 310883 (320-98863-9), NK 310882 (320-98863-10), NK 311886 (320-98863-11), NK 31807 (320-98863-14), NK 31808 (320-98863-15), NK 31806 (320-98863-16), NK 311426 (320-98863-17), NK 311437 (320-98863-18), NK 311390 (320-98863-19), NK 311395 (320-98863-20), NK 311423 (320-98863-21), NK 311422 (320-98863-23), NK 311887 (320-98863-24), NK 310922 (320-98863-25), NK 310959 (320-98863-27), NK 310963 (320-98863-28), NK 310939 (320-98863-29), NK 284404 (320-98863-30) and NK 283752 (320-98863-32)

Method B/L/T PFAS: The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range at the maximum possible dilution, but did not saturate the detector: NK 31806 (320-98863-16), NK 311426 (320-98863-17), NK 311395 (320-98863-20), NK 311423 (320-98863-21) and NK 311422 (320-98863-23). There is no adverse impact on data quality.

Method B/L/T PFAS: The following samples have chromatographic interferences (CI) that could adversely impact the identification and quantitation of Perfluorobutanoic acid (PFBA). These interferences could cause false positive results. NK 311406 (320-98863-2), NK 31806 (320-98863-16) and NK 283752 (320-98863-32)

Method B/L/T PFAS: Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. NK 311406 (320-98863-2), NK 310884 (320-98863-5), NK 310883 (320-98863-9), NK 10440 (320-98863-13), NK 31808 (320-98863-15), NK 31806 (320-98863-16), NK 311426 (320-98863-17), NK 311390 (320-98863-19), NK 311395 (320-98863-20), NK 311423 (320-98863-21), NK 311422 (320-98863-23), NK 310959 (320-98863-27), NK 310939 (320-98863-29), NK 284404 (320-98863-30) and NK 284405 (320-98863-31)

Method B/L/T PFAS: The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The

Job ID: 320-98863-1 (Continued)

Laboratory: Eurofins Sacramento (Continued)

qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. NK 311435 (320-98863-22), NK 310912 (320-98863-26) and NK 310959 (320-98863-27)

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

Organic Prep
Method SHAKE: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-670757, 320-670758 and 320-671099.

Method SHAKE: Elevated reporting limits are provided for the following samples due to insufficient sample provided for preparation. NK 311406 (320-98863-2), NK 310837 (320-98863-3), NK 310884 (320-98863-5), NK 310892 (320-98863-6), NK 310831 (320-98863-7), NK 310840 (320-98863-8), NK 310883 (320-98863-9), NK 310882 (320-98863-10), NK 311886 (320-98863-11), NK 311891 (320-98863-12), NK 10440 (320-98863-13), NK 31807 (320-98863-14), NK 31808 (320-98863-15), NK 31806 (320-98863-16), NK 311426 (320-98863-17), NK 311437 (320-98863-18), NK 311390 (320-98863-19), NK 311395 (320-98863-20), NK 311435 (320-98863-22), NK 311422 (320-98863-23), NK 311887 (320-98863-24), NK 310922 (320-98863-25), NK 310912 (320-98863-26), NK 310959 (320-98863-27), NK 310963 (320-98863-28), NK 310939 (320-98863-29), NK 284404 (320-98863-30), NK 284405 (320-98863-31) and NK 283752 (320-98863-32)

Method SHAKE: The following samples were yellow following extraction. NK 311406 (320-98863-2) and NK 310873 (320-98863-4) and NK 283752 (320-98863-32)

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

Detection Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Job ID: 320-98863-1

Client Sample ID: NK 311397 — Lab Sample ID: 320-98863-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.16	J	0.71	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	0.39	J	0.71	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	0.39	J	0.71	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	4.5		0.71	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	5.3		0.71	0.073	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	6.2		0.71	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	1.4		0.71	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	36		0.71	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	35		0.71	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	16		0.71	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	7.1		0.71	0.071	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.83		0.71	0.072	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	3500		180	14	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	400		180	14	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	3900		180	14	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 311406 — Lab Sample ID: 320-98863-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.37	J CI	1.1	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	19		1.1	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	7.9		1.1	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.6		1.1	0.31	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	3.3		1.1	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	3.3		1.1	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	3.4		1.1	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	0.36	J	1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	460		28	2.3	ug/Kg	10		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	250		28	2.3	ug/Kg	10		B/L/T PFAS	Total/NA
Total PFOS - DL	700		28	2.3	ug/Kg	10		B/L/T PFAS	Total/NA

Client Sample ID: NK 310837 — Lab Sample ID: 320-98863-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	15	J	25	5.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	15	J	25	5.1	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	15	J	25	4.4	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	3.2	J	25	2.6	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	5.9	J	25	3.7	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	93		25	3.7	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	87		25	3.7	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	9.3	J	25	4.6	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RA	1600		63	5.1	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RA	520		63	5.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS - RA	2100		63	5.1	ug/Kg	1		B/L/T PFAS	Total/NA

Client Sample ID: NK 310873 — Lab Sample ID: 320-98863-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	1.1		0.70	0.12	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

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Client Sample ID: NK 310873 (Continued) — Lab Sample ID: 320-98863-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.75		0.70	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.14	J	0.70	0.081	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	0.45	J	0.70	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	0.45	J	0.70	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	6.9		0.70	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	12		0.70	0.072	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	7.5		0.70	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.48	J	0.70	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	16		0.70	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	1.1		0.70	0.30	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	18		0.70	0.070	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.68	J	0.70	0.071	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	8.8	J	35	5.2	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFHxS - DL	98		35	5.2	ug/Kg	50		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	89		35	5.2	ug/Kg	50		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	2200		87	7.1	ug/Kg	50		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	480		87	7.1	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFOS - DL	2700		87	7.1	ug/Kg	50		B/L/T PFAS	Total/NA

Client Sample ID: NK 310884 — Lab Sample ID: 320-98863-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	22		9.1	1.8	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	22		9.1	1.8	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	180		9.1	1.6	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	34		9.1	0.94	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	9.5		9.1	2.5	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	9.2		9.1	1.3	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	120		9.1	1.3	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	110		9.1	1.3	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	44		9.1	1.7	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	6.7	J	9.1	3.9	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	2.2	J	9.1	0.91	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	11000		450	37	ug/Kg	20		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	2800		450	37	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFOS - DL	14000		450	37	ug/Kg	20		B/L/T PFAS	Total/NA

Client Sample ID: NK 310892 — Lab Sample ID: 320-98863-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	41		4.8	0.96	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	5.7		4.8	0.96	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	47		4.8	0.96	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	56		4.8	0.83	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	4.3	J	4.8	0.49	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.5	J	4.8	0.86	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	71		4.8	0.88	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	2.8	J	4.8	0.48	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 310892 (Continued) — Lab Sample ID: 320-98863-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Br-Perfluorohexanesulfonic acid - DL	43	J	240	35	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFHxS - DL	680		240	35	ug/Kg	50		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	630		240	35	ug/Kg	50		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	6300		600	48	ug/Kg	50		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	2100		600	48	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFOS - DL	8400		600	48	ug/Kg	50		B/L/T PFAS	Total/NA

Client Sample ID: NK 310831 — Lab Sample ID: 320-98863-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	4.2	J	17	3.4	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	4.2	J	17	3.4	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	4.6	J	17	2.9	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	34		17	2.5	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	34		17	2.5	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	4.0	J	17	3.1	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RA	310		42	3.4	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RA	130		42	3.4	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS - RA	440		42	3.4	ug/Kg	1		B/L/T PFAS	Total/NA

Client Sample ID: NK 310840 — Lab Sample ID: 320-98863-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	5.0	J	33	3.4	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	6.6	J	33	6.2	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RA	950		83	6.8	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RA	330		83	6.8	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS - RA	1300		83	6.8	ug/Kg	1		B/L/T PFAS	Total/NA

Client Sample ID: NK 310883 — Lab Sample ID: 320-98863-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	3.0	J	4.3	0.50	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	50		4.3	0.88	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	4.4		4.3	0.88	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	54		4.3	0.88	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	94		4.3	0.76	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	24		4.3	0.45	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	9.8		4.3	1.2	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.0	J	4.3	0.79	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	38		4.3	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	360		4.3	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	320		4.3	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	51		4.3	0.80	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	110		4.3	1.8	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	22		4.3	0.43	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	1.1	J	4.3	0.44	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	8600		540	44	ug/Kg	50		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	3500		540	44	ug/Kg	50		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 310883 (Continued) — Lab Sample ID: 320-98863-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total PFOS - DL	12000		540	44	ug/Kg	50		B/L/T PFAS	Total/NA

Client Sample ID: NK 310882 — Lab Sample ID: 320-98863-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	33		14	2.9	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	33		14	2.9	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	120		14	2.5	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	16		14	1.5	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	4.4	J	14	3.9	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	27		14	2.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	320		14	2.1	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	290		14	2.1	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	35		14	2.6	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	15		14	6.1	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	9.4	J	14	1.4	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	1.6	J	14	1.4	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	7200		360	29	ug/Kg	10		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	3800		360	29	ug/Kg	10		B/L/T PFAS	Total/NA
Total PFOS - DL	11000		360	29	ug/Kg	10		B/L/T PFAS	Total/NA

Client Sample ID: NK 311886 — Lab Sample ID: 320-98863-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.0	J	4.3	1.0	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	1.2	J	4.3	0.76	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.5	J	4.3	0.50	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	70		4.3	0.88	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	2.9	J	4.3	0.88	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	72		4.3	0.88	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	230		4.3	0.76	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	11		4.3	0.45	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	2.8	J	4.3	1.2	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.5	J	4.3	0.79	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	49		4.3	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	330		4.3	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	280		4.3	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	56		4.3	0.80	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	14		4.3	1.8	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	2.8	J	4.3	0.43	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	7400		540	44	ug/Kg	50		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	2500		540	44	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFOS - DL	10000		540	44	ug/Kg	50		B/L/T PFAS	Total/NA

Client Sample ID: NK 311891 — Lab Sample ID: 320-98863-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total PFHxS	13	J	20	3.0	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	13	J	20	3.0	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 311891 (Continued) — Lab Sample ID: 320-98863-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanesulfonic acid (PFHpS)	8.2	J	20	3.7	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid	1700		50	4.1	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid	470		50	4.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS	2200		50	4.1	ug/Kg	1		B/L/T PFAS	Total/NA

Client Sample ID: NK 10440 — Lab Sample ID: 320-98863-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total PFHxS	0.86	J	5.6	0.82	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	0.86	J	5.6	0.82	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid	18		14	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid	6.1	J	14	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS	24		14	1.1	ug/Kg	1		B/L/T PFAS	Total/NA

Client Sample ID: NK 31807 — Lab Sample ID: 320-98863-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	6.3	J	9.1	0.94	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	10		9.1	2.5	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	2.9	J	9.1	1.7	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	4.5	J	9.1	0.91	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	1.7	J	9.1	0.92	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	6700		230	18	ug/Kg	10		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	800		230	18	ug/Kg	10		B/L/T PFAS	Total/NA
Total PFOS - DL	7500		230	18	ug/Kg	10		B/L/T PFAS	Total/NA

Client Sample ID: NK 31808 — Lab Sample ID: 320-98863-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	0.60	J	1.4	0.29	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	0.60	J	1.4	0.29	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	15		1.4	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	5.8		1.4	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	4.2		1.4	0.39	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.35	J	1.4	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	2.1		1.4	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	84		1.4	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	82		1.4	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	7.2		1.4	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	0.70	J	1.4	0.61	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	44		1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	1.8		1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	1100		71	5.8	ug/Kg	20		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	280		71	5.8	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFOS - DL	1400		71	5.8	ug/Kg	20		B/L/T PFAS	Total/NA

Client Sample ID: NK 31806 — Lab Sample ID: 320-98863-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.7	CI	1.6	0.37	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 31806 (Continued)
Lab Sample ID: 320-98863-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.85	J	1.6	0.28	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	76		1.6	0.28	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	17		1.6	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	3.9		1.6	0.43	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	13		1.6	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	13		1.6	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	28		1.6	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.26	J	1.6	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	410		160	29	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	74000	E	400	32	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	22000	E	400	32	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	97000		400	32	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 311426
Lab Sample ID: 320-98863-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanoic acid (PFPeA)	0.62	J	2.0	0.34	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.69	J	2.0	0.54	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.1		2.0	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	60		2.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	4.6		2.0	0.53	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	11		2.0	0.35	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	49		2.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.31	J	2.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	1100		200	40	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid - DL	92	J	200	40	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	1200		200	40	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	610		200	34	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	390		200	29	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	3600		200	29	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	3300		200	29	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	630		200	36	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	37000	E	490	40	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	20000	E	490	40	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	57000		490	40	ug/Kg	100		B/L/T PFAS	Total/NA
6:2 FTS - DL	290		200	83	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 311437
Lab Sample ID: 320-98863-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	59		5.0	1.0	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	5.2		5.0	1.0	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	64		5.0	1.0	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	35		5.0	0.88	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	3.7	J	5.0	0.52	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	24		5.0	0.74	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	230		5.0	0.74	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	210		5.0	0.74	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 311437 (Continued) — Lab Sample ID: 320-98863-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanesulfonic acid (PFHpS)	39		5.0	0.93	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	23		5.0	2.1	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	3.0	J	5.0	0.50	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	2200		130	10	ug/Kg	10		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	1100		130	10	ug/Kg	10		B/L/T PFAS	Total/NA
Total PFOS - DL	3300		130	10	ug/Kg	10		B/L/T PFAS	Total/NA

Client Sample ID: NK 311390 — Lab Sample ID: 320-98863-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.9	J	4.3	1.0	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	2.7	J	4.3	0.76	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	1.3	J	4.3	0.45	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	13		4.3	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	13		4.3	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	11		4.3	0.80	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	0.79	J	4.3	0.43	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	1200		110	8.8	ug/Kg	10		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	350		110	8.8	ug/Kg	10		B/L/T PFAS	Total/NA
Total PFOS - DL	1600		110	8.8	ug/Kg	10		B/L/T PFAS	Total/NA

Client Sample ID: NK 311395 — Lab Sample ID: 320-98863-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.0	J	1.5	0.36	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.44	J	1.5	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.56	J	1.5	0.42	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.45	J	1.5	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	3.0		1.5	0.31	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	0.35	J	1.5	0.31	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	3.3		1.5	0.31	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	19		1.5	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	13		1.5	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	2.7		1.5	0.42	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	2.2		1.5	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	38		1.5	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	36		1.5	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	20		1.5	0.65	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	26		1.5	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.28	J	1.5	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	74	J	150	28	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	17000	E	380	31	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	4400		380	31	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	22000		380	31	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 311423 — Lab Sample ID: 320-98863-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.50	J	0.77	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.95		0.77	0.13	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 311423 (Continued) — Lab Sample ID: 320-98863-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	2.9		0.77	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	30		0.77	0.089	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	57		0.77	0.079	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	4.1		0.77	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.68	J	0.77	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	29		0.77	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	37		0.77	0.077	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.15	J	0.77	0.078	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	1400		77	16	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid - DL	130		77	16	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	1500		77	16	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	700		77	13	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	690		77	11	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	5200		77	11	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	4500		77	11	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	630		77	14	ug/Kg	100		B/L/T PFAS	Total/NA
6:2 FTS - DL	620		77	33	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	26000	E	190	16	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	18000	E	190	16	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	44000		190	16	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 311435 — Lab Sample ID: 320-98863-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorodecanoic acid (PFDA)	0.33	J	2.9	0.29	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	0.64	J	2.9	0.42	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	0.64	J	2.9	0.42	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RA	22	I	7.1	0.58	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RA	6.2	J	7.1	0.58	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS - RA	28		7.1	0.58	ug/Kg	1		B/L/T PFAS	Total/NA

Client Sample ID: NK 311422 — Lab Sample ID: 320-98863-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5		1.4	0.33	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	2.5		1.4	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	1.7		1.4	0.38	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	12		1.4	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	120		1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	6.4		1.4	0.38	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.27	J	1.4	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	19		1.4	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	53		1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.21	J	1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	3500		140	28	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid - DL	170		140	28	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	3600		140	28	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	2000		140	24	ug/Kg	100		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 311422 (Continued) — Lab Sample ID: 320-98863-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Br-Perfluorohexanesulfonic acid - DL	590		140	21	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	5900		140	21	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	5300		140	21	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	760		140	26	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	39000	E	350	28	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	25000	E	350	28	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	65000		350	28	ug/Kg	100		B/L/T PFAS	Total/NA
6:2 FTS - DL	2200		140	59	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 311887 — Lab Sample ID: 320-98863-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.5	J	3.4	0.81	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	1.5	J	3.4	0.60	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	1.6	J	3.4	0.94	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.5		3.4	0.40	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	290		3.4	0.70	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	15		3.4	0.70	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	310		3.4	0.70	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	57		3.4	0.36	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	18		3.4	0.94	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	3.5		3.4	0.62	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	130		3.4	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	36		3.4	0.34	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.86	J	3.4	0.35	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	500		340	60	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	79	J	340	51	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	850		340	51	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	770		340	51	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	10000		860	70	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	4800		860	70	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	15000		860	70	ug/Kg	100		B/L/T PFAS	Total/NA
6:2 FTS - DL	730		340	150	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 310922 — Lab Sample ID: 320-98863-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.0	J	2.0	0.47	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.63	J	2.0	0.55	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.7	J	2.0	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	83		2.0	0.40	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	4.3		2.0	0.40	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	87		2.0	0.40	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	180		2.0	0.35	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	55		2.0	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	23		2.0	0.54	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.8	J	2.0	0.36	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	110		2.0	0.37	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 310922 (Continued) — Lab Sample ID: 320-98863-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
6:2 FTS	71		2.0	0.85	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	62		2.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	1.1	J	2.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS - DL	400		200	30	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	400		200	30	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	9900		500	41	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	3400		500	41	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	13000		500	41	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 310912 — Lab Sample ID: 320-98863-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	3.1	J	5.6	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	3.1	J	5.6	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	6.9		5.6	0.97	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	2.7	J	5.6	0.57	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	2.7	J	5.6	1.5	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	2.2	J	5.6	0.82	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	2.2	J	5.6	0.82	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid	47		14	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid	14		14	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS	61		14	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.65	J I	5.6	0.56	ug/Kg	1		B/L/T PFAS	Total/NA

Client Sample ID: NK 310959 — Lab Sample ID: 320-98863-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	3.6	J	6.7	0.77	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	58		6.7	1.3	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	5.3	J	6.7	1.3	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	63		6.7	1.3	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	130		6.7	1.2	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	26		6.7	0.69	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	7.2		6.7	1.8	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	22		6.7	0.99	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	490		6.7	0.99	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	470		6.7	0.99	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	64		6.7	1.2	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	210		6.7	2.8	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	21		6.7	0.67	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.80	J I	6.7	0.67	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	9400		830	68	ug/Kg	50		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	3700		830	68	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFOS - DL	13000		830	68	ug/Kg	50		B/L/T PFAS	Total/NA

Client Sample ID: NK 310963 — Lab Sample ID: 320-98863-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.3	J	5.0	1.2	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	9.1		5.0	0.88	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	1.9	J	5.0	0.52	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	1.1	J	5.0	0.74	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 310963 (Continued)

Lab Sample ID: 320-98863-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total PFHxS	33		5.0	0.74	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	32		5.0	0.74	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	32		5.0	0.93	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	4.6	J	5.0	0.50	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	5300		250	20	ug/Kg	20		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	1200		250	20	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFOS - RADL	6600		250	20	ug/Kg	20		B/L/T PFAS	Total/NA

Client Sample ID: NK 310939

Lab Sample ID: 320-98863-29

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	1.6		1.3	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	1.6		1.3	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	1.9		1.3	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	0.42	J	1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	0.54	J	1.3	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	8.6		1.3	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	8.1		1.3	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	1.0	J	1.3	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	2.5		1.3	0.55	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	0.38	J	1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.15	J	1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	67		32	2.6	ug/Kg	10		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	34		32	2.6	ug/Kg	10		B/L/T PFAS	Total/NA
Total PFOS - DL	100		32	2.6	ug/Kg	10		B/L/T PFAS	Total/NA

Client Sample ID: NK 284404

Lab Sample ID: 320-98863-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.8		2.5	0.59	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.45	J	2.5	0.44	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.70	J	2.5	0.29	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	16		2.5	0.51	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	1.3	J	2.5	0.51	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	17		2.5	0.51	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	83		2.5	0.44	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	6.6		2.5	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	3.2		2.5	0.68	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.67	J	2.5	0.45	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	70		2.5	0.46	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	8.6		2.5	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	26		2.5	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	12	J	50	7.4	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFHxS - DL	430		50	7.4	ug/Kg	20		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	420		50	7.4	ug/Kg	20		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	2900		130	10	ug/Kg	20		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 284404 (Continued)
Lab Sample ID: 320-98863-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Br-Perfluorooctanesulfonic acid - RADL	1000		130	10	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFOS - RADL	3900		130	10	ug/Kg	20		B/L/T PFAS	Total/NA

Client Sample ID: NK 284405
Lab Sample ID: 320-98863-31

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	0.27	J	1.2	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	0.27	J	1.2	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	1.2		1.2	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	1.4		1.2	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	1.4		1.2	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	1.4		1.2	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.32	J	1.2	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid	12		3.0	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid	2.4	J	3.0	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS	14		3.0	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.13	J	1.2	0.12	ug/Kg	1		B/L/T PFAS	Total/NA

Client Sample ID: NK 283752
Lab Sample ID: 320-98863-32

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.6	J CI	5.6	1.3	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	11		5.6	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	11		5.6	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	31		5.6	0.57	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	13		5.6	1.5	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	1.2	J	5.6	1.0	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	850		28	4.9	ug/Kg	5		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RA	52		14	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RA	6.5	J	14	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS - RA	59		14	1.1	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 311397

Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-1

Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.71	0.17	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Perfluoropentanoic acid (PFPeA)	**0.16**	**J**	0.71	0.12	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Perfluorohexanoic acid (PFHxA)	ND		0.71	0.19	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Perfluoroheptanoic acid (PFHpA)	ND		0.71	0.082	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
L-Perfluorooctanoic acid	**0.39**	**J**	0.71	0.14	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Br-Perfluorooctanoic acid	ND		0.71	0.14	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Total PFOA	**0.39**	**J**	0.71	0.14	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Perfluorononanoic acid (PFNA)	**4.5**		0.71	0.12	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Perfluorodecanoic acid (PFDA)	**5.3**		0.71	0.073	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Perfluoroundecanoic acid (PFUnA)	**6.2**		0.71	0.19	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.71	0.12	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.71	0.13	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Br-Perfluorohexanesulfonic acid	**1.4**		0.71	0.10	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Total PFHxS	**36**		0.71	0.10	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
L-Perfluorohexanesulfonic acid	**35**		0.71	0.10	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
Perfluoroheptanesulfonic acid (PFHpS)	**16**		0.71	0.13	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
4:2 FTS	ND		0.71	0.19	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
6:2 FTS	ND		0.71	0.30	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
8:2 FTS	**7.1**		0.71	0.071	ug/Kg		04/27/23 18:50	04/30/23 13:21	1
10:2 FTS	**0.83**		0.71	0.072	ug/Kg		04/27/23 18:50	04/30/23 13:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*105*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C5 PFPeA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C2 PFHxA	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C4 PFHpA	*109*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C4 PFOA	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C5 PFNA	*93*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C2 PFDA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C2 PFUnA	*109*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C3 PFBS	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
18O2 PFHxS	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C4 PFOS	*52*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
M2-4:2 FTS	*125*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
M2-6:2 FTS	*133*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
M2-8:2 FTS	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*
13C2 10:2 FTS	*119*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:21*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**3500**		180	14	ug/Kg		04/27/23 18:50	05/14/23 07:35	100
Br-Perfluorooctanesulfonic acid	**400**		180	14	ug/Kg		04/27/23 18:50	05/14/23 07:35	100
Total PFOS	**3900**		180	14	ug/Kg		04/27/23 18:50	05/14/23 07:35	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*96*		*25 - 150*	*04/27/23 18:50*	*05/14/23 07:35*	*100*

Client Sample ID: NK 311406
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-2
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.37**	**J CI**	1.1	0.27	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Perfluoropentanoic acid (PFPeA)	ND		1.1	0.20	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Perfluorohexanoic acid (PFHxA)	ND		1.1	0.31	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Perfluoroheptanoic acid (PFHpA)	ND		1.1	0.13	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
L-Perfluorooctanoic acid	ND		1.1	0.23	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Br-Perfluorooctanoic acid	ND		1.1	0.23	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Total PFOA	ND		1.1	0.23	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Perfluorononanoic acid (PFNA)	**19**		1.1	0.20	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Perfluorodecanoic acid (PFDA)	**7.9**		1.1	0.12	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Perfluoroundecanoic acid (PFUnA)	**1.6**		1.1	0.31	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.1	0.19	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.1	0.20	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Br-Perfluorohexanesulfonic acid	ND		1.1	0.17	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Total PFHxS	**3.3**		1.1	0.17	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
L-Perfluorohexanesulfonic acid	**3.3**		1.1	0.17	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
Perfluoroheptanesulfonic acid (PFHpS)	**3.4**		1.1	0.21	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
4:2 FTS	ND		1.1	0.30	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
6:2 FTS	ND		1.1	0.48	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
8:2 FTS	**0.36**	**J**	1.1	0.11	ug/Kg		04/27/23 18:50	04/30/23 13:44	1
10:2 FTS	ND		1.1	0.11	ug/Kg		04/27/23 18:50	04/30/23 13:44	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C2 PFHxA	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C4 PFHpA	*108*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C4 PFOA	*94*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C5 PFNA	*105*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C2 PFDA	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C2 PFUnA	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C3 PFBS	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
18O2 PFHxS	*91*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C4 PFOS	*92*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
M2-4:2 FTS	*138*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
M2-6:2 FTS	*151*	**5+*	*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
M2-8:2 FTS	*119*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*
13C2 10:2 FTS	*142*		*25 - 150*	*04/27/23 18:50*	*04/30/23 13:44*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**460**		28	2.3	ug/Kg		04/27/23 18:50	05/21/23 23:36	10
Br-Perfluorooctanesulfonic acid	**250**		28	2.3	ug/Kg		04/27/23 18:50	05/21/23 23:36	10
Total PFOS	**700**		28	2.3	ug/Kg		04/27/23 18:50	05/21/23 23:36	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*82*		*25 - 150*	*04/27/23 18:50*	*05/21/23 23:36*	*10*

Client Sample ID: NK 310837
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-3
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		25	5.9	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Perfluoropentanoic acid (PFPeA)	ND		25	4.4	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Perfluorohexanoic acid (PFHxA)	ND		25	6.8	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Perfluoroheptanoic acid (PFHpA)	ND		25	2.9	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
L-Perfluorooctanoic acid	**15**	**J**	25	5.1	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Br-Perfluorooctanoic acid	ND		25	5.1	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Total PFOA	**15**	**J**	25	5.1	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Perfluorononanoic acid (PFNA)	**15**	**J**	25	4.4	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Perfluorodecanoic acid (PFDA)	**3.2**	**J**	25	2.6	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Perfluoroundecanoic acid (PFUnA)	ND		25	6.8	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Perfluorobutanesulfonic acid (PFBS)	ND		25	4.3	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Perfluoropentanesulfonic acid (PFPeS)	ND		25	4.5	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Br-Perfluorohexanesulfonic acid	**5.9**	**J**	25	3.7	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Total PFHxS	**93**		25	3.7	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
L-Perfluorohexanesulfonic acid	**87**		25	3.7	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
Perfluoroheptanesulfonic acid (PFHpS)	**9.3**	**J**	25	4.6	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
4:2 FTS	ND		25	6.7	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
6:2 FTS	ND		25	11	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
8:2 FTS	ND		25	2.5	ug/Kg		04/27/23 18:50	04/30/23 14:07	1
10:2 FTS	ND		25	2.5	ug/Kg		04/27/23 18:50	04/30/23 14:07	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C5 PFPeA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C2 PFHxA	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C4 PFHpA	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C4 PFOA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C5 PFNA	*113*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C2 PFDA	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C2 PFUnA	*115*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C3 PFBS	*97*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
18O2 PFHxS	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C4 PFOS	*97*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
M2-4:2 FTS	*111*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
M2-6:2 FTS	*142*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
M2-8:2 FTS	*113*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*
13C2 10:2 FTS	*141*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:07*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**1600**		63	5.1	ug/Kg		04/27/23 18:50	05/21/23 23:53	1
Br-Perfluorooctanesulfonic acid	**520**		63	5.1	ug/Kg		04/27/23 18:50	05/21/23 23:53	1
Total PFOS	**2100**		63	5.1	ug/Kg		04/27/23 18:50	05/21/23 23:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*100*		*25 - 150*	*04/27/23 18:50*	*05/21/23 23:53*	*1*

Client Sample ID: NK 310873
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-4
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.70	0.17	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Perfluoropentanoic acid (PFPeA)	**1.1**		0.70	0.12	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Perfluorohexanoic acid (PFHxA)	**0.75**		0.70	0.19	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Perfluoroheptanoic acid (PFHpA)	**0.14**	**J**	0.70	0.081	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
L-Perfluorooctanoic acid	**0.45**	**J**	0.70	0.14	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Br-Perfluorooctanoic acid	ND		0.70	0.14	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Total PFOA	**0.45**	**J**	0.70	0.14	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Perfluorononanoic acid (PFNA)	**6.9**		0.70	0.12	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Perfluorodecanoic acid (PFDA)	**12**		0.70	0.072	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Perfluoroundecanoic acid (PFUnA)	**7.5**		0.70	0.19	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.70	0.12	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Perfluoropentanesulfonic acid (PFPeS)	**0.48**	**J**	0.70	0.13	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
Perfluoroheptanesulfonic acid (PFHpS)	**16**		0.70	0.13	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
4:2 FTS	ND		0.70	0.19	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
6:2 FTS	**1.1**		0.70	0.30	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
8:2 FTS	**18**		0.70	0.070	ug/Kg		04/27/23 18:50	04/30/23 14:29	1
10:2 FTS	**0.68**	**J**	0.70	0.071	ug/Kg		04/27/23 18:50	04/30/23 14:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C2 PFHxA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C4 PFHpA	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C4 PFOA	*92*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C5 PFNA	*93*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C2 PFDA	*100*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C2 PFUnA	*116*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C3 PFBS	*91*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C4 PFOS	*61*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
M2-4:2 FTS	*117*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
M2-6:2 FTS	*115*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*
13C2 10:2 FTS	*144*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:29*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	**8.8**	**J**	35	5.2	ug/Kg		04/27/23 18:50	05/14/23 05:19	50
Total PFHxS	**98**		35	5.2	ug/Kg		04/27/23 18:50	05/14/23 05:19	50
L-Perfluorohexanesulfonic acid	**89**		35	5.2	ug/Kg		04/27/23 18:50	05/14/23 05:19	50
L-Perfluorooctanesulfonic acid	**2200**		87	7.1	ug/Kg		04/27/23 18:50	05/14/23 05:19	50
Br-Perfluorooctanesulfonic acid	**480**		87	7.1	ug/Kg		04/27/23 18:50	05/14/23 05:19	50
Total PFOS	**2700**		87	7.1	ug/Kg		04/27/23 18:50	05/14/23 05:19	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*97*		*25 - 150*	*04/27/23 18:50*	*05/14/23 05:19*	*50*
13C4 PFOS	*105*		*25 - 150*	*04/27/23 18:50*	*05/14/23 05:19*	*50*

Client Sample ID: NK 310884
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-5
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		9.1	2.1	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Perfluoropentanoic acid (PFPeA)	ND		9.1	1.6	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Perfluorohexanoic acid (PFHxA)	ND		9.1	2.5	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Perfluoroheptanoic acid (PFHpA)	ND		9.1	1.1	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
L-Perfluorooctanoic acid	**22**		9.1	1.8	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Br-Perfluorooctanoic acid	ND		9.1	1.8	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Total PFOA	**22**		9.1	1.8	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Perfluorononanoic acid (PFNA)	**180**		9.1	1.6	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Perfluorodecanoic acid (PFDA)	**34**		9.1	0.94	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Perfluoroundecanoic acid (PFUnA)	**9.5**		9.1	2.5	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Perfluorobutanesulfonic acid (PFBS)	ND		9.1	1.5	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Perfluoropentanesulfonic acid (PFPeS)	ND		9.1	1.6	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Br-Perfluorohexanesulfonic acid	**9.2**		9.1	1.3	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Total PFHxS	**120**		9.1	1.3	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
L-Perfluorohexanesulfonic acid	**110**		9.1	1.3	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
Perfluoroheptanesulfonic acid (PFHpS)	**44**		9.1	1.7	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
4:2 FTS	ND		9.1	2.4	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
6:2 FTS	**6.7**	**J**	9.1	3.9	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
8:2 FTS	**2.2**	**J**	9.1	0.91	ug/Kg		04/27/23 18:50	04/30/23 14:52	1
10:2 FTS	ND		9.1	0.92	ug/Kg		04/27/23 18:50	04/30/23 14:52	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*62*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C5 PFPeA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C2 PFHxA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C4 PFHpA	*109*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C4 PFOA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C5 PFNA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C2 PFDA	*111*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C2 PFUnA	*117*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C3 PFBS	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
18O2 PFHxS	*94*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C4 PFOS	*73*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
M2-4:2 FTS	*166*	**5+*	*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
M2-6:2 FTS	*135*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
M2-8:2 FTS	*114*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*
13C2 10:2 FTS	*146*		*25 - 150*	*04/27/23 18:50*	*04/30/23 14:52*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**11000**		450	37	ug/Kg		04/27/23 18:50	05/14/23 04:34	20
Br-Perfluorooctanesulfonic acid	**2800**		450	37	ug/Kg		04/27/23 18:50	05/14/23 04:34	20
Total PFOS	**14000**		450	37	ug/Kg		04/27/23 18:50	05/14/23 04:34	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*105*		*25 - 150*	*04/27/23 18:50*	*05/14/23 04:34*	*20*

Client Sample ID: NK 310892
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-6
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.8	1.1	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Perfluoropentanoic acid (PFPeA)	ND		4.8	0.83	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Perfluorohexanoic acid (PFHxA)	ND		4.8	1.3	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Perfluoroheptanoic acid (PFHpA)	ND		4.8	0.55	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
L-Perfluorooctanoic acid	**41**		4.8	0.96	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Br-Perfluorooctanoic acid	**5.7**		4.8	0.96	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Total PFOA	**47**		4.8	0.96	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Perfluorononanoic acid (PFNA)	**56**		4.8	0.83	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Perfluorodecanoic acid (PFDA)	**4.3**	**J**	4.8	0.49	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Perfluoroundecanoic acid (PFUnA)	ND		4.8	1.3	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Perfluorobutanesulfonic acid (PFBS)	ND		4.8	0.81	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Perfluoropentanesulfonic acid (PFPeS)	**1.5**	**J**	4.8	0.86	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
Perfluoroheptanesulfonic acid (PFHpS)	**71**		4.8	0.88	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
4:2 FTS	ND		4.8	1.3	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
6:2 FTS	ND		4.8	2.0	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
8:2 FTS	**2.8**	**J**	4.8	0.48	ug/Kg		04/27/23 18:50	04/30/23 15:15	1
10:2 FTS	ND		4.8	0.48	ug/Kg		04/27/23 18:50	04/30/23 15:15	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C5 PFPeA	*108*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C2 PFHxA	*109*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C4 PFHpA	*113*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C4 PFOA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C5 PFNA	*107*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C2 PFDA	*111*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C2 PFUnA	*116*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C3 PFBS	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C4 PFOS	*72*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
M2-4:2 FTS	*123*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
M2-6:2 FTS	*129*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
M2-8:2 FTS	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*
13C2 10:2 FTS	*140*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:15*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	**43**	**J**	240	35	ug/Kg		04/27/23 18:50	05/14/23 05:42	50
Total PFHxS	**680**		240	35	ug/Kg		04/27/23 18:50	05/14/23 05:42	50
L-Perfluorohexanesulfonic acid	**630**		240	35	ug/Kg		04/27/23 18:50	05/14/23 05:42	50
L-Perfluorooctanesulfonic acid	**6300**		600	48	ug/Kg		04/27/23 18:50	05/14/23 05:42	50
Br-Perfluorooctanesulfonic acid	**2100**		600	48	ug/Kg		04/27/23 18:50	05/14/23 05:42	50
Total PFOS	**8400**		600	48	ug/Kg		04/27/23 18:50	05/14/23 05:42	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*101*		*25 - 150*	*04/27/23 18:50*	*05/14/23 05:42*	*50*
13C4 PFOS	*107*		*25 - 150*	*04/27/23 18:50*	*05/14/23 05:42*	*50*

Client Sample ID: NK 310831
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-7
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		17	3.9	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Perfluoropentanoic acid (PFPeA)	ND		17	2.9	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Perfluorohexanoic acid (PFHxA)	ND		17	4.6	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Perfluoroheptanoic acid (PFHpA)	ND		17	1.9	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
L-Perfluorooctanoic acid	**4.2**	**J**	17	3.4	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Br-Perfluorooctanoic acid	ND		17	3.4	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Total PFOA	**4.2**	**J**	17	3.4	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Perfluorononanoic acid (PFNA)	**4.6**	**J**	17	2.9	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Perfluorodecanoic acid (PFDA)	ND		17	1.7	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Perfluoroundecanoic acid (PFUnA)	ND		17	4.5	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Perfluorobutanesulfonic acid (PFBS)	ND		17	2.8	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Perfluoropentanesulfonic acid (PFPeS)	ND		17	3.0	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Br-Perfluorohexanesulfonic acid	ND		17	2.5	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Total PFHxS	**34**		17	2.5	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
L-Perfluorohexanesulfonic acid	**34**		17	2.5	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
Perfluoroheptanesulfonic acid (PFHpS)	**4.0**	**J**	17	3.1	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
4:2 FTS	ND		17	4.4	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
6:2 FTS	ND		17	7.1	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
8:2 FTS	ND		17	1.7	ug/Kg		04/27/23 18:50	04/30/23 15:37	1
10:2 FTS	ND		17	1.7	ug/Kg		04/27/23 18:50	04/30/23 15:37	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*92*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C2 PFHxA	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C4 PFHpA	*108*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C4 PFOA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C5 PFNA	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C2 PFDA	*111*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C2 PFUnA	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C3 PFBS	*97*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
18O2 PFHxS	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C4 PFOS	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
M2-4:2 FTS	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
M2-6:2 FTS	*119*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
M2-8:2 FTS	*115*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*
13C2 10:2 FTS	*130*		*25 - 150*	*04/27/23 18:50*	*04/30/23 15:37*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**310**		42	3.4	ug/Kg		04/27/23 18:50	05/22/23 00:10	1
Br-Perfluorooctanesulfonic acid	**130**		42	3.4	ug/Kg		04/27/23 18:50	05/22/23 00:10	1
Total PFOS	**440**		42	3.4	ug/Kg		04/27/23 18:50	05/22/23 00:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*114*		*25 - 150*	*04/27/23 18:50*	*05/22/23 00:10*	*1*

Client Sample ID: NK 310840
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-8
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		33	7.9	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Perfluoropentanoic acid (PFPeA)	ND		33	5.8	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Perfluorohexanoic acid (PFHxA)	ND		33	9.1	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Perfluoroheptanoic acid (PFHpA)	ND		33	3.9	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
L-Perfluorooctanoic acid	ND		33	6.7	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Br-Perfluorooctanoic acid	ND		33	6.7	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Total PFOA	ND		33	6.7	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Perfluorononanoic acid (PFNA)	ND		33	5.8	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Perfluorodecanoic acid (PFDA)	**5.0**	**J**	33	3.4	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Perfluoroundecanoic acid (PFUnA)	ND		33	9.1	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		33	5.7	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Perfluoropentanesulfonic acid (PFPeS)	ND		33	6.0	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Br-Perfluorohexanesulfonic acid	ND		33	4.9	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Total PFHxS	ND		33	4.9	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
L-Perfluorohexanesulfonic acid	ND		33	4.9	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
Perfluoroheptanesulfonic acid (PFHpS)	**6.6**	**J**	33	6.2	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
4:2 FTS	ND		33	8.9	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
6:2 FTS	ND		33	14	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
8:2 FTS	ND		33	3.3	ug/Kg		04/27/23 18:50	04/30/23 16:23	1
10:2 FTS	ND		33	3.4	ug/Kg		04/27/23 18:50	04/30/23 16:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*83*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C5 PFPeA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C2 PFHxA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C4 PFHpA	*109*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C4 PFOA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C5 PFNA	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C2 PFDA	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C2 PFUnA	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C3 PFBS	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
18O2 PFHxS	*95*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C4 PFOS	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
M2-4:2 FTS	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
M2-6:2 FTS	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
M2-8:2 FTS	*109*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*
13C2 10:2 FTS	*125*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:23*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**950**		83	6.8	ug/Kg		04/27/23 18:50	05/22/23 00:26	1
Br-Perfluorooctanesulfonic acid	**330**		83	6.8	ug/Kg		04/27/23 18:50	05/22/23 00:26	1
Total PFOS	**1300**		83	6.8	ug/Kg		04/27/23 18:50	05/22/23 00:26	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*106*		*25 - 150*	*04/27/23 18:50*	*05/22/23 00:26*	*1*

Client Sample ID: NK 310883
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-9
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.3	1.0	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Perfluoropentanoic acid (PFPeA)	ND		4.3	0.76	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Perfluorohexanoic acid (PFHxA)	ND		4.3	1.2	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Perfluoroheptanoic acid (PFHpA)	**3.0**	**J**	4.3	0.50	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
L-Perfluorooctanoic acid	**50**		4.3	0.88	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Br-Perfluorooctanoic acid	**4.4**		4.3	0.88	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Total PFOA	**54**		4.3	0.88	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Perfluorononanoic acid (PFNA)	**94**		4.3	0.76	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Perfluorodecanoic acid (PFDA)	**24**		4.3	0.45	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Perfluoroundecanoic acid (PFUnA)	**9.8**		4.3	1.2	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		4.3	0.74	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Perfluoropentanesulfonic acid (PFPeS)	**2.0**	**J**	4.3	0.79	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Br-Perfluorohexanesulfonic acid	**38**		4.3	0.64	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Total PFHxS	**360**		4.3	0.64	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
L-Perfluorohexanesulfonic acid	**320**		4.3	0.64	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
Perfluoroheptanesulfonic acid (PFHpS)	**51**		4.3	0.80	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
4:2 FTS	ND		4.3	1.2	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
6:2 FTS	**110**		4.3	1.8	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
8:2 FTS	**22**		4.3	0.43	ug/Kg		04/27/23 18:50	04/30/23 16:45	1
10:2 FTS	**1.1**	**J**	4.3	0.44	ug/Kg		04/27/23 18:50	04/30/23 16:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C5 PFPeA	*97*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C2 PFHxA	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C4 PFHpA	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C4 PFOA	*97*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C5 PFNA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C2 PFDA	*107*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C2 PFUnA	*110*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C3 PFBS	*95*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
18O2 PFHxS	*92*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C4 PFOS	*65*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
M2-4:2 FTS	*120*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
M2-6:2 FTS	*137*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
M2-8:2 FTS	*111*		*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*
13C2 10:2 FTS	*168*	**5+*	*25 - 150*	*04/27/23 18:50*	*04/30/23 16:45*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**8600**		540	44	ug/Kg		04/27/23 18:50	05/14/23 06:04	50
Br-Perfluorooctanesulfonic acid	**3500**		540	44	ug/Kg		04/27/23 18:50	05/14/23 06:04	50
Total PFOS	**12000**		540	44	ug/Kg		04/27/23 18:50	05/14/23 06:04	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*88*		*25 - 150*	*04/27/23 18:50*	*05/14/23 06:04*	*50*

Client Sample ID: NK 310882
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-10
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		14	3.4	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Perfluoropentanoic acid (PFPeA)	ND		14	2.5	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Perfluorohexanoic acid (PFHxA)	ND		14	3.9	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Perfluoroheptanoic acid (PFHpA)	ND		14	1.7	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
L-Perfluorooctanoic acid	**33**		14	2.9	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Br-Perfluorooctanoic acid	ND		14	2.9	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Total PFOA	**33**		14	2.9	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Perfluorononanoic acid (PFNA)	**120**		14	2.5	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Perfluorodecanoic acid (PFDA)	**16**		14	1.5	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Perfluoroundecanoic acid (PFUnA)	**4.4**	**J**	14	3.9	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		14	2.4	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Perfluoropentanesulfonic acid (PFPeS)	ND		14	2.6	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Br-Perfluorohexanesulfonic acid	**27**		14	2.1	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Total PFHxS	**320**		14	2.1	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
L-Perfluorohexanesulfonic acid	**290**		14	2.1	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
Perfluoroheptanesulfonic acid (PFHpS)	**35**		14	2.6	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
4:2 FTS	ND		14	3.8	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
6:2 FTS	**15**		14	6.1	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
8:2 FTS	**9.4**	**J**	14	1.4	ug/Kg		04/27/23 18:50	04/30/23 17:08	1
10:2 FTS	**1.6**	**J**	14	1.4	ug/Kg		04/27/23 18:50	04/30/23 17:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*63*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C5 PFPeA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C2 PFHxA	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C4 PFHpA	*110*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C4 PFOA	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C5 PFNA	*105*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C2 PFDA	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C2 PFUnA	*113*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C3 PFBS	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
18O2 PFHxS	*95*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C4 PFOS	*92*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
M2-4:2 FTS	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
M2-6:2 FTS	*138*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
M2-8:2 FTS	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*
13C2 10:2 FTS	*147*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:08*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**7200**		360	29	ug/Kg		04/27/23 18:50	05/24/23 19:22	10
Br-Perfluorooctanesulfonic acid	**3800**		360	29	ug/Kg		04/27/23 18:50	05/24/23 19:22	10
Total PFOS	**11000**		360	29	ug/Kg		04/27/23 18:50	05/24/23 19:22	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*101*		*25 - 150*	*04/27/23 18:50*	*05/24/23 19:22*	*10*

Client Sample ID: NK 311886
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-11
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.0**	**J**	4.3	1.0	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Perfluoropentanoic acid (PFPeA)	**1.2**	**J**	4.3	0.76	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Perfluorohexanoic acid (PFHxA)	ND		4.3	1.2	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Perfluoroheptanoic acid (PFHpA)	**1.5**	**J**	4.3	0.50	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
L-Perfluorooctanoic acid	**70**		4.3	0.88	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Br-Perfluorooctanoic acid	**2.9**	**J**	4.3	0.88	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Total PFOA	**72**		4.3	0.88	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Perfluorononanoic acid (PFNA)	**230**		4.3	0.76	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Perfluorodecanoic acid (PFDA)	**11**		4.3	0.45	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Perfluoroundecanoic acid (PFUnA)	**2.8**	**J**	4.3	1.2	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Perfluorobutanesulfonic acid (PFBS)	ND		4.3	0.74	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Perfluoropentanesulfonic acid (PFPeS)	**2.5**	**J**	4.3	0.79	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Br-Perfluorohexanesulfonic acid	**49**		4.3	0.64	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Total PFHxS	**330**		4.3	0.64	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
L-Perfluorohexanesulfonic acid	**280**		4.3	0.64	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
Perfluoroheptanesulfonic acid (PFHpS)	**56**		4.3	0.80	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
4:2 FTS	ND		4.3	1.2	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
6:2 FTS	**14**		4.3	1.8	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
8:2 FTS	**2.8**	**J**	4.3	0.43	ug/Kg		04/27/23 18:50	04/30/23 17:31	1
10:2 FTS	ND		4.3	0.44	ug/Kg		04/27/23 18:50	04/30/23 17:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C5 PFPeA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C2 PFHxA	*107*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C4 PFHpA	*109*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C4 PFOA	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C5 PFNA	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C2 PFDA	*111*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C2 PFUnA	*114*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C3 PFBS	*95*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
18O2 PFHxS	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C4 PFOS	*71*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
M2-4:2 FTS	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
M2-6:2 FTS	*123*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
M2-8:2 FTS	*114*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*
13C2 10:2 FTS	*136*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:31*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**7400**		540	44	ug/Kg		04/27/23 18:50	05/14/23 06:27	50
Br-Perfluorooctanesulfonic acid	**2500**		540	44	ug/Kg		04/27/23 18:50	05/14/23 06:27	50
Total PFOS	**10000**		540	44	ug/Kg		04/27/23 18:50	05/14/23 06:27	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*116*		*25 - 150*	*04/27/23 18:50*	*05/14/23 06:27*	*50*

Client: University of New Mexico
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Job ID: 320-98863-1

Client Sample ID: NK 311891
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-12
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		20	4.7	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Perfluoropentanoic acid (PFPeA)	ND		20	3.5	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Perfluorohexanoic acid (PFHxA)	ND		20	5.5	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Perfluoroheptanoic acid (PFHpA)	ND		20	2.3	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
L-Perfluorooctanoic acid	ND		20	4.0	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Br-Perfluorooctanoic acid	ND		20	4.0	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Total PFOA	ND		20	4.0	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Perfluorononanoic acid (PFNA)	ND		20	3.5	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Perfluorodecanoic acid (PFDA)	ND		20	2.1	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Perfluoroundecanoic acid (PFUnA)	ND		20	5.4	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		20	3.4	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Perfluoropentanesulfonic acid (PFPeS)	ND		20	3.6	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Br-Perfluorohexanesulfonic acid	ND		20	3.0	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Total PFHxS	**13**	**J**	20	3.0	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
L-Perfluorohexanesulfonic acid	**13**	**J**	20	3.0	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Perfluoroheptanesulfonic acid (PFHpS)	**8.2**	**J**	20	3.7	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
L-Perfluorooctanesulfonic acid	**1700**		50	4.1	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Br-Perfluorooctanesulfonic acid	**470**		50	4.1	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
Total PFOS	**2200**		50	4.1	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
4:2 FTS	ND		20	5.3	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
6:2 FTS	ND		20	8.5	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
8:2 FTS	ND		20	2.0	ug/Kg		04/27/23 18:50	04/30/23 17:54	1
10:2 FTS	ND		20	2.0	ug/Kg		04/27/23 18:50	04/30/23 17:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*59*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C5 PFPeA	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C2 PFHxA	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C4 PFHpA	*107*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C4 PFOA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C5 PFNA	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C2 PFDA	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C2 PFUnA	*114*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C3 PFBS	*95*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
18O2 PFHxS	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C4 PFOS	*97*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
M2-4:2 FTS	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
M2-6:2 FTS	*110*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
M2-8:2 FTS	*108*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*
13C2 10:2 FTS	*133*		*25 - 150*	*04/27/23 18:50*	*04/30/23 17:54*	*1*

Client Sample ID: NK 10440
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-13
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.6	1.3	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Perfluoropentanoic acid (PFPeA)	ND		5.6	0.97	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Perfluorohexanoic acid (PFHxA)	ND		5.6	1.5	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Perfluoroheptanoic acid (PFHpA)	ND		5.6	0.64	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
L-Perfluorooctanoic acid	ND		5.6	1.1	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Br-Perfluorooctanoic acid	ND		5.6	1.1	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Total PFOA	ND		5.6	1.1	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Perfluorononanoic acid (PFNA)	ND		5.6	0.97	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Perfluorodecanoic acid (PFDA)	ND		5.6	0.57	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Perfluoroundecanoic acid (PFUnA)	ND		5.6	1.5	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.6	0.94	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.6	1.0	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Br-Perfluorohexanesulfonic acid	ND		5.6	0.82	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Total PFHxS	**0.86**	**J**	5.6	0.82	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
L-Perfluorohexanesulfonic acid	**0.86**	**J**	5.6	0.82	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.6	1.0	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
L-Perfluorooctanesulfonic acid	**18**		14	1.1	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Br-Perfluorooctanesulfonic acid	**6.1**	**J**	14	1.1	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
Total PFOS	**24**		14	1.1	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
4:2 FTS	ND		5.6	1.5	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
6:2 FTS	ND		5.6	2.4	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
8:2 FTS	ND		5.6	0.56	ug/Kg		04/27/23 18:50	04/30/23 18:16	1
10:2 FTS	ND		5.6	0.56	ug/Kg		04/27/23 18:50	04/30/23 18:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*37*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C5 PFPeA	*92*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C2 PFHxA	*100*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C4 PFHpA	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C4 PFOA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C5 PFNA	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C2 PFDA	*110*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C2 PFUnA	*113*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C3 PFBS	*91*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
18O2 PFHxS	*94*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C4 PFOS	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
M2-4:2 FTS	*160*	**5+*	*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
M2-6:2 FTS	*123*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
M2-8:2 FTS	*121*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*
13C2 10:2 FTS	*148*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:16*	*1*

Client Sample ID: NK 31807
Lab Sample ID: 320-98863-14

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		9.1	2.1	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Perfluoropentanoic acid (PFPeA)	ND		9.1	1.6	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Perfluorohexanoic acid (PFHxA)	ND		9.1	2.5	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Perfluoroheptanoic acid (PFHpA)	ND		9.1	1.1	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
L-Perfluorooctanoic acid	ND		9.1	1.8	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Br-Perfluorooctanoic acid	ND		9.1	1.8	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Total PFOA	ND		9.1	1.8	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Perfluorononanoic acid (PFNA)	ND		9.1	1.6	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Perfluorodecanoic acid (PFDA)	**6.3**	**J**	9.1	0.94	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Perfluoroundecanoic acid (PFUnA)	**10**		9.1	2.5	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Perfluorobutanesulfonic acid (PFBS)	ND		9.1	1.5	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Perfluoropentanesulfonic acid (PFPeS)	ND		9.1	1.6	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Br-Perfluorohexanesulfonic acid	ND		9.1	1.3	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Total PFHxS	ND		9.1	1.3	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
L-Perfluorohexanesulfonic acid	ND		9.1	1.3	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
Perfluoroheptanesulfonic acid (PFHpS)	**2.9**	**J**	9.1	1.7	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
4:2 FTS	ND		9.1	2.4	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
6:2 FTS	ND		9.1	3.9	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
8:2 FTS	**4.5**	**J**	9.1	0.91	ug/Kg		04/27/23 18:50	04/30/23 18:39	1
10:2 FTS	**1.7**	**J**	9.1	0.92	ug/Kg		04/27/23 18:50	04/30/23 18:39	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C5 PFPeA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C2 PFHxA	*108*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C4 PFHpA	*108*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C4 PFOA	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C5 PFNA	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C2 PFDA	*110*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C2 PFUnA	*113*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C3 PFBS	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
18O2 PFHxS	*100*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C4 PFOS	*82*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
M2-4:2 FTS	*150*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
M2-6:2 FTS	*123*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
M2-8:2 FTS	*117*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*
13C2 10:2 FTS	*134*		*25 - 150*	*04/27/23 18:50*	*04/30/23 18:39*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**6700**		230	18	ug/Kg		04/27/23 18:50	05/14/23 03:48	10
Br-Perfluorooctanesulfonic acid	**800**		230	18	ug/Kg		04/27/23 18:50	05/14/23 03:48	10
Total PFOS	**7500**		230	18	ug/Kg		04/27/23 18:50	05/14/23 03:48	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*103*		*25 - 150*	*04/27/23 18:50*	*05/14/23 03:48*	*10*

Client Sample ID: NK 31808
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-15
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.4	0.34	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Perfluoropentanoic acid (PFPeA)	ND		1.4	0.25	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Perfluorohexanoic acid (PFHxA)	ND		1.4	0.39	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Perfluoroheptanoic acid (PFHpA)	ND		1.4	0.17	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
L-Perfluorooctanoic acid	**0.60**	**J**	1.4	0.29	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Br-Perfluorooctanoic acid	ND		1.4	0.29	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Total PFOA	**0.60**	**J**	1.4	0.29	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Perfluorononanoic acid (PFNA)	**15**		1.4	0.25	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Perfluorodecanoic acid (PFDA)	**5.8**		1.4	0.15	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Perfluoroundecanoic acid (PFUnA)	**4.2**		1.4	0.39	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.4	0.24	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Perfluoropentanesulfonic acid (PFPeS)	**0.35**	**J**	1.4	0.26	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Br-Perfluorohexanesulfonic acid	**2.1**		1.4	0.21	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Total PFHxS	**84**		1.4	0.21	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
L-Perfluorohexanesulfonic acid	**82**		1.4	0.21	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
Perfluoroheptanesulfonic acid (PFHpS)	**7.2**		1.4	0.26	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
4:2 FTS	ND		1.4	0.38	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
6:2 FTS	**0.70**	**J**	1.4	0.61	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
8:2 FTS	**44**		1.4	0.14	ug/Kg		04/27/23 18:50	04/30/23 19:01	1
10:2 FTS	**1.8**		1.4	0.14	ug/Kg		04/27/23 18:50	04/30/23 19:01	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*97*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C2 PFHxA	*100*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C4 PFHpA	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C4 PFOA	*95*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C5 PFNA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C2 PFDA	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C2 PFUnA	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C3 PFBS	*93*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
18O2 PFHxS	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C4 PFOS	*82*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
M2-4:2 FTS	*117*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
M2-6:2 FTS	*143*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
M2-8:2 FTS	*103*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*
13C2 10:2 FTS	*158*	**5+*	*25 - 150*	*04/27/23 18:50*	*04/30/23 19:01*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**1100**		71	5.8	ug/Kg		04/27/23 18:50	05/14/23 04:56	20
Br-Perfluorooctanesulfonic acid	**280**		71	5.8	ug/Kg		04/27/23 18:50	05/14/23 04:56	20
Total PFOS	**1400**		71	5.8	ug/Kg		04/27/23 18:50	05/14/23 04:56	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*105*		*25 - 150*	*04/27/23 18:50*	*05/14/23 04:56*	*20*

Client Sample ID: NK 31806

Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-16

Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.7**	**CI**	1.6	0.37	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Perfluoropentanoic acid (PFPeA)	**0.85**	**J**	1.6	0.28	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Perfluorohexanoic acid (PFHxA)	ND		1.6	0.43	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Perfluoroheptanoic acid (PFHpA)	ND		1.6	0.18	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
L-Perfluorooctanoic acid	ND		1.6	0.32	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Br-Perfluorooctanoic acid	ND		1.6	0.32	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Total PFOA	ND		1.6	0.32	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Perfluorononanoic acid (PFNA)	**76**		1.6	0.28	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Perfluorodecanoic acid (PFDA)	**17**		1.6	0.16	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Perfluoroundecanoic acid (PFUnA)	**3.9**		1.6	0.43	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.6	0.27	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.6	0.29	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Br-Perfluorohexanesulfonic acid	ND		1.6	0.23	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
Total PFHxS	**13**		1.6	0.23	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
L-Perfluorohexanesulfonic acid	**13**		1.6	0.23	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
4:2 FTS	ND		1.6	0.42	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
6:2 FTS	ND		1.6	0.67	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
8:2 FTS	**28**		1.6	0.16	ug/Kg		04/27/23 18:50	04/30/23 19:24	1
10:2 FTS	**0.26**	**J**	1.6	0.16	ug/Kg		04/27/23 18:50	04/30/23 19:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
13C5 PFPeA	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
13C2 PFHxA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
13C4 PFHpA	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
13C4 PFOA	*92*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
13C5 PFNA	*64*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
13C2 PFDA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
13C2 PFUnA	*114*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
13C3 PFBS	*92*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
18O2 PFHxS	*92*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
M2-4:2 FTS	*116*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
M2-6:2 FTS	*141*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
M2-8:2 FTS	*105*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*
13C2 10:2 FTS	*156*	**5+*	*25 - 150*	*04/27/23 18:50*	*04/30/23 19:24*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	**410**		160	29	ug/Kg		04/27/23 18:50	05/14/23 07:58	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*88*		*25 - 150*	*04/27/23 18:50*	*05/14/23 07:58*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**74000**	**E**	400	32	ug/Kg		04/27/23 18:50	05/22/23 00:43	100
Br-Perfluorooctanesulfonic acid	**22000**	**E**	400	32	ug/Kg		04/27/23 18:50	05/22/23 00:43	100
Total PFOS	**97000**		400	32	ug/Kg		04/27/23 18:50	05/22/23 00:43	100

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Client Sample ID: NK 31806
Lab Sample ID: 320-98863-16
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	70		25 - 150	04/27/23 18:50	05/22/23 00:43	100

Client Sample ID: NK 311426
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-17
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.46	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
Perfluoropentanoic acid (PFPeA)	**0.62**	**J**	2.0	0.34	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
Perfluorohexanoic acid (PFHxA)	**0.69**	**J**	2.0	0.54	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
Perfluoroheptanoic acid (PFHpA)	**7.1**		2.0	0.23	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
Perfluorodecanoic acid (PFDA)	**60**		2.0	0.20	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
Perfluoroundecanoic acid (PFUnA)	**4.6**		2.0	0.53	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.33	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
Perfluoropentanesulfonic acid (PFPeS)	**11**		2.0	0.35	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
4:2 FTS	ND		2.0	0.52	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
8:2 FTS	**49**		2.0	0.20	ug/Kg		04/27/23 18:50	04/30/23 19:47	1
10:2 FTS	**0.31**	**J**	2.0	0.20	ug/Kg		04/27/23 18:50	04/30/23 19:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*124*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*
13C5 PFPeA	*116*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*
13C2 PFHxA	*122*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*
13C4 PFHpA	*123*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*
13C2 PFDA	*118*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*
13C2 PFUnA	*126*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*
13C3 PFBS	*112*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*
M2-4:2 FTS	*121*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*
13C2 10:2 FTS	*161*	**5+*	*25 - 150*	*04/27/23 18:50*	*04/30/23 19:47*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	**1100**		200	40	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
Br-Perfluorooctanoic acid	**92**	**J**	200	40	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
Total PFOA	**1200**		200	40	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
Perfluorononanoic acid (PFNA)	**610**		200	34	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
Br-Perfluorohexanesulfonic acid	**390**		200	29	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
Total PFHxS	**3600**		200	29	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
L-Perfluorohexanesulfonic acid	**3300**		200	29	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
Perfluoroheptanesulfonic acid (PFHpS)	**630**		200	36	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
L-Perfluorooctanesulfonic acid	**37000**	**E**	490	40	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
Br-Perfluorooctanesulfonic acid	**20000**	**E**	490	40	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
Total PFOS	**57000**		490	40	ug/Kg		04/27/23 18:50	05/14/23 08:20	100
6:2 FTS	**290**		200	83	ug/Kg		04/27/23 18:50	05/14/23 08:20	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*92*		*25 - 150*	*04/27/23 18:50*	*05/14/23 08:20*	*100*
13C5 PFNA	*98*		*25 - 150*	*04/27/23 18:50*	*05/14/23 08:20*	*100*
18O2 PFHxS	*107*		*25 - 150*	*04/27/23 18:50*	*05/14/23 08:20*	*100*
13C4 PFOS	*96*		*25 - 150*	*04/27/23 18:50*	*05/14/23 08:20*	*100*
M2-6:2 FTS	*134*		*25 - 150*	*04/27/23 18:50*	*05/14/23 08:20*	*100*

Client Sample ID: NK 311437
Lab Sample ID: 320-98863-18

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.0	1.2	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Perfluoropentanoic acid (PFPeA)	ND		5.0	0.88	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	1.4	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	0.58	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
L-Perfluorooctanoic acid	**59**		5.0	1.0	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Br-Perfluorooctanoic acid	**5.2**		5.0	1.0	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Total PFOA	**64**		5.0	1.0	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Perfluorononanoic acid (PFNA)	**35**		5.0	0.88	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Perfluorodecanoic acid (PFDA)	**3.7**	**J**	5.0	0.52	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	1.4	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	0.85	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.91	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Br-Perfluorohexanesulfonic acid	**24**		5.0	0.74	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Total PFHxS	**230**		5.0	0.74	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
L-Perfluorohexanesulfonic acid	**210**		5.0	0.74	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
Perfluoroheptanesulfonic acid (PFHpS)	**39**		5.0	0.93	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
4:2 FTS	ND		5.0	1.3	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
6:2 FTS	**23**		5.0	2.1	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
8:2 FTS	**3.0**	**J**	5.0	0.50	ug/Kg		04/27/23 18:50	04/30/23 20:32	1
10:2 FTS	ND		5.0	0.51	ug/Kg		04/27/23 18:50	04/30/23 20:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C2 PFHxA	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C4 PFHpA	*105*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C4 PFOA	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C5 PFNA	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C2 PFDA	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C2 PFUnA	*113*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C3 PFBS	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
18O2 PFHxS	*93*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C4 PFOS	*85*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
M2-4:2 FTS	*94*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
M2-6:2 FTS	*106*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
M2-8:2 FTS	*105*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*
13C2 10:2 FTS	*130*		*25 - 150*	*04/27/23 18:50*	*04/30/23 20:32*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**2200**		130	10	ug/Kg		04/27/23 18:50	05/14/23 04:11	10
Br-Perfluorooctanesulfonic acid	**1100**		130	10	ug/Kg		04/27/23 18:50	05/14/23 04:11	10
Total PFOS	**3300**		130	10	ug/Kg		04/27/23 18:50	05/14/23 04:11	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*107*		*25 - 150*	*04/27/23 18:50*	*05/14/23 04:11*	*10*

Client Sample ID: NK 311390
Lab Sample ID: 320-98863-19

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.9**	**J**	4.3	1.0	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Perfluoropentanoic acid (PFPeA)	ND		4.3	0.76	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Perfluorohexanoic acid (PFHxA)	ND		4.3	1.2	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Perfluoroheptanoic acid (PFHpA)	ND		4.3	0.50	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
L-Perfluorooctanoic acid	ND		4.3	0.88	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Br-Perfluorooctanoic acid	ND		4.3	0.88	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Total PFOA	ND		4.3	0.88	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Perfluorononanoic acid (PFNA)	**2.7**	**J**	4.3	0.76	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Perfluorodecanoic acid (PFDA)	**1.3**	**J**	4.3	0.45	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Perfluoroundecanoic acid (PFUnA)	ND		4.3	1.2	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Perfluorobutanesulfonic acid (PFBS)	ND		4.3	0.74	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.3	0.79	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Br-Perfluorohexanesulfonic acid	ND		4.3	0.64	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Total PFHxS	**13**		4.3	0.64	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
L-Perfluorohexanesulfonic acid	**13**		4.3	0.64	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
Perfluoroheptanesulfonic acid (PFHpS)	**11**		4.3	0.80	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
4:2 FTS	ND		4.3	1.2	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
6:2 FTS	ND		4.3	1.8	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
8:2 FTS	**0.79**	**J**	4.3	0.43	ug/Kg		04/27/23 19:00	04/30/23 22:48	1
10:2 FTS	ND		4.3	0.44	ug/Kg		04/27/23 19:00	04/30/23 22:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*109*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C5 PFPeA	*107*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C2 PFHxA	*107*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C4 PFHpA	*112*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C4 PFOA	*105*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C5 PFNA	*112*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C2 PFDA	*112*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C2 PFUnA	*117*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C3 PFBS	*104*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
18O2 PFHxS	*102*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C4 PFOS	*98*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
M2-4:2 FTS	*113*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
M2-6:2 FTS	*142*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*
13C2 10:2 FTS	*169*	**5+*	*25 - 150*	*04/27/23 19:00*	*04/30/23 22:48*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**1200**		110	8.8	ug/Kg		04/27/23 19:00	05/22/23 01:00	10
Br-Perfluorooctanesulfonic acid	**350**		110	8.8	ug/Kg		04/27/23 19:00	05/22/23 01:00	10
Total PFOS	**1600**		110	8.8	ug/Kg		04/27/23 19:00	05/22/23 01:00	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*143*		*25 - 150*	*04/27/23 19:00*	*05/22/23 01:00*	*10*

Client Sample ID: NK 311395
Lab Sample ID: 320-98863-20

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.0**	**J**	1.5	0.36	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Perfluoropentanoic acid (PFPeA)	**0.44**	**J**	1.5	0.27	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Perfluorohexanoic acid (PFHxA)	**0.56**	**J**	1.5	0.42	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Perfluoroheptanoic acid (PFHpA)	**0.45**	**J**	1.5	0.18	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
L-Perfluorooctanoic acid	**3.0**		1.5	0.31	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Br-Perfluorooctanoic acid	**0.35**	**J**	1.5	0.31	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Total PFOA	**3.3**		1.5	0.31	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Perfluorononanoic acid (PFNA)	**19**		1.5	0.27	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Perfluorodecanoic acid (PFDA)	**13**		1.5	0.16	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Perfluoroundecanoic acid (PFUnA)	**2.7**		1.5	0.42	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.5	0.26	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.5	0.28	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Br-Perfluorohexanesulfonic acid	**2.2**		1.5	0.23	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
Total PFHxS	**38**		1.5	0.23	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
L-Perfluorohexanesulfonic acid	**36**		1.5	0.23	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
4:2 FTS	ND		1.5	0.41	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
6:2 FTS	**20**		1.5	0.65	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
8:2 FTS	**26**		1.5	0.15	ug/Kg		04/27/23 19:00	04/30/23 23:11	1
10:2 FTS	**0.28**	**J**	1.5	0.16	ug/Kg		04/27/23 19:00	04/30/23 23:11	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
13C5 PFPeA	*104*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
13C2 PFHxA	*101*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
13C4 PFHpA	*108*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
13C4 PFOA	*97*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
13C5 PFNA	*87*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
13C2 PFDA	*107*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
13C2 PFUnA	*120*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
13C3 PFBS	*102*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
18O2 PFHxS	*100*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
M2-4:2 FTS	*116*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
M2-6:2 FTS	*144*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
M2-8:2 FTS	*108*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*
13C2 10:2 FTS	*167*	**5+*	*25 - 150*	*04/27/23 19:00*	*04/30/23 23:11*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanesulfonic acid (PFHpS)	**74**	**J**	150	28	ug/Kg		04/27/23 19:00	05/14/23 11:22	100
L-Perfluorooctanesulfonic acid	**17000**	**E**	380	31	ug/Kg		04/27/23 19:00	05/14/23 11:22	100
Br-Perfluorooctanesulfonic acid	**4400**		380	31	ug/Kg		04/27/23 19:00	05/14/23 11:22	100
Total PFOS	**22000**		380	31	ug/Kg		04/27/23 19:00	05/14/23 11:22	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*119*		*25 - 150*	*04/27/23 19:00*	*05/14/23 11:22*	*100*

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Client Sample ID: NK 311423
Lab Sample ID: 320-98863-21
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.50	J	0.77	0.18	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
Perfluoropentanoic acid (PFPeA)	0.95		0.77	0.13	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
Perfluorohexanoic acid (PFHxA)	2.9		0.77	0.21	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
Perfluoroheptanoic acid (PFHpA)	30		0.77	0.089	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
Perfluorodecanoic acid (PFDA)	57		0.77	0.079	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
Perfluoroundecanoic acid (PFUnA)	4.1		0.77	0.21	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
Perfluorobutanesulfonic acid (PFBS)	0.68	J	0.77	0.13	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
Perfluoropentanesulfonic acid (PFPeS)	29		0.77	0.14	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
4:2 FTS	ND		0.77	0.20	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
8:2 FTS	37		0.77	0.077	ug/Kg		04/27/23 19:00	04/30/23 23:34	1
10:2 FTS	0.15	J	0.77	0.078	ug/Kg		04/27/23 19:00	04/30/23 23:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*117*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*
13C5 PFPeA	*122*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*
13C2 PFHxA	*121*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*
13C4 PFHpA	*115*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*
13C2 PFDA	*114*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*
13C2 PFUnA	*123*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*
13C3 PFBS	*120*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*
M2-4:2 FTS	*134*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*
M2-8:2 FTS	*124*		*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*
13C2 10:2 FTS	*194*	*5+	*25 - 150*	*04/27/23 19:00*	*04/30/23 23:34*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	1400		77	16	ug/Kg		04/27/23 19:00	05/14/23 12:30	100
Br-Perfluorooctanoic acid	130		77	16	ug/Kg		04/27/23 19:00	05/14/23 12:30	100
Total PFOA	1500		77	16	ug/Kg		04/27/23 19:00	05/14/23 12:30	100
Perfluorononanoic acid (PFNA)	700		77	13	ug/Kg		04/27/23 19:00	05/14/23 12:30	100
Br-Perfluorohexanesulfonic acid	690		77	11	ug/Kg		04/27/23 19:00	05/14/23 12:30	100
Total PFHxS	5200		77	11	ug/Kg		04/27/23 19:00	05/14/23 12:30	100
L-Perfluorohexanesulfonic acid	4500		77	11	ug/Kg		04/27/23 19:00	05/14/23 12:30	100
Perfluoroheptanesulfonic acid (PFHpS)	630		77	14	ug/Kg		04/27/23 19:00	05/14/23 12:30	100
6:2 FTS	620		77	33	ug/Kg		04/27/23 19:00	05/14/23 12:30	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*79*		*25 - 150*	*04/27/23 19:00*	*05/14/23 12:30*	*100*
13C5 PFNA	*77*		*25 - 150*	*04/27/23 19:00*	*05/14/23 12:30*	*100*
18O2 PFHxS	*103*		*25 - 150*	*04/27/23 19:00*	*05/14/23 12:30*	*100*
13C4 PFOS	*85*		*25 - 150*	*04/27/23 19:00*	*05/14/23 12:30*	*100*
M2-6:2 FTS	*161*	*5+	*25 - 150*	*04/27/23 19:00*	*05/14/23 12:30*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	26000	E	190	16	ug/Kg		04/27/23 19:00	05/22/23 01:16	100
Br-Perfluorooctanesulfonic acid	18000	E	190	16	ug/Kg		04/27/23 19:00	05/22/23 01:16	100
Total PFOS	44000		190	16	ug/Kg		04/27/23 19:00	05/22/23 01:16	100

Client Sample ID: NK 311423
Lab Sample ID: 320-98863-21
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	103		25 - 150	04/27/23 19:00	05/22/23 01:16	100

Client Sample ID: NK 311435
Lab Sample ID: 320-98863-22

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.9	0.67	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Perfluoropentanoic acid (PFPeA)	ND		2.9	0.50	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Perfluorohexanoic acid (PFHxA)	ND		2.9	0.78	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Perfluoroheptanoic acid (PFHpA)	ND		2.9	0.33	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
L-Perfluorooctanoic acid	ND		2.9	0.58	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Br-Perfluorooctanoic acid	ND		2.9	0.58	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Total PFOA	ND		2.9	0.58	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Perfluorononanoic acid (PFNA)	ND		2.9	0.50	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Perfluorodecanoic acid (PFDA)	**0.33**	**J**	2.9	0.29	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Perfluoroundecanoic acid (PFUnA)	ND		2.9	0.78	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.9	0.49	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.9	0.52	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Br-Perfluorohexanesulfonic acid	ND		2.9	0.42	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Total PFHxS	**0.64**	**J**	2.9	0.42	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
L-Perfluorohexanesulfonic acid	**0.64**	**J**	2.9	0.42	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.9	0.53	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
4:2 FTS	ND		2.9	0.76	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
6:2 FTS	ND		2.9	1.2	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
8:2 FTS	ND		2.9	0.29	ug/Kg		04/27/23 19:00	05/14/23 09:06	1
10:2 FTS	ND		2.9	0.29	ug/Kg		04/27/23 19:00	05/14/23 09:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*40*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C5 PFPeA	*91*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C2 PFHxA	*104*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C4 PFHpA	*107*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C4 PFOA	*105*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C5 PFNA	*105*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C2 PFDA	*107*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C2 PFUnA	*113*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C3 PFBS	*102*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
18O2 PFHxS	*105*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C4 PFOS	*114*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
M2-4:2 FTS	*103*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
M2-6:2 FTS	*122*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
M2-8:2 FTS	*108*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*
13C2 10:2 FTS	*132*		*25 - 150*	*04/27/23 19:00*	*05/14/23 09:06*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**22**	**I**	7.1	0.58	ug/Kg		04/27/23 19:00	05/22/23 01:33	1
Br-Perfluorooctanesulfonic acid	**6.2**	**J**	7.1	0.58	ug/Kg		04/27/23 19:00	05/22/23 01:33	1
Total PFOS	**28**		7.1	0.58	ug/Kg		04/27/23 19:00	05/22/23 01:33	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*113*		*25 - 150*	*04/27/23 19:00*	*05/22/23 01:33*	*1*

Client Sample ID: NK 311422
Lab Sample ID: 320-98863-23

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**		1.4	0.33	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
Perfluoropentanoic acid (PFPeA)	**2.5**		1.4	0.24	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
Perfluorohexanoic acid (PFHxA)	**1.7**		1.4	0.38	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
Perfluoroheptanoic acid (PFHpA)	**12**		1.4	0.16	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
Perfluorodecanoic acid (PFDA)	**120**		1.4	0.14	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
Perfluoroundecanoic acid (PFUnA)	**6.4**		1.4	0.38	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
Perfluorobutanesulfonic acid (PFBS)	**0.27**	**J**	1.4	0.24	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
Perfluoropentanesulfonic acid (PFPeS)	**19**		1.4	0.25	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
4:2 FTS	ND		1.4	0.37	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
8:2 FTS	**53**		1.4	0.14	ug/Kg		04/27/23 19:00	05/01/23 00:19	1
10:2 FTS	**0.21**	**J**	1.4	0.14	ug/Kg		04/27/23 19:00	05/01/23 00:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*114*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
13C5 PFPeA	*108*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
13C2 PFHxA	*109*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
13C4 PFHpA	*107*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
13C5 PFNA	*67*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
13C2 PFDA	*108*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
13C2 PFUnA	*118*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
13C3 PFBS	*105*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
M2-4:2 FTS	*111*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
M2-8:2 FTS	*115*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*
13C2 10:2 FTS	*150*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:19*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	**3500**		140	28	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
Br-Perfluorooctanoic acid	**170**		140	28	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
Total PFOA	**3600**		140	28	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
Perfluorononanoic acid (PFNA)	**2000**		140	24	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
Br-Perfluorohexanesulfonic acid	**590**		140	21	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
Total PFHxS	**5900**		140	21	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
L-Perfluorohexanesulfonic acid	**5300**		140	21	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
Perfluoroheptanesulfonic acid (PFHpS)	**760**		140	26	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
L-Perfluorooctanesulfonic acid	**39000**	**E**	350	28	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
Br-Perfluorooctanesulfonic acid	**25000**	**E**	350	28	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
Total PFOS	**65000**		350	28	ug/Kg		04/27/23 19:00	05/14/23 12:53	100
6:2 FTS	**2200**		140	59	ug/Kg		04/27/23 19:00	05/14/23 12:53	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*77*		*25 - 150*	*04/27/23 19:00*	*05/14/23 12:53*	*100*
13C5 PFNA	*73*		*25 - 150*	*04/27/23 19:00*	*05/14/23 12:53*	*100*
18O2 PFHxS	*98*		*25 - 150*	*04/27/23 19:00*	*05/14/23 12:53*	*100*
13C4 PFOS	*71*		*25 - 150*	*04/27/23 19:00*	*05/14/23 12:53*	*100*
M2-6:2 FTS	*222*	*5+	*25 - 150*	*04/27/23 19:00*	*05/14/23 12:53*	*100*

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Client Sample ID: NK 311887
Lab Sample ID: 320-98863-24

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.5**	**J**	3.4	0.81	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Perfluoropentanoic acid (PFPeA)	**1.5**	**J**	3.4	0.60	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Perfluorohexanoic acid (PFHxA)	**1.6**	**J**	3.4	0.94	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Perfluoroheptanoic acid (PFHpA)	**3.5**		3.4	0.40	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
L-Perfluorooctanoic acid	**290**		3.4	0.70	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Br-Perfluorooctanoic acid	**15**		3.4	0.70	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Total PFOA	**310**		3.4	0.70	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Perfluorodecanoic acid (PFDA)	**57**		3.4	0.36	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Perfluoroundecanoic acid (PFUnA)	**18**		3.4	0.94	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.4	0.59	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Perfluoropentanesulfonic acid (PFPeS)	**3.5**		3.4	0.62	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
Perfluoroheptanesulfonic acid (PFHpS)	**130**		3.4	0.64	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
4:2 FTS	ND		3.4	0.92	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
8:2 FTS	**36**		3.4	0.34	ug/Kg		04/27/23 19:00	05/01/23 00:42	1
10:2 FTS	**0.86**	**J**	3.4	0.35	ug/Kg		04/27/23 19:00	05/01/23 00:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*108*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
13C5 PFPeA	*104*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
13C2 PFHxA	*104*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
13C4 PFHpA	*110*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
13C4 PFOA	*97*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
13C2 PFDA	*105*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
13C2 PFUnA	*116*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
13C3 PFBS	*99*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
13C4 PFOS	*60*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
M2-4:2 FTS	*111*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
M2-8:2 FTS	*115*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*
13C2 10:2 FTS	*144*		*25 - 150*	*04/27/23 19:00*	*05/01/23 00:42*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	**500**		340	60	ug/Kg		04/27/23 19:00	05/14/23 13:15	100
Br-Perfluorohexanesulfonic acid	**79**	**J**	340	51	ug/Kg		04/27/23 19:00	05/14/23 13:15	100
Total PFHxS	**850**		340	51	ug/Kg		04/27/23 19:00	05/14/23 13:15	100
L-Perfluorohexanesulfonic acid	**770**		340	51	ug/Kg		04/27/23 19:00	05/14/23 13:15	100
L-Perfluorooctanesulfonic acid	**10000**		860	70	ug/Kg		04/27/23 19:00	05/14/23 13:15	100
Br-Perfluorooctanesulfonic acid	**4800**		860	70	ug/Kg		04/27/23 19:00	05/14/23 13:15	100
Total PFOS	**15000**		860	70	ug/Kg		04/27/23 19:00	05/14/23 13:15	100
6:2 FTS	**730**		340	150	ug/Kg		04/27/23 19:00	05/14/23 13:15	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFNA	*90*		*25 - 150*	*04/27/23 19:00*	*05/14/23 13:15*	*100*
18O2 PFHxS	*83*		*25 - 150*	*04/27/23 19:00*	*05/14/23 13:15*	*100*
13C4 PFOS	*93*		*25 - 150*	*04/27/23 19:00*	*05/14/23 13:15*	*100*
M2-6:2 FTS	*110*		*25 - 150*	*04/27/23 19:00*	*05/14/23 13:15*	*100*

Client Sample ID: NK 310922
Lab Sample ID: 320-98863-25

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.0**	**J**	2.0	0.47	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.35	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Perfluorohexanoic acid (PFHxA)	**0.63**	**J**	2.0	0.55	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Perfluoroheptanoic acid (PFHpA)	**1.7**	**J**	2.0	0.23	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
L-Perfluorooctanoic acid	**83**		2.0	0.40	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Br-Perfluorooctanoic acid	**4.3**		2.0	0.40	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Total PFOA	**87**		2.0	0.40	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Perfluorononanoic acid (PFNA)	**180**		2.0	0.35	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Perfluorodecanoic acid (PFDA)	**55**		2.0	0.21	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Perfluoroundecanoic acid (PFUnA)	**23**		2.0	0.54	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.34	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Perfluoropentanesulfonic acid (PFPeS)	**1.8**	**J**	2.0	0.36	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
Perfluoroheptanesulfonic acid (PFHpS)	**110**		2.0	0.37	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
4:2 FTS	ND		2.0	0.53	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
6:2 FTS	**71**		2.0	0.85	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
8:2 FTS	**62**		2.0	0.20	ug/Kg		04/27/23 19:00	05/01/23 01:04	1
10:2 FTS	**1.1**	**J**	2.0	0.20	ug/Kg		04/27/23 19:00	05/01/23 01:04	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*105*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C5 PFPeA	*101*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C2 PFHxA	*102*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C4 PFHpA	*107*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C4 PFOA	*97*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C5 PFNA	*91*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C2 PFDA	*105*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C2 PFUnA	*114*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C3 PFBS	*95*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C4 PFOS	*51*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
M2-4:2 FTS	*104*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
M2-6:2 FTS	*122*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
M2-8:2 FTS	*108*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*
13C2 10:2 FTS	*141*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:04*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	ND		200	30	ug/Kg		04/27/23 19:00	05/14/23 13:38	100
Total PFHxS	**400**		200	30	ug/Kg		04/27/23 19:00	05/14/23 13:38	100
L-Perfluorohexanesulfonic acid	**400**		200	30	ug/Kg		04/27/23 19:00	05/14/23 13:38	100
L-Perfluorooctanesulfonic acid	**9900**		500	41	ug/Kg		04/27/23 19:00	05/14/23 13:38	100
Br-Perfluorooctanesulfonic acid	**3400**		500	41	ug/Kg		04/27/23 19:00	05/14/23 13:38	100
Total PFOS	**13000**		500	41	ug/Kg		04/27/23 19:00	05/14/23 13:38	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*111*		*25 - 150*	*04/27/23 19:00*	*05/14/23 13:38*	*100*
13C4 PFOS	*122*		*25 - 150*	*04/27/23 19:00*	*05/14/23 13:38*	*100*

Client Sample ID: NK 310912
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-26
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		5.6	1.3	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Perfluoropentanoic acid (PFPeA)	ND		5.6	0.97	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Perfluorohexanoic acid (PFHxA)	ND		5.6	1.5	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Perfluoroheptanoic acid (PFHpA)	ND		5.6	0.64	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
L-Perfluorooctanoic acid	**3.1**	**J**	5.6	1.1	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Br-Perfluorooctanoic acid	ND		5.6	1.1	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Total PFOA	**3.1**	**J**	5.6	1.1	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Perfluorononanoic acid (PFNA)	**6.9**		5.6	0.97	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Perfluorodecanoic acid (PFDA)	**2.7**	**J**	5.6	0.57	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Perfluoroundecanoic acid (PFUnA)	**2.7**	**J**	5.6	1.5	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.6	0.94	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.6	1.0	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Br-Perfluorohexanesulfonic acid	ND		5.6	0.82	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Total PFHxS	**2.2**	**J**	5.6	0.82	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
L-Perfluorohexanesulfonic acid	**2.2**	**J**	5.6	0.82	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		5.6	1.0	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
L-Perfluorooctanesulfonic acid	**47**		14	1.1	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Br-Perfluorooctanesulfonic acid	**14**		14	1.1	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
Total PFOS	**61**		14	1.1	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
4:2 FTS	ND		5.6	1.5	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
6:2 FTS	ND		5.6	2.4	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
8:2 FTS	ND		5.6	0.56	ug/Kg		04/27/23 19:00	05/01/23 01:50	1
10:2 FTS	**0.65**	**J I**	5.6	0.56	ug/Kg		04/27/23 19:00	05/01/23 01:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*60*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C5 PFPeA	*99*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C2 PFHxA	*104*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C4 PFHpA	*109*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C4 PFOA	*104*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C5 PFNA	*106*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C2 PFDA	*109*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C2 PFUnA	*117*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C3 PFBS	*97*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
18O2 PFHxS	*100*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C4 PFOS	*106*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
M2-4:2 FTS	*108*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
M2-6:2 FTS	*124*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
M2-8:2 FTS	*115*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*
13C2 10:2 FTS	*147*		*25 - 150*	*04/27/23 19:00*	*05/01/23 01:50*	*1*

Client Sample ID: NK 310959
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-27
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		6.7	1.6	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Perfluoropentanoic acid (PFPeA)	ND		6.7	1.2	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Perfluorohexanoic acid (PFHxA)	ND		6.7	1.8	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Perfluoroheptanoic acid (PFHpA)	**3.6**	**J**	6.7	0.77	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
L-Perfluorooctanoic acid	**58**		6.7	1.3	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Br-Perfluorooctanoic acid	**5.3**	**J**	6.7	1.3	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Total PFOA	**63**		6.7	1.3	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Perfluorononanoic acid (PFNA)	**130**		6.7	1.2	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Perfluorodecanoic acid (PFDA)	**26**		6.7	0.69	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Perfluoroundecanoic acid (PFUnA)	**7.2**		6.7	1.8	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Perfluorobutanesulfonic acid (PFBS)	ND		6.7	1.1	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Perfluoropentanesulfonic acid (PFPeS)	ND		6.7	1.2	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Br-Perfluorohexanesulfonic acid	**22**		6.7	0.99	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Total PFHxS	**490**		6.7	0.99	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
L-Perfluorohexanesulfonic acid	**470**		6.7	0.99	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
Perfluoroheptanesulfonic acid (PFHpS)	**64**		6.7	1.2	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
4:2 FTS	ND		6.7	1.8	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
6:2 FTS	**210**		6.7	2.8	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
8:2 FTS	**21**		6.7	0.67	ug/Kg		04/27/23 19:00	05/01/23 02:12	1
10:2 FTS	**0.80**	**J I**	6.7	0.67	ug/Kg		04/27/23 19:00	05/01/23 02:12	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*50*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C5 PFPeA	*103*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C2 PFHxA	*108*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C4 PFHpA	*111*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C4 PFOA	*103*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C5 PFNA	*101*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C2 PFDA	*113*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C2 PFUnA	*116*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C3 PFBS	*98*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
18O2 PFHxS	*101*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C4 PFOS	*76*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
M2-4:2 FTS	*146*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
M2-6:2 FTS	*132*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
M2-8:2 FTS	*120*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*
13C2 10:2 FTS	*180*	**5+*	*25 - 150*	*04/27/23 19:00*	*05/01/23 02:12*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**9400**		830	68	ug/Kg		04/27/23 19:00	05/14/23 10:59	50
Br-Perfluorooctanesulfonic acid	**3700**		830	68	ug/Kg		04/27/23 19:00	05/14/23 10:59	50
Total PFOS	**13000**		830	68	ug/Kg		04/27/23 19:00	05/14/23 10:59	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*104*		*25 - 150*	*04/27/23 19:00*	*05/14/23 10:59*	*50*

Client Sample ID: NK 310963

Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-28

Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.3**	**J**	5.0	1.2	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Perfluoropentanoic acid (PFPeA)	ND		5.0	0.88	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Perfluorohexanoic acid (PFHxA)	ND		5.0	1.4	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Perfluoroheptanoic acid (PFHpA)	ND		5.0	0.58	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
L-Perfluorooctanoic acid	ND		5.0	1.0	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Br-Perfluorooctanoic acid	ND		5.0	1.0	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Total PFOA	ND		5.0	1.0	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Perfluorononanoic acid (PFNA)	**9.1**		5.0	0.88	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Perfluorodecanoic acid (PFDA)	**1.9**	**J**	5.0	0.52	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Perfluoroundecanoic acid (PFUnA)	ND		5.0	1.4	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.0	0.85	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.0	0.91	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Br-Perfluorohexanesulfonic acid	**1.1**	**J**	5.0	0.74	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Total PFHxS	**33**		5.0	0.74	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
L-Perfluorohexanesulfonic acid	**32**		5.0	0.74	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
Perfluoroheptanesulfonic acid (PFHpS)	**32**		5.0	0.93	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
4:2 FTS	ND		5.0	1.3	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
6:2 FTS	ND		5.0	2.1	ug/Kg		04/27/23 19:00	05/01/23 02:35	1
8:2 FTS	**4.6**	**J**	5.0	0.50	ug/Kg		04/27/23 19:00	05/01/23 02:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*109*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
13C5 PFPeA	*101*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
13C2 PFHxA	*107*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
13C4 PFHpA	*112*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
13C4 PFOA	*103*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
13C5 PFNA	*113*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
13C2 PFDA	*114*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
13C2 PFUnA	*115*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
13C3 PFBS	*99*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
18O2 PFHxS	*101*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
13C4 PFOS	*82*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
M2-4:2 FTS	*129*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
M2-6:2 FTS	*141*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*
M2-8:2 FTS	*126*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:35*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
10:2 FTS	ND		100	10	ug/Kg		04/27/23 19:00	05/14/23 10:14	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 10:2 FTS	*126*		*25 - 150*	*04/27/23 19:00*	*05/14/23 10:14*	*20*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**5300**		250	20	ug/Kg		04/27/23 19:00	05/22/23 09:53	20
Br-Perfluorooctanesulfonic acid	**1200**		250	20	ug/Kg		04/27/23 19:00	05/22/23 09:53	20
Total PFOS	**6600**		250	20	ug/Kg		04/27/23 19:00	05/22/23 09:53	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*109*		*25 - 150*	*04/27/23 19:00*	*05/22/23 09:53*	*20*

Client Sample ID: NK 310939
Lab Sample ID: 320-98863-29
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.3	0.31	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Perfluoropentanoic acid (PFPeA)	ND		1.3	0.23	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Perfluorohexanoic acid (PFHxA)	ND		1.3	0.35	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Perfluoroheptanoic acid (PFHpA)	ND		1.3	0.15	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
L-Perfluorooctanoic acid	**1.6**		1.3	0.26	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Br-Perfluorooctanoic acid	ND		1.3	0.26	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Total PFOA	**1.6**		1.3	0.26	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Perfluorononanoic acid (PFNA)	**1.9**		1.3	0.23	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Perfluorodecanoic acid (PFDA)	**0.42**	**J**	1.3	0.13	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.3	0.35	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.3	0.22	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.3	0.24	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Br-Perfluorohexanesulfonic acid	**0.54**	**J**	1.3	0.19	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Total PFHxS	**8.6**		1.3	0.19	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
L-Perfluorohexanesulfonic acid	**8.1**		1.3	0.19	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
Perfluoroheptanesulfonic acid (PFHpS)	**1.0**	**J**	1.3	0.24	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
4:2 FTS	ND		1.3	0.35	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
6:2 FTS	**2.5**		1.3	0.55	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
8:2 FTS	**0.38**	**J**	1.3	0.13	ug/Kg		04/27/23 19:00	05/01/23 02:58	1
10:2 FTS	**0.15**	**J**	1.3	0.13	ug/Kg		04/27/23 19:00	05/01/23 02:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*90*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C5 PFPeA	*99*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C2 PFHxA	*99*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C4 PFHpA	*103*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C4 PFOA	*92*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C5 PFNA	*93*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C2 PFDA	*100*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C2 PFUnA	*104*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C3 PFBS	*94*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
18O2 PFHxS	*92*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C4 PFOS	*91*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
M2-4:2 FTS	*163*	**5+*	*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
M2-6:2 FTS	*139*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
M2-8:2 FTS	*121*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*
13C2 10:2 FTS	*134*		*25 - 150*	*04/27/23 19:00*	*05/01/23 02:58*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**67**		32	2.6	ug/Kg		04/27/23 19:00	05/22/23 02:06	10
Br-Perfluorooctanesulfonic acid	**34**		32	2.6	ug/Kg		04/27/23 19:00	05/22/23 02:06	10
Total PFOS	**100**		32	2.6	ug/Kg		04/27/23 19:00	05/22/23 02:06	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*97*		*25 - 150*	*04/27/23 19:00*	*05/22/23 02:06*	*10*

Client Sample ID: NK 284404
Lab Sample ID: 320-98863-30

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.8**		2.5	0.59	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Perfluoropentanoic acid (PFPeA)	**0.45**	**J**	2.5	0.44	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Perfluorohexanoic acid (PFHxA)	ND		2.5	0.68	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Perfluoroheptanoic acid (PFHpA)	**0.70**	**J**	2.5	0.29	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
L-Perfluorooctanoic acid	**16**		2.5	0.51	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Br-Perfluorooctanoic acid	**1.3**	**J**	2.5	0.51	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Total PFOA	**17**		2.5	0.51	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Perfluorononanoic acid (PFNA)	**83**		2.5	0.44	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Perfluorodecanoic acid (PFDA)	**6.6**		2.5	0.26	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Perfluoroundecanoic acid (PFUnA)	**3.2**		2.5	0.68	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.5	0.43	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Perfluoropentanesulfonic acid (PFPeS)	**0.67**	**J**	2.5	0.45	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
Perfluoroheptanesulfonic acid (PFHpS)	**70**		2.5	0.46	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
4:2 FTS	ND		2.5	0.67	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
6:2 FTS	**8.6**		2.5	1.1	ug/Kg		04/27/23 19:00	05/01/23 03:20	1
8:2 FTS	**26**		2.5	0.25	ug/Kg		04/27/23 19:00	05/01/23 03:20	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*104*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
13C5 PFPeA	*100*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
13C2 PFHxA	*102*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
13C4 PFHpA	*110*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
13C4 PFOA	*105*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
13C5 PFNA	*109*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
13C2 PFDA	*106*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
13C2 PFUnA	*118*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
13C3 PFBS	*101*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
13C4 PFOS	*80*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
M2-4:2 FTS	*134*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
M2-6:2 FTS	*174*	**5+*	*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*
M2-8:2 FTS	*118*		*25 - 150*	*04/27/23 19:00*	*05/01/23 03:20*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	**12**	**J**	50	7.4	ug/Kg		04/27/23 19:00	05/14/23 10:36	20
Total PFHxS	**430**		50	7.4	ug/Kg		04/27/23 19:00	05/14/23 10:36	20
L-Perfluorohexanesulfonic acid	**420**		50	7.4	ug/Kg		04/27/23 19:00	05/14/23 10:36	20
10:2 FTS	ND		50	5.1	ug/Kg		04/27/23 19:00	05/14/23 10:36	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*100*		*25 - 150*	*04/27/23 19:00*	*05/14/23 10:36*	*20*
13C2 10:2 FTS	*157*	**5+*	*25 - 150*	*04/27/23 19:00*	*05/14/23 10:36*	*20*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**2900**		130	10	ug/Kg		04/27/23 19:00	05/22/23 02:56	20
Br-Perfluorooctanesulfonic acid	**1000**		130	10	ug/Kg		04/27/23 19:00	05/22/23 02:56	20
Total PFOS	**3900**		130	10	ug/Kg		04/27/23 19:00	05/22/23 02:56	20

Client Sample ID: NK 284404
Lab Sample ID: 320-98863-30
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	99		25 - 150	04/27/23 19:00	05/22/23 02:56	20

Client Sample ID: NK 284405
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-31
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.2	0.28	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Perfluoropentanoic acid (PFPeA)	ND		1.2	0.21	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Perfluorohexanoic acid (PFHxA)	ND		1.2	0.33	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Perfluoroheptanoic acid (PFHpA)	ND		1.2	0.14	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
L-Perfluorooctanoic acid	**0.27**	**J**	1.2	0.24	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Br-Perfluorooctanoic acid	ND		1.2	0.24	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Total PFOA	**0.27**	**J**	1.2	0.24	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Perfluorononanoic acid (PFNA)	**1.2**		1.2	0.21	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Perfluorodecanoic acid (PFDA)	**1.4**		1.2	0.12	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Perfluoroundecanoic acid (PFUnA)	ND		1.2	0.32	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.2	0.20	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.2	0.22	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Br-Perfluorohexanesulfonic acid	ND		1.2	0.18	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Total PFHxS	**1.4**		1.2	0.18	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
L-Perfluorohexanesulfonic acid	**1.4**		1.2	0.18	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.32**	**J**	1.2	0.22	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
L-Perfluorooctanesulfonic acid	**12**		3.0	0.24	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Br-Perfluorooctanesulfonic acid	**2.4**	**J**	3.0	0.24	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
Total PFOS	**14**		3.0	0.24	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
4:2 FTS	ND		1.2	0.32	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
6:2 FTS	ND		1.2	0.50	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
8:2 FTS	ND		1.2	0.12	ug/Kg		04/29/23 07:58	05/02/23 04:22	1
10:2 FTS	**0.13**	**J**	1.2	0.12	ug/Kg		04/29/23 07:58	05/02/23 04:22	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C2 PFHxA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C4 PFHpA	*101*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C4 PFOA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C5 PFNA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C2 PFDA	*101*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C2 PFUnA	*114*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C3 PFBS	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
18O2 PFHxS	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C4 PFOS	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
M2-4:2 FTS	*107*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
M2-6:2 FTS	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*
13C2 10:2 FTS	*161*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 04:22*	*1*

Client Sample ID: NK 283752
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-32
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.6**	**J CI**	5.6	1.3	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Perfluoropentanoic acid (PFPeA)	ND		5.6	0.97	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Perfluorohexanoic acid (PFHxA)	ND		5.6	1.5	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Perfluoroheptanoic acid (PFHpA)	ND		5.6	0.64	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
L-Perfluorooctanoic acid	**11**		5.6	1.1	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Br-Perfluorooctanoic acid	ND		5.6	1.1	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Total PFOA	**11**		5.6	1.1	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Perfluorodecanoic acid (PFDA)	**31**		5.6	0.57	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Perfluoroundecanoic acid (PFUnA)	**13**		5.6	1.5	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.6	0.94	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Perfluoropentanesulfonic acid (PFPeS)	ND		5.6	1.0	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Br-Perfluorohexanesulfonic acid	ND		5.6	0.82	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Total PFHxS	ND		5.6	0.82	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
L-Perfluorohexanesulfonic acid	ND		5.6	0.82	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
Perfluoroheptanesulfonic acid (PFHpS)	**1.2**	**J**	5.6	1.0	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
4:2 FTS	ND		5.6	1.5	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
6:2 FTS	ND		5.6	2.4	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
8:2 FTS	ND		5.6	0.56	ug/Kg		04/29/23 07:58	05/02/23 04:45	1
10:2 FTS	ND		5.6	0.56	ug/Kg		04/29/23 07:58	05/02/23 04:45	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
13C5 PFPeA	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
13C2 PFHxA	*103*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
13C4 PFHpA	*105*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
13C4 PFOA	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
13C2 PFDA	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
13C2 PFUnA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
13C3 PFBS	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
18O2 PFHxS	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
13C4 PFOS	*91*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
M2-4:2 FTS	*138*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
M2-6:2 FTS	*142*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*
13C2 10:2 FTS	*131*		*25 - 150*	*04/29/23 07:58*	*05/02/23 04:45*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	**850**		28	4.9	ug/Kg		04/29/23 07:58	05/14/23 15:09	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFNA	*92*		*25 - 150*	*04/29/23 07:58*	*05/14/23 15:09*	*5*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**52**		14	1.1	ug/Kg		04/29/23 07:58	05/22/23 03:13	1
Br-Perfluorooctanesulfonic acid	**6.5**	**J**	14	1.1	ug/Kg		04/29/23 07:58	05/22/23 03:13	1
Total PFOS	**59**		14	1.1	ug/Kg		04/29/23 07:58	05/22/23 03:13	1

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Client Sample ID: NK 283752
Lab Sample ID: 320-98863-32
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	105		25 - 150	04/29/23 07:58	05/22/23 03:13	1

Isotope Dilution Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Job ID: 320-98863-1

Method: B/L/T PFAS - Branched, Linear and Total PFAS

Matrix: Tissue

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-98863-1	NK 311397	105	99	106	109	96	93	101	109
320-98863-1 - DL	NK 311397								
320-98863-2	NK 311406	103	98	103	108	94	105	102	112
320-98863-2 - DL	NK 311406								
320-98863-3	NK 310837	104	101	106	112	101	113	112	115
320-98863-3 - RA	NK 310837								
320-98863-4	NK 310873	101	98	101	104	92	93	100	116
320-98863-4 - DL	NK 310873								
320-98863-5	NK 310884	62	99	101	109	99	101	111	117
320-98863-5 - DL	NK 310884								
320-98863-6	NK 310892	104	108	109	113	101	107	111	116
320-98863-6 - DL	NK 310892								
320-98863-7	NK 310831	92	98	103	108	101	103	111	112
320-98863-7 - RA	NK 310831								
320-98863-8	NK 310840	83	99	101	109	99	103	106	106
320-98863-8 - RA	NK 310840								
320-98863-9	NK 310883	94	97	103	106	97	99	107	110
320-98863-9 - DL	NK 310883								
320-98863-10	NK 310882	63	101	106	110	104	105	112	113
320-98863-10 - DL	NK 310882								
320-98863-11	NK 311886	101	99	107	109	102	98	111	114
320-98863-11 - DL	NK 311886								
320-98863-12	NK 311891	59	96	98	107	99	102	106	114
320-98863-13	NK 10440	37	92	100	106	99	102	110	113
320-98863-14	NK 31807	104	99	108	108	103	103	110	113
320-98863-14 - DL	NK 31807								
320-98863-15	NK 31808	97	98	100	106	95	101	103	104
320-98863-15 - DL	NK 31808								
320-98863-16	NK 31806	101	96	101	104	92	64	101	114
320-98863-16 - DL	NK 31806								
320-98863-16 - RADL	NK 31806								
320-98863-17	NK 311426	124	116	122	123			118	126
320-98863-17 - DL	NK 311426					92	98		
320-98863-18	NK 311437	102	98	98	105	96	96	102	113
320-98863-18 - DL	NK 311437								
320-98863-19	NK 311390	109	107	107	112	105	112	112	117
320-98863-19 - DL	NK 311390								
320-98863-20	NK 311395	101	104	101	108	97	87	107	120
320-98863-20 - DL	NK 311395								
320-98863-21	NK 311423	117	122	121	115			114	123
320-98863-21 - DL	NK 311423					79	77		
320-98863-21 - RADL	NK 311423								
320-98863-22	NK 311435	40	91	104	107	105	105	107	113
320-98863-22 - RA	NK 311435								
320-98863-23	NK 311422	114	108	109	107		67	108	118
320-98863-23 - DL	NK 311422					77	73		
320-98863-24	NK 311887	108	104	104	110	97		105	116
320-98863-24 - DL	NK 311887						90		
320-98863-25	NK 310922	105	101	102	107	97	91	105	114

Isotope Dilution Summary

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Matrix: Tissue
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-98863-25 - DL	NK 310922								
320-98863-26	NK 310912	60	99	104	109	104	106	109	117
320-98863-27	NK 310959	50	103	108	111	103	101	113	116
320-98863-27 - DL	NK 310959								
320-98863-28	NK 310963	109	101	107	112	103	113	114	115
320-98863-28 - DL	NK 310963								
320-98863-28 - RADL	NK 310963								
320-98863-29	NK 310939	90	99	99	103	92	93	100	104
320-98863-29 - DL	NK 310939								
320-98863-30	NK 284404	104	100	102	110	105	109	106	118
320-98863-30 - DL	NK 284404								
320-98863-30 - RADL	NK 284404								
320-98863-31	NK 284405	98	98	98	101	100	100	101	114
320-98863-32	NK 283752	98	104	103	105	96		94	99
320-98863-32 - DL	NK 283752						92		
320-98863-32 - RA	NK 283752								
LCS 320-670757/2-A	Lab Control Sample	86	93	99	103	97	97	102	103
LCS 320-670758/2-A	Lab Control Sample	86	93	97	104	97	101	104	102
LCS 320-671099/2-A	Lab Control Sample	102	97	96	100	97	94	96	101
LCSD 320-670757/3-A	Lab Control Sample Dup	68	95	98	103	97	99	104	105
LCSD 320-670758/3-A	Lab Control Sample Dup	74	101	99	105	98	99	100	103
LCSD 320-671099/3-A	Lab Control Sample Dup	86	98	96	101	98	97	101	108
MB 320-670757/1-A	Method Blank	101	102	102	104	99	98	99	101
MB 320-670758/1-A	Method Blank	80	96	95	103	96	97	101	101
MB 320-671099/1-A	Method Blank	100	100	99	102	97	94	99	97

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)
320-98863-1	NK 311397	98	99	52	125	133	106	119
320-98863-1 - DL	NK 311397			96				
320-98863-2	NK 311406	101	91	92	138	151 *5+	119	142
320-98863-2 - DL	NK 311406			82				
320-98863-3	NK 310837	97	102	97	111	142	113	141
320-98863-3 - RA	NK 310837			100				
320-98863-4	NK 310873	91		61	117	115	104	144
320-98863-4 - DL	NK 310873		97	105				
320-98863-5	NK 310884	96	94	73	166 *5+	135	114	146
320-98863-5 - DL	NK 310884			105				
320-98863-6	NK 310892	99		72	123	129	112	140
320-98863-6 - DL	NK 310892		101	107				
320-98863-7	NK 310831	97	99	104	96	119	115	130
320-98863-7 - RA	NK 310831			114				
320-98863-8	NK 310840	96	95	98	104	112	109	125
320-98863-8 - RA	NK 310840			106				
320-98863-9	NK 310883	95	92	65	120	137	111	168 *5+
320-98863-9 - DL	NK 310883			88				
320-98863-10	NK 310882	102	95	92	112	138	112	147
320-98863-10 - DL	NK 310882			101				
320-98863-11	NK 311886	95	96	71	96	123	114	136
320-98863-11 - DL	NK 311886			116				

Isotope Dilution Summary

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Matrix: Tissue
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)
320-98863-12	NK 311891	95	98	97	99	110	108	133
320-98863-13	NK 10440	91	94	101	160 *5+	123	121	148
320-98863-14	NK 31807	96	100	82	150	123	117	134
320-98863-14 - DL	NK 31807			103				
320-98863-15	NK 31808	93	96	82	117	143	103	158 *5+
320-98863-15 - DL	NK 31808			105				
320-98863-16	NK 31806	92	92		116	141	105	156 *5+
320-98863-16 - DL	NK 31806			88				
320-98863-16 - RADL	NK 31806			70				
320-98863-17	NK 311426	112			121		116	161 *5+
320-98863-17 - DL	NK 311426		107	96		134		
320-98863-18	NK 311437	96	93	85	94	106	105	130
320-98863-18 - DL	NK 311437			107				
320-98863-19	NK 311390	104	102	98	113	142	116	169 *5+
320-98863-19 - DL	NK 311390			143				
320-98863-20	NK 311395	102	100		116	144	108	167 *5+
320-98863-20 - DL	NK 311395			119				
320-98863-21	NK 311423	120			134		124	194 *5+
320-98863-21 - DL	NK 311423		103	85		161 *5+		
320-98863-21 - RADL	NK 311423			103				
320-98863-22	NK 311435	102	105	114	103	122	108	132
320-98863-22 - RA	NK 311435			113				
320-98863-23	NK 311422	105			111		115	150
320-98863-23 - DL	NK 311422		98	71		222 *5+		
320-98863-24	NK 311887	99		60	111		115	144
320-98863-24 - DL	NK 311887		83	93		110		
320-98863-25	NK 310922	95		51	104	122	108	141
320-98863-25 - DL	NK 310922		111	122				
320-98863-26	NK 310912	97	100	106	108	124	115	147
320-98863-27	NK 310959	98	101	76	146	132	120	180 *5+
320-98863-27 - DL	NK 310959			104				
320-98863-28	NK 310963	99	101	82	129	141	126	
320-98863-28 - DL	NK 310963							126
320-98863-28 - RADL	NK 310963			109				
320-98863-29	NK 310939	94	92	91	163 *5+	139	121	134
320-98863-29 - DL	NK 310939			97				
320-98863-30	NK 284404	101		80	134	174 *5+	118	
320-98863-30 - DL	NK 284404		100					157 *5+
320-98863-30 - RADL	NK 284404			99				
320-98863-31	NK 284405	98	96	102	107	104	104	161 *5+
320-98863-32	NK 283752	99	96	91	138	142	116	131
320-98863-32 - DL	NK 283752							
320-98863-32 - RA	NK 283752			105				
LCS 320-670757/2-A	Lab Control Sample	95	92	97	99	98	102	116
LCS 320-670758/2-A	Lab Control Sample	92	92	97	88	100	101	120
LCS 320-671099/2-A	Lab Control Sample	97	93	96	91	96	92	102
LCSD 320-670757/3-A	Lab Control Sample Dup	92	92	95	92	97	101	114
LCSD 320-670758/3-A	Lab Control Sample Dup	93	91	99	98	105	104	119
LCSD 320-671099/3-A	Lab Control Sample Dup	97	93	97	91	96	94	109
MB 320-670757/1-A	Method Blank	94	94	95	93	96	99	120

Isotope Dilution Summary

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Matrix: Tissue
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)
MB 320-670758/1-A	Method Blank	92	93	97	93	103	102	116
MB 320-671099/1-A	Method Blank	98	92	97	95	99	95	105

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
M102FTS = 13C2 10:2 FTS

Method: B/L/T PFAS - Branched, Linear and Total PFAS

Lab Sample ID: MB 320-670757/1-A
Matrix: Tissue
Analysis Batch: 673755

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 670757

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.0	0.24	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Perfluoropentanoic acid (PFPeA)	ND		1.0	0.18	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.27	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.12	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
L-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Br-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Total PFOA	ND		1.0	0.20	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.18	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.10	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.27	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.17	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.18	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Br-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Total PFHxS	ND		1.0	0.15	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
L-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.19	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
L-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Br-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
Total PFOS	ND		2.5	0.20	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
4:2 FTS	ND		1.0	0.27	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
6:2 FTS	ND		1.0	0.42	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
8:2 FTS	ND		1.0	0.10	ug/Kg		04/27/23 18:50	04/30/23 12:13	1
10:2 FTS	ND		1.0	0.10	ug/Kg		04/27/23 18:50	04/30/23 12:13	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C5 PFPeA	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C2 PFHxA	*102*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C4 PFHpA	*104*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C4 PFOA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C5 PFNA	*98*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C2 PFDA	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C2 PFUnA	*101*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C3 PFBS	*94*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
18O2 PFHxS	*94*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C4 PFOS	*95*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
M2-4:2 FTS	*93*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
M2-6:2 FTS	*96*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
M2-8:2 FTS	*99*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*
13C2 10:2 FTS	*120*		*25 - 150*	*04/27/23 18:50*	*04/30/23 12:13*	*1*

Lab Sample ID: LCS 320-670757/2-A
Matrix: Tissue
Analysis Batch: 673755

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 670757

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	9.85		ug/Kg		99	76 - 136

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCS 320-670757/2-A
Matrix: Tissue
Analysis Batch: 673755

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 670757

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoropentanoic acid (PFPeA)			10.0	10.1		ug/Kg		101	69 - 129		
Perfluorohexanoic acid (PFHxA)			10.0	9.20		ug/Kg		92	71 - 131		
Perfluoroheptanoic acid (PFHpA)			10.0	9.83		ug/Kg		98	71 - 131		
L-Perfluorooctanoic acid			10.0	10.5		ug/Kg		105	72 - 132		
Total PFOA			10.0	10.5		ug/Kg		105			
Perfluorononanoic acid (PFNA)			10.0	10.5		ug/Kg		105	73 - 133		
Perfluorodecanoic acid (PFDA)			10.0	10.2		ug/Kg		102	72 - 132		
Perfluoroundecanoic acid (PFUnA)			10.0	9.19		ug/Kg		92	66 - 126		
Perfluorobutanesulfonic acid (PFBS)			8.88	9.17		ug/Kg		103	69 - 129		
Perfluoropentanesulfonic acid (PFPeS)			9.40	9.77		ug/Kg		104	66 - 126		
Total PFHxS			9.12	9.15		ug/Kg		100			
L-Perfluorohexanesulfonic acid			9.12	9.15		ug/Kg		100	62 - 122		
Perfluoroheptanesulfonic acid (PFHpS)			9.54	9.82		ug/Kg		103	76 - 136		
L-Perfluorooctanesulfonic acid			9.30	9.24		ug/Kg		99	68 - 141		
Total PFOS			9.30	9.24		ug/Kg		99			
4:2 FTS			9.38	9.52		ug/Kg		102	68 - 143		
6:2 FTS			9.52	10.8		ug/Kg		113	73 - 139		
8:2 FTS			9.60	10.3		ug/Kg		107	75 - 135		
10:2 FTS			9.66	9.50		ug/Kg		98	69 - 145		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*86*		*25 - 150*
13C5 PFPeA	*93*		*25 - 150*
13C2 PFHxA	*99*		*25 - 150*
13C4 PFHpA	*103*		*25 - 150*
13C4 PFOA	*97*		*25 - 150*
13C5 PFNA	*97*		*25 - 150*
13C2 PFDA	*102*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C3 PFBS	*95*		*25 - 150*
18O2 PFHxS	*92*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
M2-4:2 FTS	*99*		*25 - 150*
M2-6:2 FTS	*98*		*25 - 150*
M2-8:2 FTS	*102*		*25 - 150*
13C2 10:2 FTS	*116*		*25 - 150*

Lab Sample ID: LCSD 320-670757/3-A
Matrix: Tissue
Analysis Batch: 673755

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 670757

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			10.0	10.2		ug/Kg		102	76 - 136	3	30
Perfluoropentanoic acid (PFPeA)			10.0	10.3		ug/Kg		103	69 - 129	2	30
Perfluorohexanoic acid (PFHxA)			10.0	9.47		ug/Kg		95	71 - 131	3	30
Perfluoroheptanoic acid (PFHpA)			10.0	10.2		ug/Kg		102	71 - 131	3	30

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCSD 320-670757/3-A
Matrix: Tissue
Analysis Batch: 673755

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 670757

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
L-Perfluorooctanoic acid			10.0	10.8		ug/Kg		108	72 - 132	3	30
Total PFOA			10.0	10.8		ug/Kg		108		3	
Perfluorononanoic acid (PFNA)			10.0	10.6		ug/Kg		106	73 - 133	1	30
Perfluorodecanoic acid (PFDA)			10.0	10.4		ug/Kg		104	72 - 132	1	30
Perfluoroundecanoic acid (PFUnA)			10.0	9.41		ug/Kg		94	66 - 126	2	30
Perfluorobutanesulfonic acid (PFBS)			8.88	9.13		ug/Kg		103	69 - 129	0	30
Perfluoropentanesulfonic acid (PFPeS)			9.40	10.1		ug/Kg		107	66 - 126	3	30
Total PFHxS			9.12	9.36		ug/Kg		103		2	
L-Perfluorohexanesulfonic acid			9.12	9.36		ug/Kg		103	62 - 122	2	30
Perfluoroheptanesulfonic acid (PFHpS)			9.54	9.94		ug/Kg		104	76 - 136	1	30
L-Perfluorooctanesulfonic acid			9.30	9.28		ug/Kg		100	68 - 141	0	30
Total PFOS			9.30	9.28		ug/Kg		100		0	
4:2 FTS			9.38	10.5		ug/Kg		112	68 - 143	10	30
6:2 FTS			9.52	11.1		ug/Kg		116	73 - 139	3	30
8:2 FTS			9.60	10.2		ug/Kg		106	75 - 135	1	30
10:2 FTS			9.66	8.82		ug/Kg		91	69 - 145	7	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*68*		*25 - 150*
13C5 PFPeA	*95*		*25 - 150*
13C2 PFHxA	*98*		*25 - 150*
13C4 PFHpA	*103*		*25 - 150*
13C4 PFOA	*97*		*25 - 150*
13C5 PFNA	*99*		*25 - 150*
13C2 PFDA	*104*		*25 - 150*
13C2 PFUnA	*105*		*25 - 150*
13C3 PFBS	*92*		*25 - 150*
18O2 PFHxS	*92*		*25 - 150*
13C4 PFOS	*95*		*25 - 150*
M2-4:2 FTS	*92*		*25 - 150*
M2-6:2 FTS	*97*		*25 - 150*
M2-8:2 FTS	*101*		*25 - 150*
13C2 10:2 FTS	*114*		*25 - 150*

Lab Sample ID: MB 320-670758/1-A
Matrix: Tissue
Analysis Batch: 673757

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 670758

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.0	0.24	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Perfluoropentanoic acid (PFPeA)	ND		1.0	0.18	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.27	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.12	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
L-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Br-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Total PFOA	ND		1.0	0.20	ug/Kg		04/27/23 19:00	04/30/23 21:40	1

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: MB 320-670758/1-A
Matrix: Tissue
Analysis Batch: 673757

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 670758

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		1.0	0.18	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.10	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.27	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.17	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.18	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Br-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Total PFHxS	ND		1.0	0.15	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
L-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.19	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
L-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Br-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
Total PFOS	ND		2.5	0.20	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
4:2 FTS	ND		1.0	0.27	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
6:2 FTS	ND		1.0	0.42	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
8:2 FTS	ND		1.0	0.10	ug/Kg		04/27/23 19:00	04/30/23 21:40	1
10:2 FTS	ND		1.0	0.10	ug/Kg		04/27/23 19:00	04/30/23 21:40	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*80*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C5 PFPeA	*96*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C2 PFHxA	*95*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C4 PFHpA	*103*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C4 PFOA	*96*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C5 PFNA	*97*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C2 PFDA	*101*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C2 PFUnA	*101*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C3 PFBS	*92*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
18O2 PFHxS	*93*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C4 PFOS	*97*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
M2-4:2 FTS	*93*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
M2-6:2 FTS	*103*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
M2-8:2 FTS	*102*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*
13C2 10:2 FTS	*116*		*25 - 150*	*04/27/23 19:00*	*04/30/23 21:40*	*1*

Lab Sample ID: LCS 320-670758/2-A
Matrix: Tissue
Analysis Batch: 673757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 670758

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	9.65		ug/Kg		96	76 - 136
Perfluoropentanoic acid (PFPeA)	10.0	10.3		ug/Kg		103	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	9.71		ug/Kg		97	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	10.0		ug/Kg		100	71 - 131
L-Perfluorooctanoic acid	10.0	10.4		ug/Kg		104	72 - 132
Total PFOA	10.0	10.4		ug/Kg		104	
Perfluorononanoic acid (PFNA)	10.0	10.3		ug/Kg		103	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	10.2		ug/Kg		102	72 - 132

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCS 320-670758/2-A
Matrix: Tissue
Analysis Batch: 673757

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 670758

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	10.0	10.4		ug/Kg		104	66 - 126
Perfluorobutanesulfonic acid (PFBS)	8.88	8.88		ug/Kg		100	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.80		ug/Kg		104	66 - 126
Total PFHxS	9.12	9.02		ug/Kg		99	
L-Perfluorohexanesulfonic acid	9.12	9.02		ug/Kg		99	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	9.54	9.74		ug/Kg		102	76 - 136
L-Perfluorooctanesulfonic acid	9.30	9.16		ug/Kg		98	68 - 141
Total PFOS	9.30	9.16		ug/Kg		98	
4:2 FTS	9.38	10.6		ug/Kg		113	68 - 143
6:2 FTS	9.52	10.5		ug/Kg		110	73 - 139
8:2 FTS	9.60	10.2		ug/Kg		106	75 - 135
10:2 FTS	9.66	9.09		ug/Kg		94	69 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*86*		*25 - 150*
13C5 PFPeA	*93*		*25 - 150*
13C2 PFHxA	*97*		*25 - 150*
13C4 PFHpA	*104*		*25 - 150*
13C4 PFOA	*97*		*25 - 150*
13C5 PFNA	*101*		*25 - 150*
13C2 PFDA	*104*		*25 - 150*
13C2 PFUnA	*102*		*25 - 150*
13C3 PFBS	*92*		*25 - 150*
18O2 PFHxS	*92*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
M2-4:2 FTS	*88*		*25 - 150*
M2-6:2 FTS	*100*		*25 - 150*
M2-8:2 FTS	*101*		*25 - 150*
13C2 10:2 FTS	*120*		*25 - 150*

Lab Sample ID: LCSD 320-670758/3-A
Matrix: Tissue
Analysis Batch: 673757

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 670758

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	10.0	10.0		ug/Kg		100	76 - 136	4	30
Perfluoropentanoic acid (PFPeA)	10.0	10.2		ug/Kg		102	69 - 129	1	30
Perfluorohexanoic acid (PFHxA)	10.0	9.80		ug/Kg		98	71 - 131	1	30
Perfluoroheptanoic acid (PFHpA)	10.0	9.94		ug/Kg		99	71 - 131	1	30
L-Perfluorooctanoic acid	10.0	10.3		ug/Kg		103	72 - 132	0	30
Total PFOA	10.0	10.3		ug/Kg		103		0	
Perfluorononanoic acid (PFNA)	10.0	10.4		ug/Kg		104	73 - 133	1	30
Perfluorodecanoic acid (PFDA)	10.0	10.7		ug/Kg		107	72 - 132	4	30
Perfluoroundecanoic acid (PFUnA)	10.0	9.97		ug/Kg		100	66 - 126	4	30

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCSD 320-670758/3-A
Matrix: Tissue
Analysis Batch: 673757

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 670758

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)			8.88	8.91		ug/Kg		100	69 - 129	0	30
Perfluoropentanesulfonic acid (PFPeS)			9.40	9.91		ug/Kg		105	66 - 126	1	30
Total PFHxS			9.12	9.09		ug/Kg		100		1	
L-Perfluorohexanesulfonic acid			9.12	9.09		ug/Kg		100	62 - 122	1	30
Perfluoroheptanesulfonic acid (PFHpS)			9.54	9.57		ug/Kg		100	76 - 136	2	30
L-Perfluorooctanesulfonic acid			9.30	9.04		ug/Kg		97	68 - 141	1	30
Total PFOS			9.30	9.04		ug/Kg		97		1	
4:2 FTS			9.38	9.93		ug/Kg		106	68 - 143	6	30
6:2 FTS			9.52	10.3		ug/Kg		109	73 - 139	1	30
8:2 FTS			9.60	10.1		ug/Kg		105	75 - 135	1	30
10:2 FTS			9.66	9.37		ug/Kg		97	69 - 145	3	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*74*		*25 - 150*
13C5 PFPeA	*101*		*25 - 150*
13C2 PFHxA	*99*		*25 - 150*
13C4 PFHpA	*105*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*99*		*25 - 150*
13C2 PFDA	*100*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C3 PFBS	*93*		*25 - 150*
18O2 PFHxS	*91*		*25 - 150*
13C4 PFOS	*99*		*25 - 150*
M2-4:2 FTS	*98*		*25 - 150*
M2-6:2 FTS	*105*		*25 - 150*
M2-8:2 FTS	*104*		*25 - 150*
13C2 10:2 FTS	*119*		*25 - 150*

Lab Sample ID: MB 320-671099/1-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 671099

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.0	0.24	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoropentanoic acid (PFPeA)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.12	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
L-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Br-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Total PFOA	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.10	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.17	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/02/23 03:14	1

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: MB 320-671099/1-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 671099

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Total PFHxS	ND		1.0	0.15	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
L-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.19	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
L-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Br-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Total PFOS	ND		2.5	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
4:2 FTS	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
6:2 FTS	ND		1.0	0.42	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
8:2 FTS	ND		1.0	0.10	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
10:2 FTS	ND		1.0	0.10	ug/Kg		04/29/23 07:58	05/02/23 03:14	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C5 PFPeA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C2 PFHxA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C4 PFHpA	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C4 PFOA	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C5 PFNA	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C2 PFDA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C2 PFUnA	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C3 PFBS	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
18O2 PFHxS	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C4 PFOS	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
M2-4:2 FTS	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
M2-6:2 FTS	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
M2-8:2 FTS	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C2 10:2 FTS	*105*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*

Lab Sample ID: LCS 320-671099/2-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 671099

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	10.8		ug/Kg		108	76 - 136
Perfluoropentanoic acid (PFPeA)	10.0	10.8		ug/Kg		108	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	10.0		ug/Kg		100	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	10.6		ug/Kg		106	71 - 131
L-Perfluorooctanoic acid	10.0	10.6		ug/Kg		106	72 - 132
Total PFOA	10.0	10.6		ug/Kg		106	
Perfluorononanoic acid (PFNA)	10.0	10.5		ug/Kg		105	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	10.6		ug/Kg		106	72 - 132
Perfluoroundecanoic acid (PFUnA)	10.0	10.4		ug/Kg		104	66 - 126
Perfluorobutanesulfonic acid (PFBS)	8.88	9.22		ug/Kg		104	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.94		ug/Kg		106	66 - 126
Total PFHxS	9.12	9.57		ug/Kg		105	

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCS 320-671099/2-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 671099

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
L-Perfluorohexanesulfonic acid			9.12	9.57		ug/Kg		105	62 - 122		
Perfluoroheptanesulfonic acid (PFHpS)			9.54	10.2		ug/Kg		107	76 - 136		
L-Perfluorooctanesulfonic acid			9.30	9.34		ug/Kg		100	68 - 141		
Total PFOS			9.30	9.34		ug/Kg		100			
4:2 FTS			9.38	10.7		ug/Kg		114	68 - 143		
6:2 FTS			9.52	11.0		ug/Kg		116	73 - 139		
8:2 FTS			9.60	10.6		ug/Kg		110	75 - 135		
10:2 FTS			9.66	10.6		ug/Kg		110	69 - 145		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*102*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C4 PFHpA	*100*		*25 - 150*
13C4 PFOA	*97*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C2 PFDA	*96*		*25 - 150*
13C2 PFUnA	*101*		*25 - 150*
13C3 PFBS	*97*		*25 - 150*
18O2 PFHxS	*93*		*25 - 150*
13C4 PFOS	*96*		*25 - 150*
M2-4:2 FTS	*91*		*25 - 150*
M2-6:2 FTS	*96*		*25 - 150*
M2-8:2 FTS	*92*		*25 - 150*
13C2 10:2 FTS	*102*		*25 - 150*

Lab Sample ID: LCSD 320-671099/3-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671099

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			10.0	10.8		ug/Kg		108	76 - 136	0	30
Perfluoropentanoic acid (PFPeA)			10.0	10.1		ug/Kg		101	69 - 129	7	30
Perfluorohexanoic acid (PFHxA)			10.0	9.93		ug/Kg		99	71 - 131	1	30
Perfluoroheptanoic acid (PFHpA)			10.0	10.1		ug/Kg		101	71 - 131	4	30
L-Perfluorooctanoic acid			10.0	10.4		ug/Kg		104	72 - 132	2	30
Total PFOA			10.0	10.4		ug/Kg		104		2	
Perfluorononanoic acid (PFNA)			10.0	10.5		ug/Kg		105	73 - 133	0	30
Perfluorodecanoic acid (PFDA)			10.0	10.3		ug/Kg		103	72 - 132	3	30
Perfluoroundecanoic acid (PFUnA)			10.0	9.74		ug/Kg		97	66 - 126	6	30
Perfluorobutanesulfonic acid (PFBS)			8.88	8.98		ug/Kg		101	69 - 129	3	30
Perfluoropentanesulfonic acid (PFPeS)			9.40	9.78		ug/Kg		104	66 - 126	2	30
Total PFHxS			9.12	9.46		ug/Kg		104		1	
L-Perfluorohexanesulfonic acid			9.12	9.46		ug/Kg		104	62 - 122	1	30
Perfluoroheptanesulfonic acid (PFHpS)			9.54	9.92		ug/Kg		104	76 - 136	3	30

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCSD 320-671099/3-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671099

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
L-Perfluorooctanesulfonic acid			9.30	9.15		ug/Kg		98	68 - 141	2	30
Total PFOS			9.30	9.15		ug/Kg		98		2	
4:2 FTS			9.38	11.2		ug/Kg		120	68 - 143	5	30
6:2 FTS			9.52	10.6		ug/Kg		112	73 - 139	4	30
8:2 FTS			9.60	10.4		ug/Kg		109	75 - 135	1	30
10:2 FTS			9.66	10.2		ug/Kg		106	69 - 145	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*86*		*25 - 150*
13C5 PFPeA	*98*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C4 PFHpA	*101*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*97*		*25 - 150*
13C2 PFDA	*101*		*25 - 150*
13C2 PFUnA	*108*		*25 - 150*
13C3 PFBS	*97*		*25 - 150*
18O2 PFHxS	*93*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
M2-4:2 FTS	*91*		*25 - 150*
M2-6:2 FTS	*96*		*25 - 150*
M2-8:2 FTS	*94*		*25 - 150*
13C2 10:2 FTS	*109*		*25 - 150*

LCMS

Prep Batch: 670757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-1	NK 311397	Total/NA	Tissue	SHAKE	
320-98863-1 - DL	NK 311397	Total/NA	Tissue	SHAKE	
320-98863-2	NK 311406	Total/NA	Tissue	SHAKE	
320-98863-2 - DL	NK 311406	Total/NA	Tissue	SHAKE	
320-98863-3	NK 310837	Total/NA	Tissue	SHAKE	
320-98863-3 - RA	NK 310837	Total/NA	Tissue	SHAKE	
320-98863-4	NK 310873	Total/NA	Tissue	SHAKE	
320-98863-4 - DL	NK 310873	Total/NA	Tissue	SHAKE	
320-98863-5	NK 310884	Total/NA	Tissue	SHAKE	
320-98863-5 - DL	NK 310884	Total/NA	Tissue	SHAKE	
320-98863-6	NK 310892	Total/NA	Tissue	SHAKE	
320-98863-6 - DL	NK 310892	Total/NA	Tissue	SHAKE	
320-98863-7	NK 310831	Total/NA	Tissue	SHAKE	
320-98863-7 - RA	NK 310831	Total/NA	Tissue	SHAKE	
320-98863-8	NK 310840	Total/NA	Tissue	SHAKE	
320-98863-8 - RA	NK 310840	Total/NA	Tissue	SHAKE	
320-98863-9 - DL	NK 310883	Total/NA	Tissue	SHAKE	
320-98863-9	NK 310883	Total/NA	Tissue	SHAKE	
320-98863-10	NK 310882	Total/NA	Tissue	SHAKE	
320-98863-10 - DL	NK 310882	Total/NA	Tissue	SHAKE	
320-98863-11 - DL	NK 311886	Total/NA	Tissue	SHAKE	
320-98863-11	NK 311886	Total/NA	Tissue	SHAKE	
320-98863-12	NK 311891	Total/NA	Tissue	SHAKE	
320-98863-13	NK 10440	Total/NA	Tissue	SHAKE	
320-98863-14 - DL	NK 31807	Total/NA	Tissue	SHAKE	
320-98863-14	NK 31807	Total/NA	Tissue	SHAKE	
320-98863-15 - DL	NK 31808	Total/NA	Tissue	SHAKE	
320-98863-15	NK 31808	Total/NA	Tissue	SHAKE	
320-98863-16	NK 31806	Total/NA	Tissue	SHAKE	
320-98863-16 - DL	NK 31806	Total/NA	Tissue	SHAKE	
320-98863-16 - RADL	NK 31806	Total/NA	Tissue	SHAKE	
320-98863-17 - DL	NK 311426	Total/NA	Tissue	SHAKE	
320-98863-17	NK 311426	Total/NA	Tissue	SHAKE	
320-98863-18 - DL	NK 311437	Total/NA	Tissue	SHAKE	
320-98863-18	NK 311437	Total/NA	Tissue	SHAKE	
MB 320-670757/1-A	Method Blank	Total/NA	Tissue	SHAKE	
LCS 320-670757/2-A	Lab Control Sample	Total/NA	Tissue	SHAKE	
LCSD 320-670757/3-A	Lab Control Sample Dup	Total/NA	Tissue	SHAKE	

Prep Batch: 670758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-19	NK 311390	Total/NA	Tissue	SHAKE	
320-98863-19 - DL	NK 311390	Total/NA	Tissue	SHAKE	
320-98863-20	NK 311395	Total/NA	Tissue	SHAKE	
320-98863-20 - DL	NK 311395	Total/NA	Tissue	SHAKE	
320-98863-21	NK 311423	Total/NA	Tissue	SHAKE	
320-98863-21 - DL	NK 311423	Total/NA	Tissue	SHAKE	
320-98863-21 - RADL	NK 311423	Total/NA	Tissue	SHAKE	
320-98863-22	NK 311435	Total/NA	Tissue	SHAKE	
320-98863-22 - RA	NK 311435	Total/NA	Tissue	SHAKE	
320-98863-23	NK 311422	Total/NA	Tissue	SHAKE	

LCMS (Continued)

Prep Batch: 670758 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-23 - DL	NK 311422	Total/NA	Tissue	SHAKE	
320-98863-24 - DL	NK 311887	Total/NA	Tissue	SHAKE	
320-98863-24	NK 311887	Total/NA	Tissue	SHAKE	
320-98863-25	NK 310922	Total/NA	Tissue	SHAKE	
320-98863-25 - DL	NK 310922	Total/NA	Tissue	SHAKE	
320-98863-26	NK 310912	Total/NA	Tissue	SHAKE	
320-98863-27	NK 310959	Total/NA	Tissue	SHAKE	
320-98863-27 - DL	NK 310959	Total/NA	Tissue	SHAKE	
320-98863-28	NK 310963	Total/NA	Tissue	SHAKE	
320-98863-28 - DL	NK 310963	Total/NA	Tissue	SHAKE	
320-98863-28 - RADL	NK 310963	Total/NA	Tissue	SHAKE	
320-98863-29	NK 310939	Total/NA	Tissue	SHAKE	
320-98863-29 - DL	NK 310939	Total/NA	Tissue	SHAKE	
320-98863-30 - DL	NK 284404	Total/NA	Tissue	SHAKE	
320-98863-30	NK 284404	Total/NA	Tissue	SHAKE	
320-98863-30 - RADL	NK 284404	Total/NA	Tissue	SHAKE	
MB 320-670758/1-A	Method Blank	Total/NA	Tissue	SHAKE	
LCS 320-670758/2-A	Lab Control Sample	Total/NA	Tissue	SHAKE	
LCSD 320-670758/3-A	Lab Control Sample Dup	Total/NA	Tissue	SHAKE	

Prep Batch: 671099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-31	NK 284405	Total/NA	Tissue	SHAKE	
320-98863-32	NK 283752	Total/NA	Tissue	SHAKE	
320-98863-32 - DL	NK 283752	Total/NA	Tissue	SHAKE	
320-98863-32 - RA	NK 283752	Total/NA	Tissue	SHAKE	
MB 320-671099/1-A	Method Blank	Total/NA	Tissue	SHAKE	
LCS 320-671099/2-A	Lab Control Sample	Total/NA	Tissue	SHAKE	
LCSD 320-671099/3-A	Lab Control Sample Dup	Total/NA	Tissue	SHAKE	

Analysis Batch: 673755

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-1	NK 311397	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-2	NK 311406	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-3	NK 310837	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-4	NK 310873	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-5	NK 310884	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-6	NK 310892	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-7	NK 310831	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-8	NK 310840	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-9	NK 310883	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-10	NK 310882	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-11	NK 311886	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-12	NK 311891	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-13	NK 10440	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-14	NK 31807	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-15	NK 31808	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-16	NK 31806	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-17	NK 311426	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-18	NK 311437	Total/NA	Tissue	B/L/T PFAS	670757
MB 320-670757/1-A	Method Blank	Total/NA	Tissue	B/L/T PFAS	670757

LCMS (Continued)

Analysis Batch: 673755 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-670757/2-A	Lab Control Sample	Total/NA	Tissue	B/L/T PFAS	670757
LCSD 320-670757/3-A	Lab Control Sample Dup	Total/NA	Tissue	B/L/T PFAS	670757

Analysis Batch: 673757

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-19	NK 311390	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-20	NK 311395	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-21	NK 311423	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-23	NK 311422	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-24	NK 311887	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-25	NK 310922	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-26	NK 310912	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-27	NK 310959	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-28	NK 310963	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-29	NK 310939	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-30	NK 284404	Total/NA	Tissue	B/L/T PFAS	670758
MB 320-670758/1-A	Method Blank	Total/NA	Tissue	B/L/T PFAS	670758
LCS 320-670758/2-A	Lab Control Sample	Total/NA	Tissue	B/L/T PFAS	670758
LCSD 320-670758/3-A	Lab Control Sample Dup	Total/NA	Tissue	B/L/T PFAS	670758

Analysis Batch: 673760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-31	NK 284405	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-32	NK 283752	Total/NA	Tissue	B/L/T PFAS	671099
MB 320-671099/1-A	Method Blank	Total/NA	Tissue	B/L/T PFAS	671099
LCS 320-671099/2-A	Lab Control Sample	Total/NA	Tissue	B/L/T PFAS	671099
LCSD 320-671099/3-A	Lab Control Sample Dup	Total/NA	Tissue	B/L/T PFAS	671099

Analysis Batch: 674536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-1 - DL	NK 311397	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-4 - DL	NK 310873	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-5 - DL	NK 310884	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-6 - DL	NK 310892	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-9 - DL	NK 310883	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-11 - DL	NK 311886	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-14 - DL	NK 31807	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-15 - DL	NK 31808	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-16 - DL	NK 31806	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-17 - DL	NK 311426	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-18 - DL	NK 311437	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-20 - DL	NK 311395	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-21 - DL	NK 311423	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-22	NK 311435	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-23 - DL	NK 311422	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-24 - DL	NK 311887	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-25 - DL	NK 310922	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-27 - DL	NK 310959	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-28 - DL	NK 310963	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-30 - DL	NK 284404	Total/NA	Tissue	B/L/T PFAS	670758

QC Association Summary

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

LCMS

Analysis Batch: 674538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-32 - DL	NK 283752	Total/NA	Tissue	B/L/T PFAS	671099

Analysis Batch: 676767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-2 - DL	NK 311406	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-3 - RA	NK 310837	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-7 - RA	NK 310831	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-8 - RA	NK 310840	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-16 - RADL	NK 31806	Total/NA	Tissue	B/L/T PFAS	670757
320-98863-19 - DL	NK 311390	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-21 - RADL	NK 311423	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-22 - RA	NK 311435	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-28 - RADL	NK 310963	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-29 - DL	NK 310939	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-30 - RADL	NK 284404	Total/NA	Tissue	B/L/T PFAS	670758
320-98863-32 - RA	NK 283752	Total/NA	Tissue	B/L/T PFAS	671099

Analysis Batch: 677447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-10 - DL	NK 310882	Total/NA	Tissue	B/L/T PFAS	670757

Client Sample ID: NK 311397
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-1
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.41 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 13:21	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.41 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674536	05/14/23 07:35	D1R	EET SAC

Client Sample ID: NK 311406
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-2
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.89 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 13:44	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.89 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	10	1 mL	1 mL	676767	05/21/23 23:36	AEC	EET SAC

Client Sample ID: NK 310837
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-3
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.04 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 14:07	D1R	EET SAC
Total/NA	Prep	SHAKE	RA		0.04 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RA	1	1 mL	1 mL	676767	05/21/23 23:53	AEC	EET SAC

Client Sample ID: NK 310873
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-4
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.43 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 14:29	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.43 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	50	1 mL	1 mL	674536	05/14/23 05:19	D1R	EET SAC

Client Sample ID: NK 310884
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-5
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.11 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 14:52	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.11 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	20	1 mL	1 mL	674536	05/14/23 04:34	D1R	EET SAC

Client Sample ID: NK 310892
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-6
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.21 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 15:15	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.21 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	50	1 mL	1 mL	674536	05/14/23 05:42	D1R	EET SAC

Client Sample ID: NK 310831
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-7
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.06 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 15:37	D1R	EET SAC
Total/NA	Prep	SHAKE	RA		0.06 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RA	1	1 mL	1 mL	676767	05/22/23 00:10	AEC	EET SAC

Client Sample ID: NK 310840
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-8
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.03 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 16:23	D1R	EET SAC
Total/NA	Prep	SHAKE	RA		0.03 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RA	1	1 mL	1 mL	676767	05/22/23 00:26	AEC	EET SAC

Client Sample ID: NK 310883
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-9
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.23 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 16:45	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.23 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	50	1 mL	1 mL	674536	05/14/23 06:04	D1R	EET SAC

Client Sample ID: NK 310882
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-10
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.07 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 17:08	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.07 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	10	1 mL	1 mL	677447	05/24/23 19:22	AEC	EET SAC

Client Sample ID: NK 311886
Lab Sample ID: 320-98863-11
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.23 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 17:31	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.23 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	50	1 mL	1 mL	674536	05/14/23 06:27	D1R	EET SAC

Client Sample ID: NK 311891
Lab Sample ID: 320-98863-12
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.05 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 17:54	D1R	EET SAC

Client Sample ID: NK 10440
Lab Sample ID: 320-98863-13
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.18 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 18:16	D1R	EET SAC

Client Sample ID: NK 31807
Lab Sample ID: 320-98863-14
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.11 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 18:39	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.11 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	10	1 mL	1 mL	674536	05/14/23 03:48	D1R	EET SAC

Client Sample ID: NK 31808
Lab Sample ID: 320-98863-15
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.70 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 19:01	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.70 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	20	1 mL	1 mL	674536	05/14/23 04:56	D1R	EET SAC

Client Sample ID: NK 31806
Lab Sample ID: 320-98863-16
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.63 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 19:24	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.63 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674536	05/14/23 07:58	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.63 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 00:43	AEC	EET SAC

Client Sample ID: NK 311426
Lab Sample ID: 320-98863-17
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.51 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 19:47	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.51 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674536	05/14/23 08:20	D1R	EET SAC

Client Sample ID: NK 311437
Lab Sample ID: 320-98863-18
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.20 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673755	04/30/23 20:32	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.20 g	10.0 mL	670757	04/27/23 18:50	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	10	1 mL	1 mL	674536	05/14/23 04:11	D1R	EET SAC

Client Sample ID: NK 311390
Lab Sample ID: 320-98863-19
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.23 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	04/30/23 22:48	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.23 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	10	1 mL	1 mL	676767	05/22/23 01:00	AEC	EET SAC

Client Sample ID: NK 311395
Lab Sample ID: 320-98863-20
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.65 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	04/30/23 23:11	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.65 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674536	05/14/23 11:22	D1R	EET SAC

Client Sample ID: NK 311423
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-21
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.30 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	04/30/23 23:34	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.30 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674536	05/14/23 12:30	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		1.30 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 01:16	AEC	EET SAC

Client Sample ID: NK 311435
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-22
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.35 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	674536	05/14/23 09:06	D1R	EET SAC
Total/NA	Prep	SHAKE	RA		0.35 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RA	1	1 mL	1 mL	676767	05/22/23 01:33	AEC	EET SAC

Client Sample ID: NK 311422
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-23
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.72 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	05/01/23 00:19	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.72 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674536	05/14/23 12:53	D1R	EET SAC

Client Sample ID: NK 311887
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-24
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.29 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	05/01/23 00:42	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.29 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674536	05/14/23 13:15	D1R	EET SAC

Client Sample ID: NK 310922
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-25
Matrix: Tissue

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.50 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	05/01/23 01:04	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.50 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674536	05/14/23 13:38	D1R	EET SAC

Client Sample ID: NK 310912
Lab Sample ID: 320-98863-26
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.18 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	05/01/23 01:50	D1R	EET SAC

Client Sample ID: NK 310959
Lab Sample ID: 320-98863-27
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.15 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	05/01/23 02:12	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.15 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	50	1 mL	1 mL	674536	05/14/23 10:59	D1R	EET SAC

Client Sample ID: NK 310963
Lab Sample ID: 320-98863-28
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.20 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	05/01/23 02:35	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.20 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	20	1 mL	1 mL	674536	05/14/23 10:14	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.20 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	20	1 mL	1 mL	676767	05/22/23 09:53	AEC	EET SAC

Client Sample ID: NK 310939
Lab Sample ID: 320-98863-29
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.77 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	05/01/23 02:58	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.77 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	10	1 mL	1 mL	676767	05/22/23 02:06	AEC	EET SAC

Client Sample ID: NK 284404
Lab Sample ID: 320-98863-30
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.40 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673757	05/01/23 03:20	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.40 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	20	1 mL	1 mL	674536	05/14/23 10:36	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.40 g	10.0 mL	670758	04/27/23 19:00	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	20	1 mL	1 mL	676767	05/22/23 02:56	AEC	EET SAC

Lab Chronicle

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Client Sample ID: NK 284405
Lab Sample ID: 320-98863-31
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.84 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 04:22	D1R	EET SAC

Client Sample ID: NK 283752
Lab Sample ID: 320-98863-32
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.18 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 04:45	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.18 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	5	1 mL	1 mL	674538	05/14/23 15:09	D1R	EET SAC
Total/NA	Prep	SHAKE	RA		0.18 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RA	1	1 mL	1 mL	676767	05/22/23 03:13	AEC	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	06-01-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-24
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-24
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23 *
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Job ID: 320-98863-1

Method	Method Description	Protocol	Laboratory
B/L/T PFAS	Branched, Linear and Total PFAS	EPA	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: University of New Mexico
Job ID: 320-98863-1
Project/Site: Holloman PFAS (Samples 1-32 of 58)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-98863-1	NK 311397	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-2	NK 311406	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-3	NK 310837	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-4	NK 310873	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-5	NK 310884	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-6	NK 310892	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-7	NK 310831	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-8	NK 310840	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-9	NK 310883	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-10	NK 310882	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-11	NK 311886	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-12	NK 311891	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-13	NK 10440	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-14	NK 31807	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-15	NK 31808	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-16	NK 31806	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-17	NK 311426	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-18	NK 311437	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-19	NK 311390	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-20	NK 311395	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-21	NK 311423	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-22	NK 311435	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-23	NK 311422	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-24	NK 311887	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-25	NK 310922	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-26	NK 310912	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-27	NK 310959	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-28	NK 310963	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-29	NK 310939	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-30	NK 284404	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-31	NK 284405	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-32	NK 283752	Tissue	04/11/23 00:00	04/13/23 09:30

Address: ____________________

Chain of Custody Record

602565 eurofins Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact
Company Name: Museum of SW Biology
Address: MSC03 2020 1 University of New Mexico
City/State/Zip: Albuquerque NM 87131
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Project Name: Holloman PFAS
Site:
P O #

Project Manager: Jean-Lu Cartron
Tel/Email: jlec@unm.edu

Analysis Turnaround Time
☐ CALENDAR DAYS ☐ WORKING DAYS
TAT if different from Below ________
☐ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Site Contact:
Lab Contact:
Date:
Carrier:

COC No:
____ of ____ COCs
Sampler:
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
NK 311397								
NK 311406								
NK 310837								
NK 310873								
NK 310884								
NK 310892								
NK 310831								
NK 310840								
NK 310883								
NK 310882								
NK 311886								
NK 311891								

320-98863 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ________

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for ________ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 4.6 Corr'd: 4.6 | Therm ID No.: L10

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
			[signature]	EET Sac	4/12/23 930

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

No time: date SO 4/12/23 Not Relinquished SO 4/12/23
+ No Matrix SO 4/12/23

Chain of Custody Record

602564

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Jean-Luc Cartron	Site Contact:	Date:	COC No:
Company Name: Museum of SW Biology	Tel/Email: jlec@unm.edu	Lab Contact:	Carrier:	_____ of _____ COCs
Address: MSC03 2020 University of NM	Analysis Turnaround Time			Sampler:
City/State/Zip: Albuquerque NM 87131	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (505) 277-9808	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Holloman PFAS	☐ 1 week			Job / SDG No.:
Site:	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
~~NK 310803~~	5/5/2022	Hand						
NK 10440								
NK 31807								
NK 31808								
NK 31806								
NK 311426								
NK 311437								
NK 311390								
NK 311395								
NK 311423								
NK 311435								
NK 311422 (2 vials) non-targeted								

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: -4.4 Corr'd: -4.4 | Therm ID No.: 120

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:			Received by:	FET Sac	4/12/23 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

5/26/2023

Address: _____

Chain of Custody Record

602566 eurofins | Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Jean-Luc Cartron	Site Contact:	Date:	COC No:
Company Name: Museum of SW Biology	Tel/Email: jlec@unm.edu	Lab Contact:	Carrier:	_____ of _____ COCs
Address: MSC03 2020 1 University of New Mexico	Analysis Turnaround Time			Sampler:
City/State/Zip: Albuquerque NM 87131	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (505) 277-7808	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Holloman PFAS	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
NK 311887								
NK 310922								
NK 310912								
NK 310959								
NK 310963								
NK 310939								
See attached addendum								
NK 284404								
NK 284405 (non-targeted) 3 vials								
NK 283752								

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: -.6 Corr'd: -.6 | Therm ID No.: CT0

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				EET Suc	4/12/23 930

5/26/2023

GUID	NK	PART_N	CONDITIOI	SCIENTIFIC_NAME	LOAN_NUMBER	ITEM_INSTRUCTIONS
MSB:Mamm:340078	311426	liver	excellent	Mus musculus	2023.014.Mamm	
MSB:Mamm:340081	311437	liver	excellent	Chaetodipus eremicus	2023.014.Mamm	
MSB:Mamm:340087	311390	liver	very good	Reithrodontomys megalotis	2023.014.Mamm	
MSB:Mamm:340090	311395	liver	very good	Peromyscus eremicus	2023.014.Mamm	
MSB:Mamm:340102	311423	liver	good	Mus musculus	2023.014.Mamm	
MSB:Mamm:340107	311435	liver	excellent	Chaetodipus eremicus	2023.014.Mamm	
MSB:Mamm:340121	311422	liver	very good	Mus musculus	2023.014.Mamm	non-targeted analysis; ~~double tubes~~ single tube
~~MSB:Mamm:340121~~	~~311422~~	~~liver~~	~~very good~~	~~Mus musculus~~	~~2023.014.Mamm~~	~~non-targeted analysis; double tubes~~
MSB:Mamm:340128	311397	liver	very good	Sigmodon hispidus	2023.014.Mamm	
MSB:Mamm:340136	311406	liver	good	Dipodomys merriami	2023.014.Mamm	
MSB:Mamm:341472	310837	liver	very good	Peromyscus leucopus	2023.014.Mamm	
MSB:Mamm:341543	310873	liver	very good	Sigmodon hispidus	2023.014.Mamm	
MSB:Mamm:341567	310884	liver	fair	Mus musculus	2023.014.Mamm	
MSB:Mamm:341583	310892	liver	fair	Chaetodipus eremicus	2023.014.Mamm	
MSB:Mamm:341589	310831	liver	very good	Chaetodipus eremicus	2023.014.Mamm	
MSB:Mamm:341596	310840	liver	excellent	Dipodomys merriami	2023.014.Mamm	
MSB:Mamm:341605	310883	liver	good	Mus musculus	2023.014.Mamm	
MSB:Mamm:341606	310882	liver	good	Mus musculus	2023.014.Mamm	
MSB:Mamm:342156	311886	liver	fair	Mus musculus	2023.014.Mamm	
MSB:Mamm:342158	311891	liver	good	Reithrodontomys megalotis	2023.014.Mamm	
MSB:Mamm:342170	311887	liver	fair	Mus musculus	2023.014.Mamm	
MSB:Mamm:342193	310922	liver	excellent	Mus musculus	2023.014.Mamm	
MSB:Mamm:342196	310912	liver	excellent	Mus musculus	2023.014.Mamm	
MSB:Mamm:342214	310959	liver	unknown	Mus musculus	2023.014.Mamm	
MSB:Mamm:342221	310963	liver	unknown	Reithrodontomys megalotis	2023.014.Mamm	
MSB:Mamm:342231	310939	liver	excellent	Dipodomys merriami	2023.014.Mamm	
MSB:Mamm:89197	10440	liver	unchecked	Peromyscus leucopus	2023.014.Mamm	
MSB:Mamm:91659	31807	liver	unchecked	Reithrodontomys megalotis	2023.014.Mamm	
MSB:Mamm:91660	31808	liver	unchecked	Sigmodon hispidus	2023.014.Mamm	
MSB:Mamm:92667	31806	liver	unchecked	Peromyscus leucopus	2023.014.Mamm	

29 vials

PART_BAR	PARENT_BARCODE	
A9NZ5		
A9NYJ		
A9OIX		
A9MN8		
A9NZB		
A9NYN		
	A9ONJ	
A9NZD		
A9MN4		
A9MML		
	A9V6K	
A9MKL		
A9MJZ		
A9MJJ		
A9VMN		
	A9V6Z	
A9MK1		
A9MK3		
	A9ORO	
	A9ORT	
	A9ORP	
A9WHB		
A9WGR		
A9OY6		
A9OYA		
A9WI9		
	AAX1H	
	AAX1F	
	AAX1E	
	AAX1G	

GUID	NK	PART_NA	SCIENTIFIC_NAME	LOAN_IT	LOAN_NUMBER	PART_BARCOD	PARENT_BARCODE
MSB:Bird:50946	283645	liver	Eremophila alpestris	0.4g	2023.05.Bird	MSB1011111	
MSB:Bird:50972	283648	liver	Eremophila alpestris	0.75g	2023.05.Bird	MSB1011627	
MSB:Bird:50990	283603	liver	Fulica americana	1 g	2023.05.Bird		MSB1011296
MSB:Bird:50991	283604	liver	Anas acuta	1 g	2023.05.Bird		MSB1011305
MSB:Bird:50991	283604	muscle	Anas acuta	1 g	2023.05.Bird		MSB1011306
MSB:Bird:50996	283609	muscle	Bucephala clangula	1 g	2023.05.Bird		MSB1011330
MSB:Bird:50996	283609	liver	Bucephala clangula	1 g	2023.05.Bird		MSB1011331
MSB:Bird:50997	283610	liver	Spatula clypeata	1 g	2023.05.Bird		MSB1011347
MSB:Bird:50999	283612	liver	Mergus merganser	1 g	2023.05.Bird		MSB1011380
MSB:Bird:51010	283623	muscle	Mareca americana	1 g	2023.05.Bird		MSB1011479
MSB:Bird:51010	283623	liver	Mareca americana	1 g	2023.05.Bird		MSB1011480
MSB:Bird:51015	283628	liver	Aythya americana	1 g	2023.05.Bird		MSB1011495
MSB:Bird:51017	283630	liver	Oxyura jamaicensis	1 g	2023.05.Bird		MSB1011504
MSB:Bird:51021	283634	liver	Anas crecca	1 g	2023.05.Bird		MSB1011539
MSB:Bird:51022	283635	liver	Anas crecca	1 g	2023.05.Bird		MSB1011532
MSB:Bird:51024	283637	liver	Mergus merganser	1 g	2023.05.Bird		MSB1011557
MSB:Bird:51032	283666	liver	Spatula clypeata	1 g	2023.05.Bird		MSB1011751
MSB:Bird:51034	283668	liver	Aythya americana	1 g	2023.05.Bird		MSB1011777
MSB:Bird:51039	283675	liver	Anas crecca carolinensis	1 g	2023.05.Bird		MSB1011805
MSB:Bird:51062	283680	liver	Melospiza melodia	0.5g	2023.05.Bird	MSB1011855	
MSB:Bird:51156	283754	liver	Geothlypis trichas	0.5g	2023.05.Bird	MSB1012403	
MSB:Bird:51157	283756	liver	Geothlypis trichas	0.3g	2023.05.Bird	MSB1012411	
MSB:Bird:51169	283693	muscle	Bucephala albeola	1 g	2023.05.Bird		MSB1011950
MSB:Bird:51169	283693	liver	Bucephala albeola	1 g	2023.05.Bird		MSB1011953
MSB:Bird:51309	283771	liver	Charadrius vociferus	0.5g	2023.05.Bird		MSB1015273
MSB:Bird:51310	283770	liver	Charadrius vociferus	0.5g	2023.05.Bird		MSB1015268

MSB:Bird:51519 284404 liver 0.5g

" 51518 284405 ~~liver~~ muscle 6g (3 cryovials) - non targeted *

" 51118 283752 liver 1g

29 vials

Login Sample Receipt Checklist

Client: University of New Mexico

Job Number: 320-98863-1

Login Number: 98863
List Number: 1
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1685156
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	dry ice
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.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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.	False	Refer to Job Narrative for details.
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Jean-Luc Cartron
University of New Mexico
Museum of Southwestern Biology
Division of Mammals
CERIA Bldg 83, Room 204
Albuquerque, New Mexico 87131

Generated 5/26/2023 10:29:03 AM

JOB DESCRIPTION

Holloman PFAS (Samples 33-58 of 58)

JOB NUMBER

320-98863-2

Eurofins Sacramento
880 Riverside Parkway
West Sacramento CA 95605

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northern California, LLC Project Manager.

Authorization

Generated
5/26/2023 10:29:03 AM

Authorized for release by
Linda C. Laver, Senior Project Manager
Linda.Laver@et.eurofinsus.com
(916)374-4362

Table of Contents

Definitions/Glossary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
B	Compound was found in the blank and sample.
CI	The peak identified by the data system exhibited chromatographic interference that could not be resolved. There is reason to suspect there may be a high bias.
E	Result exceeded calibration range.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Job ID: 320-98863-2

Laboratory: Eurofins Sacramento

Narrative

Job Narrative
320-98863-2

Comments
This report contains PFAS data for the following samples: NK 283645 (320-98863-33), NK 283648 (320-98863-34), NK 283603 (320-98863-35), NK 283604-Liver (320-98863-36), NK 283609-Muscle (320-98863-37), NK 283610 (320-98863-38), NK 283612 (320-98863-39), NK 283623-Muscle (320-98863-40), NK 283628 (320-98863-41), NK 283630 (320-98863-42), NK 283634 (320-98863-43), NK 283635 (320-98863-44), NK 283637 (320-98863-45), NK 283666 (320-98863-46), NK 283668 (320-98863-47), NK 283675 (320-98863-48), NK 283680 (320-98863-49), NK 283754 (320-98863-50), NK 283756 (320-98863-51), NK 283693-Muscle (320-98863-52), NK 283771 (320-98863-53), NK 283770 (320-98863-54), NK 283604-Muscle (320-98863-55), NK 283609-Liver (320-98863-56), NK 283623-Liver (320-98863-57) and NK 283693-Liver (320-98863-58).

Receipt
The samples were received on 4/13/2023 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was -46.0º C.

Receipt Exceptions
Paperwork received with the samples included three pages of Eurofins Chain of Custody Records (COC) that listed 32 samples. Paperwork also included two pages of a spreadsheet titled "LoanIntemDownload 2023.014.Mamm" and two pages titled "LoanIntemDownload 2023.014.Bird", which listed 58 samples. The 32 samples listed on the Eurofins COC pages are also listed on the spreadsheets.

The COC pages were not complete and missing information including collection date and time, matrix, requested analysis, and they were not signed at the time samples were relinquished by shipper. The lab logged in the samples with a collection date and time of 4/11/23 at 00:00 using the shipping date and a default time. The spreadsheet indicates samples are muscle or liver tissue and have been logged in for the analysis of PFAS, as Quoted. Two sample were also selected for NTA; however, the lab received only 1 container for NK 31142 (320-98863-23) and could not be analyzed for NTA..

LCMS
Method B/L/T PFAS: Some results for the following samples were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits. : NK 283645 (320-98863-33), NK 283648 (320-98863-34), NK 283603 (320-98863-35), NK 283604-Liver (320-98863-36), NK 283609-Muscle (320-98863-37), NK 283610 (320-98863-38), NK 283612 (320-98863-39), NK 283623-Muscle (320-98863-40), NK 283628 (320-98863-41), NK 283630 (320-98863-42), NK 283634 (320-98863-43), NK 283635 (320-98863-44), NK 283637 (320-98863-45), NK 283666 (320-98863-46), NK 283668 (320-98863-47), NK 283675 (320-98863-48), NK 283680 (320-98863-49), NK 283754 (320-98863-50), NK 283756 (320-98863-51), NK 283693-Muscle (320-98863-52), NK 283771 (320-98863-53), NK 283770 (320-98863-54), NK 283604-Muscle (320-98863-55), NK 283609-Liver (320-98863-56), NK 283623-Liver (320-98863-57) and NK 283693-Liver (320-98863-58).

Method B/L/T PFAS: The concentration of one or more analytes associated with the following samples exceeded the instrument calibration range at the maximum possible dilution, but did not saturate the detector: NK 283634 (320-98863-43), NK 283635 (320-98863-44), NK 283666 (320-98863-46), NK 283623-Liver (320-98863-57) and NK 283693-Liver (320-98863-58). There is no adverse impact on data quality.

Method B/L/T PFAS: The following samples have chromatographic interferences (CI) that could adversely impact the identification and quantitation of Perfluorobutanoic acid (PFBA). These interferences could cause false positive results. NK 283630 (320-98863-42), NK 283637 (320-98863-45), NK 283680 (320-98863-49), NK 283770 (320-98863-54) and NK 283623-Liver (320-98863-57)

Method B/L/T PFAS: Isotope Dilution Analyte (IDA) recoveries are above the method recommended limit for the following samples. Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries. NK 283645 (320-98863-33), NK 283648 (320-98863-34), NK 283603 (320-98863-35), NK 283604-Liver (320-98863-36), NK 283609-Muscle (320-98863-37), NK 283610 (320-98863-38), NK 283612 (320-98863-39), NK 283623-Muscle (320-98863-40), NK 283635 (320-98863-44), NK 283637 (320-98863-45), NK 283668 (320-98863-47), NK 283680 (320-98863-49), NK 283754 (320-98863-50), NK 283756 (320-98863-51), NK 283693-Muscle (320-98863-52), NK 283771 (320-98863-53), NK 283609-Liver (320-98863-56) and NK 283623-Liver (320-98863-57)

Job ID: 320-98863-2 (Continued)

Laboratory: Eurofins Sacramento (Continued)

Method B/L/T PFAS: Isotope Dilution Analyte (IDA) recovery associated with the following sample is below the method recommended limit. Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample. NK 283680 (320-98863-49)

Method B/L/T PFAS: The "I" qualifier means the transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte. NK 283623-Muscle (320-98863-40), NK 283628 (320-98863-41) and (MB 320-671101/1-A)

Method B/L/T PFAS: The "I" qualifier means the transition mass ratio for the indicated analyte was below the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty. However, analyst judgment was used to positively identify the analyte.
NK 283635 (320-98863-44)

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

Organic Prep
Method SHAKE: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-671099 and 320-671101.

Method SHAKE: Elevated reporting limits are provided for the following samples due to insufficient sample provided for preparation. NK 283645 (320-98863-33), NK 283648 (320-98863-34), NK 283603 (320-98863-35), NK 283604-Liver (320-98863-36), NK 283609-Muscle (320-98863-37), NK 283612 (320-98863-39), NK 283630 (320-98863-42), NK 283666 (320-98863-46), NK 283668 (320-98863-47), NK 283675 (320-98863-48), NK 283680 (320-98863-49), NK 283754 (320-98863-50), NK 283756 (320-98863-51), NK 283693-Muscle (320-98863-52), NK 283771 (320-98863-53), NK 283770 (320-98863-54), NK 283604-Muscle (320-98863-55), NK 283609-Liver (320-98863-56), NK 283623-Liver (320-98863-57) and NK 283693-Liver (320-98863-58)

Method SHAKE: The following samples were yellow in color following extraction: NK 283603 (320-98863-35), NK 283609-Muscle (320-98863-37), NK 283612 (320-98863-39), NK 283630 (320-98863-42) and NK 283634 (320-98863-43).

Method SHAKE: The following sample was yellow in color and cloudy following extraction: NK 283610 (320-98863-38).

Method SHAKE: The following samples were yellow in color and foamy following extraction: NK 283675 (320-98863-48), NK 283770 (320-98863-54), NK 283623-Liver (320-98863-57) and NK 283693-Liver (320-98863-58).

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

Detection Summary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283645 — Lab Sample ID: 320-98863-33

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	1.7	J	4.5	0.92	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	1.7	J	4.5	0.92	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	0.94	J	4.5	0.80	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	9.4		4.5	0.67	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	9.4		4.5	0.67	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	83	J	110	9.2	ug/Kg	10		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	45	J	110	9.2	ug/Kg	10		B/L/T PFAS	Total/NA
Total PFOS - DL	130		110	9.2	ug/Kg	10		B/L/T PFAS	Total/NA

Client Sample ID: NK 283648 — Lab Sample ID: 320-98863-34

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.8	J	2.0	0.46	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	0.50	J	2.0	0.34	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	0.60	J	2.0	0.29	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	0.60	J	2.0	0.29	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	16	J	49	4.0	ug/Kg	10		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	6.7	J	49	4.0	ug/Kg	10		B/L/T PFAS	Total/NA
Total PFOS - DL	23	J	49	4.0	ug/Kg	10		B/L/T PFAS	Total/NA

Client Sample ID: NK 283603 — Lab Sample ID: 320-98863-35

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.87	J	1.1	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.59	J	1.1	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.95	J	1.1	0.30	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.70	J	1.1	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	17		1.1	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	0.59	J	1.1	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	17		1.1	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	34		1.1	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	9.3		1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.7		1.1	0.30	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.39	J	1.1	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	4.4		1.1	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	2.1		1.1	0.46	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	13		1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.35	J	1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	74	J	110	16	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	1200		110	16	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	1100		110	16	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	84	J	110	20	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	3500		270	22	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	1500		270	22	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	5000		270	22	ug/Kg	100		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Job ID: 320-98863-2

Client Sample ID: NK 283604-Liver

Lab Sample ID: 320-98863-36

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.0		1.3	0.30	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.70	J	1.3	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.74	J	1.3	0.35	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.63	J	1.3	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	21		1.3	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	0.67	J	1.3	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	22		1.3	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	17		1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.8		1.3	0.34	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.79	J	1.3	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	14		1.3	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	1.1	J	1.3	0.54	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	8.3		1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.22	J	1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	150		130	22	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	96	J	130	19	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	1800		130	19	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	1700		130	19	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	140		130	23	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	7400		320	26	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	2500		320	26	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	10000		320	26	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283609-Muscle

Lab Sample ID: 320-98863-37

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.6		1.1	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.60	J	1.1	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	1.0	J	1.1	0.30	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.9		1.1	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	24		1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	2.1		1.1	0.30	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.70	J	1.1	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	37		1.1	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	0.71	J	1.1	0.47	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	12		1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.21	J	1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	380		110	22	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	380		110	22	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	270		110	19	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	200		110	16	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	4700		110	16	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	4500		110	16	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	230		110	20	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	6600		270	22	ug/Kg	100		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 283609-Muscle (Continued) — Lab Sample ID: 320-98863-37

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Br-Perfluorooctanesulfonic acid - RADL	2200		270	22	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	8800		270	22	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283610 — Lab Sample ID: 320-98863-38

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.7		0.93	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.36	J	0.93	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.50	J	0.93	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.62	J	0.93	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	81		0.93	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	1.4		0.93	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	83		0.93	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	22		0.93	0.096	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.9		0.93	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.60	J	0.93	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	23		0.93	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	0.46	J	0.93	0.40	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	6.7		0.93	0.093	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.17	J	0.93	0.094	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	240		93	16	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	150		93	14	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	1600		93	14	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	1500		93	14	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	130		93	17	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	3900		230	19	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	1200		230	19	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	5100		230	19	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283612 — Lab Sample ID: 320-98863-39

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.3		1.3	0.31	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	12		1.3	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	10		1.3	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	2.8		1.3	0.36	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	0.38	J	1.3	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	0.38	J	1.3	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.88	J	1.3	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	190		16	1.3	ug/Kg	5		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	33		16	1.3	ug/Kg	5		B/L/T PFAS	Total/NA
Total PFOS - DL	220		16	1.3	ug/Kg	5		B/L/T PFAS	Total/NA

Client Sample ID: NK 283623-Muscle — Lab Sample ID: 320-98863-40

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	0.13	J	0.92	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	5.2		0.92	0.19	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 283623-Muscle (Continued) — Lab Sample ID: 320-98863-40

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total PFOA	5.2		0.92	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	57		0.92	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	7.2		0.92	0.094	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.81	J	0.92	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	2.8		0.92	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	61		0.92	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	2.7		0.92	0.092	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.095	J I	0.92	0.093	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	13	J	46	6.8	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFHxS - DL	500		46	6.8	ug/Kg	50		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	480		46	6.8	ug/Kg	50		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	1600		110	9.3	ug/Kg	50		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	450		110	9.3	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFOS - DL	2100		110	9.3	ug/Kg	50		B/L/T PFAS	Total/NA

Client Sample ID: NK 283628 — Lab Sample ID: 320-98863-41

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.0		0.99	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.46	J	0.99	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.66	J	0.99	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.7		0.99	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	15		0.99	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.3		0.99	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.3		0.99	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	48		0.99	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	5.2		0.99	0.099	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.13	J I	0.99	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	120		99	20	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	120		99	20	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	130		99	17	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	160		99	15	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	1000		99	15	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	880		99	15	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	130		99	18	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	7700		250	20	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	2000		250	20	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	9700		250	20	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283630 — Lab Sample ID: 320-98863-42

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.1	J CI	1.3	0.30	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.27	J	1.3	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.38	J	1.3	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	28		1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	2.5		1.3	0.34	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	19		1.3	0.23	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 283630 (Continued) — Lab Sample ID: 320-98863-42

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
6:2 FTS	0.55	J	1.3	0.53	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	11		1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.20	J	1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	170		130	25	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	170		130	25	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	300		130	22	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	190		130	19	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	3800		130	19	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	3700		130	19	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	190		130	23	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	7300		310	25	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	2100		310	25	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	9400		310	25	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283634 — Lab Sample ID: 320-98863-43

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.72	J	0.95	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.33	J	0.95	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.55	J	0.95	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.66	J	0.95	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	46		0.95	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	1.1		0.95	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	47		0.95	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	46		0.95	0.098	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	4.5		0.95	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.75	J	0.95	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	29		0.95	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	0.50	J	0.95	0.40	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	24		0.95	0.095	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.58	J	0.95	0.096	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	490		95	17	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	160		95	14	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	3000		95	14	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	2800		95	14	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	330		95	18	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	16000	E	240	19	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	4300		240	19	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	20000		240	19	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283635 — Lab Sample ID: 320-98863-44

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.45	J	0.95	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.29	J	0.95	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.90	J	0.95	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	24		0.95	0.098	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 283635 (Continued) — Lab Sample ID: 320-98863-44

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroundecanoic acid (PFUnA)	3.1		0.95	0.26	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.63	J	0.95	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	39		0.95	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	0.67	J	0.95	0.40	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	7.2		0.95	0.095	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.11	J	0.95	0.096	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	97		95	19	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	97		95	19	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	250		95	17	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	220		95	14	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	1600		95	14	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	1400	I	95	14	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	120		95	18	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	9300	E	240	19	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	3000		240	19	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	12000		240	19	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283637 — Lab Sample ID: 320-98863-45

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	0.95	CI	0.93	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	14		0.93	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	53		0.93	0.096	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	16		0.93	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	0.57	J	0.93	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	0.57	J	0.93	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.53	J	0.93	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	300		23	1.9	ug/Kg	10		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	17	J	23	1.9	ug/Kg	10		B/L/T PFAS	Total/NA
Total PFOS - DL	310		23	1.9	ug/Kg	10		B/L/T PFAS	Total/NA

Client Sample ID: NK 283666 — Lab Sample ID: 320-98863-46

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.8		1.4	0.33	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.69	J	1.4	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	1.1	J	1.4	0.38	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.7		1.4	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	53		1.4	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	4.3		1.4	0.38	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.4		1.4	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	58		1.4	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	1.3	J	1.4	0.60	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	18		1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.32	J B	1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	360		140	28	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	360		140	28	ug/Kg	100		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 283666 (Continued) — Lab Sample ID: 320-98863-46

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorononanoic acid (PFNA) - DL	630		140	25	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	370		140	21	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	5900		140	21	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	5500		140	21	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	370		140	26	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	14000	E	350	29	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	3700		350	29	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	17000		350	29	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283668 — Lab Sample ID: 320-98863-47

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.4		2.0	0.47	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.36	J	2.0	0.35	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.71	J	2.0	0.55	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.3	J	2.0	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	39		2.0	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	3.9		2.0	0.54	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.92	J	2.0	0.34	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	33		2.0	0.36	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	1.1	J	2.0	0.85	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	17		2.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.30	J B	2.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	200		200	40	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	200		200	40	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	400		200	35	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	210		200	30	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	4300		200	30	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	4100		200	30	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	250		200	37	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	11000		500	41	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	2900		500	41	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	14000		500	41	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283675 — Lab Sample ID: 320-98863-48

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.1		1.0	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.32	J	1.0	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.52	J	1.0	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.95	J	1.0	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	54		1.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	1.4		1.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	55		1.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	36		1.0	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	4.8		1.0	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.74	J	1.0	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	31		1.0	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	1.1		1.0	0.42	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 283675 (Continued) — Lab Sample ID: 320-98863-48

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
8:2 FTS	13		1.0	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.85	J B	1.0	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	280		100	18	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	240		100	15	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	2200		100	15	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	2000		100	15	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	150		100	19	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	8300		250	20	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	3000		250	20	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	11000		250	20	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283680 — Lab Sample ID: 320-98863-49

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.3	CI	1.8	0.42	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	1.2	J	1.8	0.36	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	1.2	J	1.8	0.36	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	11		1.8	0.31	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	4.1		1.8	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.4	J	1.8	0.49	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.46	J	1.8	0.32	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	35		1.8	0.33	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	1.2	J	1.8	0.76	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	2.8		1.8	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.89	J B	1.8	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS - DL	170		36	5.3	ug/Kg	20		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	170		36	5.3	ug/Kg	20		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	1400		89	7.3	ug/Kg	20		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	320		89	7.3	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFOS - RADL	1800		89	7.3	ug/Kg	20		B/L/T PFAS	Total/NA

Client Sample ID: NK 283754 — Lab Sample ID: 320-98863-50

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.4	J	2.7	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	7.3		2.7	0.55	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	7.3		2.7	0.55	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	51		2.7	0.47	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	6.9		2.7	0.28	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	2.7		2.7	0.74	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.50	J	2.7	0.49	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	2.2	J	2.7	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	47		2.7	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	1.9	J B	2.7	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS - DL	280		140	20	ug/Kg	50		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	280		140	20	ug/Kg	50		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	76	J	140	25	ug/Kg	50		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 283754 (Continued) — Lab Sample ID: 320-98863-50

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanesulfonic acid - DL	5400		340	27	ug/Kg	50		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	1800		340	27	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFOS - DL	7200		340	27	ug/Kg	50		B/L/T PFAS	Total/NA

Client Sample ID: NK 283756 — Lab Sample ID: 320-98863-51

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.0	J	3.8	0.91	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.1	J	3.8	0.45	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	10		3.8	0.78	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	1.0	J	3.8	0.78	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	11		3.8	0.78	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	42		3.8	0.67	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	3.9		3.8	0.40	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.9	J	3.8	1.0	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.80	J	3.8	0.70	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	21		3.8	0.57	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	290		3.8	0.57	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	270		3.8	0.57	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	55		3.8	0.71	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	2.9	J	3.8	1.6	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	13		3.8	0.38	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	2.6	J B	3.8	0.39	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	3500		190	16	ug/Kg	20		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	770		190	16	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFOS - DL	4300		190	16	ug/Kg	20		B/L/T PFAS	Total/NA

Client Sample ID: NK 283693-Muscle — Lab Sample ID: 320-98863-52

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.6		1.4	0.32	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.3	J	1.4	0.16	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	93		1.4	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	8.6		1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	1.3	J	1.4	0.37	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.27	J	1.4	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	17		1.4	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	110		1.4	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	3.9		1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	1.2	J B	1.4	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	200		68	14	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFOA - DL	200		68	14	ug/Kg	50		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	100		68	10	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFHxS - DL	3000		68	10	ug/Kg	50		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	2900		68	10	ug/Kg	50		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	2200		170	14	ug/Kg	50		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	480		170	14	ug/Kg	50		B/L/T PFAS	Total/NA
Total PFOS - DL	2700		170	14	ug/Kg	50		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Job ID: 320-98863-2

Client Sample ID: NK 283771 — Lab Sample ID: 320-98863-53

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.3	J	5.6	1.3	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	1.9	J	5.6	1.5	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.4		5.6	0.64	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	130		5.6	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	9.2		5.6	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	140		5.6	1.1	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	470		5.6	0.97	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	32		5.6	0.57	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	6.9		5.6	1.5	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	3.0	J	5.6	1.0	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	430		5.6	1.0	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	66		5.6	0.56	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	1.7	J B	5.6	0.56	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS - DL	1800		560	82	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	1800		560	82	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	16000		1400	110	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	7200		1400	110	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	23000		1400	110	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283770 — Lab Sample ID: 320-98863-54

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.1	J CI	1.9	0.44	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.55	J	1.9	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	14		1.9	0.37	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	1.8	J	1.9	0.37	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	15		1.9	0.37	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	68		1.9	0.32	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	10		1.9	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	7.9		1.9	0.50	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.64	J	1.9	0.34	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	170		1.9	0.34	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	1.5	J	1.9	0.79	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	70		1.9	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	4.5	B	1.9	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS - DL	390		190	27	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	390		190	27	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	3600		460	38	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	1800		460	38	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	5400		460	38	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283604-Muscle — Lab Sample ID: 320-98863-55

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.0		1.0	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.17	J	1.0	0.12	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Sacramento

Client Sample ID: NK 283604-Muscle (Continued) — Lab Sample ID: 320-98863-55

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	4.9		1.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	4.9		1.0	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	27		1.0	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	3.0		1.0	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.39	J	1.0	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.19	J	1.0	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	3.0		1.0	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	32		1.0	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	1.8		1.0	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.12	J B	1.0	0.10	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	17	J	20	3.0	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFHxS - DL	400		20	3.0	ug/Kg	20		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	380		20	3.0	ug/Kg	20		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	1000		51	4.1	ug/Kg	20		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	300		51	4.1	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFOS - DL	1300		51	4.1	ug/Kg	20		B/L/T PFAS	Total/NA

Client Sample ID: NK 283609-Liver — Lab Sample ID: 320-98863-56

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.1		1.2	0.28	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.21	J	1.2	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.35	J	1.2	0.33	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.62	J	1.2	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	100		1.2	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	1.9		1.2	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	100		1.2	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA)	70		1.2	0.21	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	6.0		1.2	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	0.67	J	1.2	0.33	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.23	J	1.2	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	9.9		1.2	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	82		1.2	0.22	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	3.3		1.2	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.14	J B	1.2	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	65		24	3.6	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFHxS - DL	1700		24	3.6	ug/Kg	20		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	1700		24	3.6	ug/Kg	20		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	1700		60	4.9	ug/Kg	20		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	430		60	4.9	ug/Kg	20		B/L/T PFAS	Total/NA
Total PFOS - DL	2200		60	4.9	ug/Kg	20		B/L/T PFAS	Total/NA

Client Sample ID: NK 283623-Liver — Lab Sample ID: 320-98863-57

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.3	CI	1.3	0.31	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.40	J	1.3	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.50	J	1.3	0.36	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.68	J	1.3	0.15	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 283623-Liver (Continued)
Lab Sample ID: 320-98863-57

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
L-Perfluorooctanoic acid	39		1.3	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid	0.96	J	1.3	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	40		1.3	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	57		1.3	0.14	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	5.9		1.3	0.36	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.82	J	1.3	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	21		1.3	0.24	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	0.95	J	1.3	0.57	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	20		1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.39	J B	1.3	0.13	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	530		130	23	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	100	J	130	20	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	3500		130	20	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	3400		130	20	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	330		130	25	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - RADL	29000	E	330	27	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - RADL	9500		330	27	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - RADL	38000		330	27	ug/Kg	100		B/L/T PFAS	Total/NA

Client Sample ID: NK 283693-Liver
Lab Sample ID: 320-98863-58

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.2		1.1	0.25	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	0.30	J	1.1	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	0.64	J	1.1	0.29	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.9		1.1	0.12	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorodecanoic acid (PFDA)	51		1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroundecanoic acid (PFUnA)	4.7		1.1	0.29	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.0	J	1.1	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	77		1.1	0.19	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	0.75	J	1.1	0.46	ug/Kg	1		B/L/T PFAS	Total/NA
8:2 FTS	21		1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
10:2 FTS	0.36	J B	1.1	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid - DL	940		110	22	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanoic acid - DL	37	J	110	22	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOA - DL	980		110	22	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluorononanoic acid (PFNA) - DL	610		110	19	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid - DL	450		110	16	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFHxS - DL	9000		110	16	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid - DL	8600		110	16	ug/Kg	100		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS) - DL	480		110	20	ug/Kg	100		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid - DL	16000	E	270	22	ug/Kg	100		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid - DL	3900		270	22	ug/Kg	100		B/L/T PFAS	Total/NA
Total PFOS - DL	20000		270	22	ug/Kg	100		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: NK 283645
Lab Sample ID: 320-98863-33

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		4.5	1.1	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Perfluoropentanoic acid (PFPeA)	ND		4.5	0.80	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Perfluorohexanoic acid (PFHxA)	ND		4.5	1.2	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Perfluoroheptanoic acid (PFHpA)	ND		4.5	0.53	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
L-Perfluorooctanoic acid	**1.7**	**J**	4.5	0.92	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Br-Perfluorooctanoic acid	ND		4.5	0.92	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Total PFOA	**1.7**	**J**	4.5	0.92	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Perfluorononanoic acid (PFNA)	**0.94**	**J**	4.5	0.80	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Perfluorodecanoic acid (PFDA)	ND		4.5	0.47	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Perfluoroundecanoic acid (PFUnA)	ND		4.5	1.2	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Perfluorobutanesulfonic acid (PFBS)	ND		4.5	0.77	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Perfluoropentanesulfonic acid (PFPeS)	ND		4.5	0.82	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Br-Perfluorohexanesulfonic acid	ND		4.5	0.67	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Total PFHxS	**9.4**		4.5	0.67	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
L-Perfluorohexanesulfonic acid	**9.4**		4.5	0.67	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		4.5	0.84	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
4:2 FTS	ND		4.5	1.2	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
6:2 FTS	ND		4.5	1.9	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
8:2 FTS	ND		4.5	0.45	ug/Kg		04/29/23 07:58	05/02/23 05:08	1
10:2 FTS	ND		4.5	0.46	ug/Kg		04/29/23 07:58	05/02/23 05:08	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*48*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C5 PFPeA	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C2 PFHxA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C4 PFHpA	*108*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C4 PFOA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C5 PFNA	*114*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C2 PFDA	*103*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C2 PFUnA	*117*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C3 PFBS	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
18O2 PFHxS	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C4 PFOS	*101*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
M2-4:2 FTS	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
M2-6:2 FTS	*158*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
M2-8:2 FTS	*107*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*
13C2 10:2 FTS	*234*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 05:08*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**83**	**J**	110	9.2	ug/Kg		04/29/23 07:58	05/22/23 03:30	10
Br-Perfluorooctanesulfonic acid	**45**	**J**	110	9.2	ug/Kg		04/29/23 07:58	05/22/23 03:30	10
Total PFOS	**130**		110	9.2	ug/Kg		04/29/23 07:58	05/22/23 03:30	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*103*		*25 - 150*	*04/29/23 07:58*	*05/22/23 03:30*	*10*

Client Sample ID: NK 283648
Lab Sample ID: 320-98863-34

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.8**	**J**	2.0	0.46	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.34	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.54	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.23	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
L-Perfluorooctanoic acid	ND		2.0	0.40	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Br-Perfluorooctanoic acid	ND		2.0	0.40	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Total PFOA	ND		2.0	0.40	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Perfluorononanoic acid (PFNA)	**0.50**	**J**	2.0	0.34	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.53	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.33	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Perfluoropentanesulfonic acid (PFPeS)	ND		2.0	0.35	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Br-Perfluorohexanesulfonic acid	ND		2.0	0.29	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Total PFHxS	**0.60**	**J**	2.0	0.29	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
L-Perfluorohexanesulfonic acid	**0.60**	**J**	2.0	0.29	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		2.0	0.36	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
4:2 FTS	ND		2.0	0.52	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
6:2 FTS	ND		2.0	0.83	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
8:2 FTS	ND		2.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 05:30	1
10:2 FTS	ND		2.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 05:30	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C2 PFHxA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C4 PFHpA	*103*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C4 PFOA	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C5 PFNA	*82*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C2 PFDA	*106*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C2 PFUnA	*117*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C3 PFBS	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
18O2 PFHxS	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C4 PFOS	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
M2-4:2 FTS	*116*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
M2-6:2 FTS	*152*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
M2-8:2 FTS	*116*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*
13C2 10:2 FTS	*213*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 05:30*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**16**	**J**	49	4.0	ug/Kg		04/29/23 07:58	05/24/23 17:03	10
Br-Perfluorooctanesulfonic acid	**6.7**	**J**	49	4.0	ug/Kg		04/29/23 07:58	05/24/23 17:03	10
Total PFOS	**23**	**J**	49	4.0	ug/Kg		04/29/23 07:58	05/24/23 17:03	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*97*		*25 - 150*	*04/29/23 07:58*	*05/24/23 17:03*	*10*

Client Sample ID: NK 283603
Lab Sample ID: 320-98863-35

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.87	J	1.1	0.26	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Perfluoropentanoic acid (PFPeA)	0.59	J	1.1	0.19	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Perfluorohexanoic acid (PFHxA)	0.95	J	1.1	0.30	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Perfluoroheptanoic acid (PFHpA)	0.70	J	1.1	0.13	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
L-Perfluorooctanoic acid	17		1.1	0.22	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Br-Perfluorooctanoic acid	0.59	J	1.1	0.22	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Total PFOA	17		1.1	0.22	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Perfluorononanoic acid (PFNA)	34		1.1	0.19	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Perfluorodecanoic acid (PFDA)	9.3		1.1	0.11	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Perfluoroundecanoic acid (PFUnA)	1.7		1.1	0.30	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Perfluorobutanesulfonic acid (PFBS)	0.39	J	1.1	0.18	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
Perfluoropentanesulfonic acid (PFPeS)	4.4		1.1	0.20	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
4:2 FTS	ND		1.1	0.29	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
6:2 FTS	2.1		1.1	0.46	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
8:2 FTS	13		1.1	0.11	ug/Kg		04/29/23 07:58	05/02/23 05:53	1
10:2 FTS	0.35	J	1.1	0.11	ug/Kg		04/29/23 07:58	05/02/23 05:53	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*86*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
13C5 PFPeA	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
13C2 PFHxA	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
13C4 PFHpA	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
13C4 PFOA	*93*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
13C5 PFNA	*62*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
13C2 PFDA	*90*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
13C2 PFUnA	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
13C3 PFBS	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
M2-4:2 FTS	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
M2-6:2 FTS	*124*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
M2-8:2 FTS	*103*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*
13C2 10:2 FTS	*136*		*25 - 150*	*04/29/23 07:58*	*05/02/23 05:53*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	74	J	110	16	ug/Kg		04/29/23 07:58	05/14/23 17:25	100
Total PFHxS	1200		110	16	ug/Kg		04/29/23 07:58	05/14/23 17:25	100
L-Perfluorohexanesulfonic acid	1100		110	16	ug/Kg		04/29/23 07:58	05/14/23 17:25	100
Perfluoroheptanesulfonic acid (PFHpS)	84	J	110	20	ug/Kg		04/29/23 07:58	05/14/23 17:25	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*95*		*25 - 150*	*04/29/23 07:58*	*05/14/23 17:25*	*100*
13C4 PFOS	*74*		*25 - 150*	*04/29/23 07:58*	*05/14/23 17:25*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	3500		270	22	ug/Kg		04/29/23 07:58	05/22/23 04:03	100
Br-Perfluorooctanesulfonic acid	1500		270	22	ug/Kg		04/29/23 07:58	05/22/23 04:03	100
Total PFOS	5000		270	22	ug/Kg		04/29/23 07:58	05/22/23 04:03	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283603
Lab Sample ID: 320-98863-35
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	187	*5+	25 - 150	04/29/23 07:58	05/22/23 04:03	100

Client Sample ID: NK 283604-Liver

Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-36

Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.0		1.3	0.30	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
Perfluoropentanoic acid (PFPeA)	0.70	J	1.3	0.22	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
Perfluorohexanoic acid (PFHxA)	0.74	J	1.3	0.35	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
Perfluoroheptanoic acid (PFHpA)	0.63	J	1.3	0.15	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
L-Perfluorooctanoic acid	21		1.3	0.26	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
Br-Perfluorooctanoic acid	0.67	J	1.3	0.26	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
Total PFOA	22		1.3	0.26	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
Perfluorodecanoic acid (PFDA)	17		1.3	0.13	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
Perfluoroundecanoic acid (PFUnA)	1.8		1.3	0.34	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
Perfluorobutanesulfonic acid (PFBS)	0.79	J	1.3	0.22	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
Perfluoropentanesulfonic acid (PFPeS)	14		1.3	0.23	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
4:2 FTS	ND		1.3	0.34	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
6:2 FTS	1.1	J	1.3	0.54	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
8:2 FTS	8.3		1.3	0.13	ug/Kg		04/29/23 07:58	05/02/23 06:16	1
10:2 FTS	0.22	J	1.3	0.13	ug/Kg		04/29/23 07:58	05/02/23 06:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
13C5 PFPeA	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
13C2 PFHxA	*105*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
13C4 PFHpA	*105*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
13C4 PFOA	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
13C2 PFDA	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
13C2 PFUnA	*106*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
13C3 PFBS	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
M2-4:2 FTS	*136*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
M2-6:2 FTS	*176*	*5+	*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
M2-8:2 FTS	*105*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*
13C2 10:2 FTS	*137*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:16*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	150		130	22	ug/Kg		04/29/23 07:58	05/14/23 17:47	100
Br-Perfluorohexanesulfonic acid	96	J	130	19	ug/Kg		04/29/23 07:58	05/14/23 17:47	100
Total PFHxS	1800		130	19	ug/Kg		04/29/23 07:58	05/14/23 17:47	100
L-Perfluorohexanesulfonic acid	1700		130	19	ug/Kg		04/29/23 07:58	05/14/23 17:47	100
Perfluoroheptanesulfonic acid (PFHpS)	140		130	23	ug/Kg		04/29/23 07:58	05/14/23 17:47	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFNA	*88*		*25 - 150*	*04/29/23 07:58*	*05/14/23 17:47*	*100*
18O2 PFHxS	*88*		*25 - 150*	*04/29/23 07:58*	*05/14/23 17:47*	*100*
13C4 PFOS	*87*		*25 - 150*	*04/29/23 07:58*	*05/14/23 17:47*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	7400		320	26	ug/Kg		04/29/23 07:58	05/22/23 04:20	100
Br-Perfluorooctanesulfonic acid	2500		320	26	ug/Kg		04/29/23 07:58	05/22/23 04:20	100
Total PFOS	10000		320	26	ug/Kg		04/29/23 07:58	05/22/23 04:20	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283604-Liver
Lab Sample ID: 320-98863-36
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	46		25 - 150	04/29/23 07:58	05/22/23 04:20	100

Client Sample ID: NK 283609-Muscle
Lab Sample ID: 320-98863-37

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.6**		1.1	0.26	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
Perfluoropentanoic acid (PFPeA)	**0.60**	**J**	1.1	0.19	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
Perfluorohexanoic acid (PFHxA)	**1.0**	**J**	1.1	0.30	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
Perfluoroheptanoic acid (PFHpA)	**1.9**		1.1	0.13	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
Perfluorodecanoic acid (PFDA)	**24**		1.1	0.11	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
Perfluoroundecanoic acid (PFUnA)	**2.1**		1.1	0.30	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
Perfluorobutanesulfonic acid (PFBS)	**0.70**	**J**	1.1	0.19	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
Perfluoropentanesulfonic acid (PFPeS)	**37**		1.1	0.20	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
4:2 FTS	ND		1.1	0.29	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
6:2 FTS	**0.71**	**J**	1.1	0.47	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
8:2 FTS	**12**		1.1	0.11	ug/Kg		04/29/23 07:58	05/02/23 06:38	1
10:2 FTS	**0.21**	**J**	1.1	0.11	ug/Kg		04/29/23 07:58	05/02/23 06:38	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
13C5 PFPeA	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
13C2 PFHxA	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
13C4 PFHpA	*90*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
13C2 PFDA	*85*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
13C2 PFUnA	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
13C3 PFBS	*89*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
M2-4:2 FTS	*91*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
M2-6:2 FTS	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
M2-8:2 FTS	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*
13C2 10:2 FTS	*163*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 06:38*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	**380**		110	22	ug/Kg		04/29/23 07:58	05/14/23 18:10	100
Br-Perfluorooctanoic acid	ND		110	22	ug/Kg		04/29/23 07:58	05/14/23 18:10	100
Total PFOA	**380**		110	22	ug/Kg		04/29/23 07:58	05/14/23 18:10	100
Perfluorononanoic acid (PFNA)	**270**		110	19	ug/Kg		04/29/23 07:58	05/14/23 18:10	100
Br-Perfluorohexanesulfonic acid	**200**		110	16	ug/Kg		04/29/23 07:58	05/14/23 18:10	100
Total PFHxS	**4700**		110	16	ug/Kg		04/29/23 07:58	05/14/23 18:10	100
L-Perfluorohexanesulfonic acid	**4500**		110	16	ug/Kg		04/29/23 07:58	05/14/23 18:10	100
Perfluoroheptanesulfonic acid (PFHpS)	**230**		110	20	ug/Kg		04/29/23 07:58	05/14/23 18:10	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*77*		*25 - 150*	*04/29/23 07:58*	*05/14/23 18:10*	*100*
13C5 PFNA	*80*		*25 - 150*	*04/29/23 07:58*	*05/14/23 18:10*	*100*
18O2 PFHxS	*96*		*25 - 150*	*04/29/23 07:58*	*05/14/23 18:10*	*100*
13C4 PFOS	*83*		*25 - 150*	*04/29/23 07:58*	*05/14/23 18:10*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**6600**		270	22	ug/Kg		04/29/23 07:58	05/22/23 04:36	100
Br-Perfluorooctanesulfonic acid	**2200**		270	22	ug/Kg		04/29/23 07:58	05/22/23 04:36	100
Total PFOS	**8800**		270	22	ug/Kg		04/29/23 07:58	05/22/23 04:36	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283609-Muscle
Lab Sample ID: 320-98863-37
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	50		25 - 150	04/29/23 07:58	05/22/23 04:36	100

Client Sample ID: NK 283610
Lab Sample ID: 320-98863-38
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.7		0.93	0.22	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
Perfluoropentanoic acid (PFPeA)	0.36	J	0.93	0.16	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
Perfluorohexanoic acid (PFHxA)	0.50	J	0.93	0.26	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
Perfluoroheptanoic acid (PFHpA)	0.62	J	0.93	0.11	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
L-Perfluorooctanoic acid	81		0.93	0.19	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
Br-Perfluorooctanoic acid	1.4		0.93	0.19	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
Total PFOA	83		0.93	0.19	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
Perfluorodecanoic acid (PFDA)	22		0.93	0.096	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
Perfluoroundecanoic acid (PFUnA)	1.9		0.93	0.25	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
Perfluorobutanesulfonic acid (PFBS)	0.60	J	0.93	0.16	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
Perfluoropentanesulfonic acid (PFPeS)	23		0.93	0.17	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
4:2 FTS	ND		0.93	0.25	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
6:2 FTS	0.46	J	0.93	0.40	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
8:2 FTS	6.7		0.93	0.093	ug/Kg		04/29/23 07:58	05/02/23 07:24	1
10:2 FTS	0.17	J	0.93	0.094	ug/Kg		04/29/23 07:58	05/02/23 07:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
13C5 PFPeA	*103*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
13C2 PFHxA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
13C4 PFHpA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
13C4 PFOA	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
13C2 PFDA	*91*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
13C2 PFUnA	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
13C3 PFBS	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
M2-4:2 FTS	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
M2-6:2 FTS	*107*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
M2-8:2 FTS	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*
13C2 10:2 FTS	*152*	*5+	*25 - 150*	*04/29/23 07:58*	*05/02/23 07:24*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	240		93	16	ug/Kg		04/29/23 07:58	05/14/23 18:33	100
Br-Perfluorohexanesulfonic acid	150		93	14	ug/Kg		04/29/23 07:58	05/14/23 18:33	100
Total PFHxS	1600		93	14	ug/Kg		04/29/23 07:58	05/14/23 18:33	100
L-Perfluorohexanesulfonic acid	1500		93	14	ug/Kg		04/29/23 07:58	05/14/23 18:33	100
Perfluoroheptanesulfonic acid (PFHpS)	130		93	17	ug/Kg		04/29/23 07:58	05/14/23 18:33	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFNA	*92*		*25 - 150*	*04/29/23 07:58*	*05/14/23 18:33*	*100*
18O2 PFHxS	*97*		*25 - 150*	*04/29/23 07:58*	*05/14/23 18:33*	*100*
13C4 PFOS	*85*		*25 - 150*	*04/29/23 07:58*	*05/14/23 18:33*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	3900		230	19	ug/Kg		04/29/23 07:58	05/22/23 04:53	100
Br-Perfluorooctanesulfonic acid	1200		230	19	ug/Kg		04/29/23 07:58	05/22/23 04:53	100
Total PFOS	5100		230	19	ug/Kg		04/29/23 07:58	05/22/23 04:53	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283610
Lab Sample ID: 320-98863-38
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	109		25 - 150	04/29/23 07:58	05/22/23 04:53	100

Client Sample ID: NK 283612
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-39
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.3**		1.3	0.31	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Perfluoropentanoic acid (PFPeA)	ND		1.3	0.23	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Perfluorohexanoic acid (PFHxA)	ND		1.3	0.36	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Perfluoroheptanoic acid (PFHpA)	ND		1.3	0.15	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
L-Perfluorooctanoic acid	ND		1.3	0.27	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Br-Perfluorooctanoic acid	ND		1.3	0.27	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Total PFOA	ND		1.3	0.27	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Perfluorononanoic acid (PFNA)	**12**		1.3	0.23	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Perfluorodecanoic acid (PFDA)	**10**		1.3	0.14	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Perfluoroundecanoic acid (PFUnA)	**2.8**		1.3	0.36	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.3	0.22	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.3	0.24	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Br-Perfluorohexanesulfonic acid	ND		1.3	0.19	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Total PFHxS	**0.38**	**J**	1.3	0.19	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
L-Perfluorohexanesulfonic acid	**0.38**	**J**	1.3	0.19	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.88**	**J**	1.3	0.24	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
4:2 FTS	ND		1.3	0.35	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
6:2 FTS	ND		1.3	0.56	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
8:2 FTS	ND		1.3	0.13	ug/Kg		04/29/23 07:58	05/02/23 07:46	1
10:2 FTS	ND		1.3	0.13	ug/Kg		04/29/23 07:58	05/02/23 07:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C5 PFPeA	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C2 PFHxA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C4 PFHpA	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C4 PFOA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C5 PFNA	*111*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C2 PFDA	*103*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C2 PFUnA	*118*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C3 PFBS	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
18O2 PFHxS	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C4 PFOS	*101*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
M2-4:2 FTS	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
M2-6:2 FTS	*116*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
M2-8:2 FTS	*110*		*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*
13C2 10:2 FTS	*170*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 07:46*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**190**		16	1.3	ug/Kg		04/29/23 07:58	05/22/23 05:10	5
Br-Perfluorooctanesulfonic acid	**33**		16	1.3	ug/Kg		04/29/23 07:58	05/22/23 05:10	5
Total PFOS	**220**		16	1.3	ug/Kg		04/29/23 07:58	05/22/23 05:10	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*112*		*25 - 150*	*04/29/23 07:58*	*05/22/23 05:10*	*5*

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283623-Muscle
Lab Sample ID: 320-98863-40
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		0.92	0.22	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Perfluoropentanoic acid (PFPeA)	ND		0.92	0.16	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Perfluorohexanoic acid (PFHxA)	ND		0.92	0.25	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Perfluoroheptanoic acid (PFHpA)	**0.13**	**J**	0.92	0.11	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
L-Perfluorooctanoic acid	**5.2**		0.92	0.19	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Br-Perfluorooctanoic acid	ND		0.92	0.19	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Total PFOA	**5.2**		0.92	0.19	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Perfluorononanoic acid (PFNA)	**57**		0.92	0.16	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Perfluorodecanoic acid (PFDA)	**7.2**		0.92	0.094	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Perfluoroundecanoic acid (PFUnA)	**0.81**	**J**	0.92	0.25	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.92	0.16	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Perfluoropentanesulfonic acid (PFPeS)	**2.8**		0.92	0.17	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
Perfluoroheptanesulfonic acid (PFHpS)	**61**		0.92	0.17	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
4:2 FTS	ND		0.92	0.24	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
6:2 FTS	ND		0.92	0.39	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
8:2 FTS	**2.7**		0.92	0.092	ug/Kg		04/29/23 07:58	05/02/23 08:09	1
10:2 FTS	**0.095**	**J I**	0.92	0.093	ug/Kg		04/29/23 07:58	05/02/23 08:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*89*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C2 PFHxA	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C4 PFHpA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C4 PFOA	*93*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C5 PFNA	*87*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C2 PFDA	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C2 PFUnA	*109*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C3 PFBS	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C4 PFOS	*66*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
M2-4:2 FTS	*88*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
M2-6:2 FTS	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
M2-8:2 FTS	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*
13C2 10:2 FTS	*153*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 08:09*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	**13**	**J**	46	6.8	ug/Kg		04/29/23 07:58	05/24/23 11:21	50
Total PFHxS	**500**		46	6.8	ug/Kg		04/29/23 07:58	05/24/23 11:21	50
L-Perfluorohexanesulfonic acid	**480**		46	6.8	ug/Kg		04/29/23 07:58	05/24/23 11:21	50
L-Perfluorooctanesulfonic acid	**1600**		110	9.3	ug/Kg		04/29/23 07:58	05/24/23 11:21	50
Br-Perfluorooctanesulfonic acid	**450**		110	9.3	ug/Kg		04/29/23 07:58	05/24/23 11:21	50
Total PFOS	**2100**		110	9.3	ug/Kg		04/29/23 07:58	05/24/23 11:21	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*99*		*25 - 150*	*04/29/23 07:58*	*05/24/23 11:21*	*50*
13C4 PFOS	*97*		*25 - 150*	*04/29/23 07:58*	*05/24/23 11:21*	*50*

Client Sample ID: NK 283628
Lab Sample ID: 320-98863-41

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.0**		0.99	0.23	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
Perfluoropentanoic acid (PFPeA)	**0.46**	**J**	0.99	0.17	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
Perfluorohexanoic acid (PFHxA)	**0.66**	**J**	0.99	0.27	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
Perfluoroheptanoic acid (PFHpA)	**1.7**		0.99	0.11	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
Perfluorodecanoic acid (PFDA)	**15**		0.99	0.10	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
Perfluoroundecanoic acid (PFUnA)	**1.3**		0.99	0.27	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
Perfluorobutanesulfonic acid (PFBS)	**1.3**		0.99	0.17	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
Perfluoropentanesulfonic acid (PFPeS)	**48**		0.99	0.18	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
4:2 FTS	ND		0.99	0.26	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
6:2 FTS	ND		0.99	0.42	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
8:2 FTS	**5.2**		0.99	0.099	ug/Kg		04/29/23 07:58	05/02/23 08:32	1
10:2 FTS	**0.13**	**J I**	0.99	0.10	ug/Kg		04/29/23 07:58	05/02/23 08:32	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*49*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
13C5 PFPeA	*48*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
13C2 PFHxA	*48*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
13C4 PFHpA	*49*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
13C5 PFNA	*49*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
13C2 PFDA	*48*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
13C2 PFUnA	*51*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
13C3 PFBS	*47*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
M2-4:2 FTS	*43*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
M2-6:2 FTS	*49*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
M2-8:2 FTS	*49*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*
13C2 10:2 FTS	*79*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:32*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	**120**		99	20	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
Br-Perfluorooctanoic acid	ND		99	20	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
Total PFOA	**120**		99	20	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
Perfluorononanoic acid (PFNA)	**130**		99	17	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
Br-Perfluorohexanesulfonic acid	**160**		99	15	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
Total PFHxS	**1000**		99	15	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
L-Perfluorohexanesulfonic acid	**880**		99	15	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
Perfluoroheptanesulfonic acid (PFHpS)	**130**		99	18	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
L-Perfluorooctanesulfonic acid	**7700**		250	20	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
Br-Perfluorooctanesulfonic acid	**2000**		250	20	ug/Kg		04/29/23 07:58	05/14/23 19:41	100
Total PFOS	**9700**		250	20	ug/Kg		04/29/23 07:58	05/14/23 19:41	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*48*		*25 - 150*	*04/29/23 07:58*	*05/14/23 19:41*	*100*
13C5 PFNA	*50*		*25 - 150*	*04/29/23 07:58*	*05/14/23 19:41*	*100*
18O2 PFHxS	*55*		*25 - 150*	*04/29/23 07:58*	*05/14/23 19:41*	*100*
13C4 PFOS	*27*		*25 - 150*	*04/29/23 07:58*	*05/14/23 19:41*	*100*

Client Sample ID: NK 283630
Lab Sample ID: 320-98863-42

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.1**	**J CI**	1.3	0.30	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
Perfluoropentanoic acid (PFPeA)	**0.27**	**J**	1.3	0.22	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
Perfluorohexanoic acid (PFHxA)	ND		1.3	0.34	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
Perfluoroheptanoic acid (PFHpA)	**0.38**	**J**	1.3	0.15	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
Perfluorodecanoic acid (PFDA)	**28**		1.3	0.13	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
Perfluoroundecanoic acid (PFUnA)	**2.5**		1.3	0.34	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.3	0.21	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
Perfluoropentanesulfonic acid (PFPeS)	**19**		1.3	0.23	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
4:2 FTS	ND		1.3	0.33	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
6:2 FTS	**0.55**	**J**	1.3	0.53	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
8:2 FTS	**11**		1.3	0.13	ug/Kg		04/29/23 07:58	05/02/23 08:54	1
10:2 FTS	**0.20**	**J**	1.3	0.13	ug/Kg		04/29/23 07:58	05/02/23 08:54	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*86*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
13C5 PFPeA	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
13C2 PFHxA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
13C4 PFHpA	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
13C2 PFDA	*89*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
13C2 PFUnA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
13C3 PFBS	*93*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
M2-4:2 FTS	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
M2-6:2 FTS	*105*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
M2-8:2 FTS	*103*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*
13C2 10:2 FTS	*121*		*25 - 150*	*04/29/23 07:58*	*05/02/23 08:54*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	**170**		130	25	ug/Kg		04/29/23 07:58	05/14/23 20:04	100
Br-Perfluorooctanoic acid	ND		130	25	ug/Kg		04/29/23 07:58	05/14/23 20:04	100
Total PFOA	**170**		130	25	ug/Kg		04/29/23 07:58	05/14/23 20:04	100
Perfluorononanoic acid (PFNA)	**300**		130	22	ug/Kg		04/29/23 07:58	05/14/23 20:04	100
Br-Perfluorohexanesulfonic acid	**190**		130	19	ug/Kg		04/29/23 07:58	05/14/23 20:04	100
Total PFHxS	**3800**		130	19	ug/Kg		04/29/23 07:58	05/14/23 20:04	100
L-Perfluorohexanesulfonic acid	**3700**		130	19	ug/Kg		04/29/23 07:58	05/14/23 20:04	100
Perfluoroheptanesulfonic acid (PFHpS)	**190**		130	23	ug/Kg		04/29/23 07:58	05/14/23 20:04	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*84*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:04*	*100*
13C5 PFNA	*90*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:04*	*100*
18O2 PFHxS	*94*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:04*	*100*
13C4 PFOS	*90*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:04*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**7300**		310	25	ug/Kg		04/29/23 07:58	05/22/23 06:16	100
Br-Perfluorooctanesulfonic acid	**2100**		310	25	ug/Kg		04/29/23 07:58	05/22/23 06:16	100
Total PFOS	**9400**		310	25	ug/Kg		04/29/23 07:58	05/22/23 06:16	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283630
Lab Sample ID: 320-98863-42
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	95		25 - 150	04/29/23 07:58	05/22/23 06:16	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283634
Lab Sample ID: 320-98863-43
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	0.72	J	0.95	0.22	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
Perfluoropentanoic acid (PFPeA)	0.33	J	0.95	0.17	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
Perfluorohexanoic acid (PFHxA)	0.55	J	0.95	0.26	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
Perfluoroheptanoic acid (PFHpA)	0.66	J	0.95	0.11	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
L-Perfluorooctanoic acid	46		0.95	0.19	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
Br-Perfluorooctanoic acid	1.1		0.95	0.19	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
Total PFOA	47		0.95	0.19	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
Perfluorodecanoic acid (PFDA)	46		0.95	0.098	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
Perfluoroundecanoic acid (PFUnA)	4.5		0.95	0.26	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
Perfluorobutanesulfonic acid (PFBS)	0.75	J	0.95	0.16	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
Perfluoropentanesulfonic acid (PFPeS)	29		0.95	0.17	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
4:2 FTS	ND		0.95	0.25	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
6:2 FTS	0.50	J	0.95	0.40	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
8:2 FTS	24		0.95	0.095	ug/Kg		04/29/23 07:58	05/02/23 09:17	1
10:2 FTS	0.58	J	0.95	0.096	ug/Kg		04/29/23 07:58	05/02/23 09:17	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
13C5 PFPeA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
13C2 PFHxA	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
13C4 PFHpA	*93*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
13C4 PFOA	*88*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
13C2 PFDA	*93*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
13C2 PFUnA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
13C3 PFBS	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
M2-4:2 FTS	*91*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
M2-6:2 FTS	*130*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
M2-8:2 FTS	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*
13C2 10:2 FTS	*147*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:17*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	490		95	17	ug/Kg		04/29/23 07:58	05/14/23 20:26	100
Br-Perfluorohexanesulfonic acid	160		95	14	ug/Kg		04/29/23 07:58	05/14/23 20:26	100
Total PFHxS	3000		95	14	ug/Kg		04/29/23 07:58	05/14/23 20:26	100
L-Perfluorohexanesulfonic acid	2800		95	14	ug/Kg		04/29/23 07:58	05/14/23 20:26	100
Perfluoroheptanesulfonic acid (PFHpS)	330		95	18	ug/Kg		04/29/23 07:58	05/14/23 20:26	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFNA	*84*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:26*	*100*
18O2 PFHxS	*111*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:26*	*100*
13C4 PFOS	*100*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:26*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	16000	E	240	19	ug/Kg		04/29/23 07:58	05/22/23 06:33	100
Br-Perfluorooctanesulfonic acid	4300		240	19	ug/Kg		04/29/23 07:58	05/22/23 06:33	100
Total PFOS	20000		240	19	ug/Kg		04/29/23 07:58	05/22/23 06:33	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283634
Lab Sample ID: 320-98863-43
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	84		25 - 150	04/29/23 07:58	05/22/23 06:33	100

Client Sample ID: NK 283635
Date Collected: 04/11/23 00:00
Date Received: 04/13/23 09:30

Lab Sample ID: 320-98863-44
Matrix: Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.45**	**J**	0.95	0.22	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
Perfluoropentanoic acid (PFPeA)	ND		0.95	0.17	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
Perfluorohexanoic acid (PFHxA)	**0.29**	**J**	0.95	0.26	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
Perfluoroheptanoic acid (PFHpA)	**0.90**	**J**	0.95	0.11	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
Perfluorodecanoic acid (PFDA)	**24**		0.95	0.098	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
Perfluoroundecanoic acid (PFUnA)	**3.1**		0.95	0.26	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
Perfluorobutanesulfonic acid (PFBS)	**0.63**	**J**	0.95	0.16	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
Perfluoropentanesulfonic acid (PFPeS)	**39**		0.95	0.17	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
4:2 FTS	ND		0.95	0.25	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
6:2 FTS	**0.67**	**J**	0.95	0.40	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
8:2 FTS	**7.2**		0.95	0.095	ug/Kg		04/29/23 07:58	05/02/23 09:40	1
10:2 FTS	**0.11**	**J**	0.95	0.096	ug/Kg		04/29/23 07:58	05/02/23 09:40	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*109*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
13C5 PFPeA	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
13C2 PFHxA	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
13C4 PFHpA	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
13C2 PFDA	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
13C2 PFUnA	*115*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
13C3 PFBS	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
M2-4:2 FTS	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
M2-6:2 FTS	*112*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
M2-8:2 FTS	*112*		*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*
13C2 10:2 FTS	*171*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 09:40*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	**97**		95	19	ug/Kg		04/29/23 07:58	05/14/23 20:49	100
Br-Perfluorooctanoic acid	ND		95	19	ug/Kg		04/29/23 07:58	05/14/23 20:49	100
Total PFOA	**97**		95	19	ug/Kg		04/29/23 07:58	05/14/23 20:49	100
Perfluorononanoic acid (PFNA)	**250**		95	17	ug/Kg		04/29/23 07:58	05/14/23 20:49	100
Br-Perfluorohexanesulfonic acid	**220**		95	14	ug/Kg		04/29/23 07:58	05/14/23 20:49	100
Total PFHxS	**1600**		95	14	ug/Kg		04/29/23 07:58	05/14/23 20:49	100
L-Perfluorohexanesulfonic acid	**1400**	**I**	95	14	ug/Kg		04/29/23 07:58	05/14/23 20:49	100
Perfluoroheptanesulfonic acid (PFHpS)	**120**		95	18	ug/Kg		04/29/23 07:58	05/14/23 20:49	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*94*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:49*	*100*
13C5 PFNA	*93*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:49*	*100*
18O2 PFHxS	*90*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:49*	*100*
13C4 PFOS	*87*		*25 - 150*	*04/29/23 07:58*	*05/14/23 20:49*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**9300**	**E**	240	19	ug/Kg		04/29/23 07:58	05/22/23 06:50	100
Br-Perfluorooctanesulfonic acid	**3000**		240	19	ug/Kg		04/29/23 07:58	05/22/23 06:50	100
Total PFOS	**12000**		240	19	ug/Kg		04/29/23 07:58	05/22/23 06:50	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283635
Lab Sample ID: 320-98863-44
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	60		25 - 150	04/29/23 07:58	05/22/23 06:50	100

Client Sample ID: NK 283637
Lab Sample ID: 320-98863-45

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**0.95**	**CI**	0.93	0.22	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Perfluoropentanoic acid (PFPeA)	ND		0.93	0.16	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Perfluorohexanoic acid (PFHxA)	ND		0.93	0.26	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Perfluoroheptanoic acid (PFHpA)	ND		0.93	0.11	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
L-Perfluorooctanoic acid	ND		0.93	0.19	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Br-Perfluorooctanoic acid	ND		0.93	0.19	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Total PFOA	ND		0.93	0.19	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Perfluorononanoic acid (PFNA)	**14**		0.93	0.16	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Perfluorodecanoic acid (PFDA)	**53**		0.93	0.096	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Perfluoroundecanoic acid (PFUnA)	**16**		0.93	0.25	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Perfluorobutanesulfonic acid (PFBS)	ND		0.93	0.16	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Perfluoropentanesulfonic acid (PFPeS)	ND		0.93	0.17	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Br-Perfluorohexanesulfonic acid	ND		0.93	0.14	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Total PFHxS	**0.57**	**J**	0.93	0.14	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
L-Perfluorohexanesulfonic acid	**0.57**	**J**	0.93	0.14	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.53**	**J**	0.93	0.17	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
4:2 FTS	ND		0.93	0.25	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
6:2 FTS	ND		0.93	0.40	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
8:2 FTS	ND		0.93	0.093	ug/Kg		04/29/23 07:58	05/02/23 10:02	1
10:2 FTS	ND		0.93	0.094	ug/Kg		04/29/23 07:58	05/02/23 10:02	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*93*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C2 PFHxA	*101*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C4 PFHpA	*106*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C4 PFOA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C5 PFNA	*110*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C2 PFDA	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C2 PFUnA	*122*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C3 PFBS	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
18O2 PFHxS	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C4 PFOS	*93*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
M2-4:2 FTS	*118*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
M2-6:2 FTS	*144*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
M2-8:2 FTS	*120*		*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*
13C2 10:2 FTS	*158*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/02/23 10:02*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**300**		23	1.9	ug/Kg		04/29/23 07:58	05/22/23 07:06	10
Br-Perfluorooctanesulfonic acid	**17**	**J**	23	1.9	ug/Kg		04/29/23 07:58	05/22/23 07:06	10
Total PFOS	**310**		23	1.9	ug/Kg		04/29/23 07:58	05/22/23 07:06	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*111*		*25 - 150*	*04/29/23 07:58*	*05/22/23 07:06*	*10*

Client Sample ID: NK 283666
Lab Sample ID: 320-98863-46

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.8**		1.4	0.33	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
Perfluoropentanoic acid (PFPeA)	**0.69**	**J**	1.4	0.25	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
Perfluorohexanoic acid (PFHxA)	**1.1**	**J**	1.4	0.38	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
Perfluoroheptanoic acid (PFHpA)	**1.7**		1.4	0.16	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
Perfluorodecanoic acid (PFDA)	**53**		1.4	0.15	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
Perfluoroundecanoic acid (PFUnA)	**4.3**		1.4	0.38	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
Perfluorobutanesulfonic acid (PFBS)	**1.4**		1.4	0.24	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
Perfluoropentanesulfonic acid (PFPeS)	**58**		1.4	0.25	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
4:2 FTS	ND		1.4	0.37	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
6:2 FTS	**1.3**	**J**	1.4	0.60	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
8:2 FTS	**18**		1.4	0.14	ug/Kg		04/29/23 07:58	05/03/23 00:34	1
10:2 FTS	**0.32**	**J B**	1.4	0.14	ug/Kg		04/29/23 07:58	05/03/23 00:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*88*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
13C5 PFPeA	*90*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
13C2 PFHxA	*85*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
13C4 PFHpA	*86*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
13C2 PFDA	*84*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
13C2 PFUnA	*93*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
13C3 PFBS	*89*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
M2-4:2 FTS	*91*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
M2-6:2 FTS	*97*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
M2-8:2 FTS	*91*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*
13C2 10:2 FTS	*147*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:34*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	**360**		140	28	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
Br-Perfluorooctanoic acid	ND		140	28	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
Total PFOA	**360**		140	28	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
Perfluorononanoic acid (PFNA)	**630**		140	25	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
Br-Perfluorohexanesulfonic acid	**370**		140	21	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
Total PFHxS	**5900**		140	21	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
L-Perfluorohexanesulfonic acid	**5500**		140	21	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
Perfluoroheptanesulfonic acid (PFHpS)	**370**		140	26	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
L-Perfluorooctanesulfonic acid	**14000**	**E**	350	29	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
Br-Perfluorooctanesulfonic acid	**3700**		350	29	ug/Kg		04/29/23 07:58	05/15/23 02:29	100
Total PFOS	**17000**		350	29	ug/Kg		04/29/23 07:58	05/15/23 02:29	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*74*		*25 - 150*	*04/29/23 07:58*	*05/15/23 02:29*	*100*
13C5 PFNA	*73*		*25 - 150*	*04/29/23 07:58*	*05/15/23 02:29*	*100*
18O2 PFHxS	*86*		*25 - 150*	*04/29/23 07:58*	*05/15/23 02:29*	*100*
13C4 PFOS	*80*		*25 - 150*	*04/29/23 07:58*	*05/15/23 02:29*	*100*

Client Sample ID: NK 283668
Lab Sample ID: 320-98863-47

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**2.4**		2.0	0.47	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
Perfluoropentanoic acid (PFPeA)	**0.36**	**J**	2.0	0.35	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
Perfluorohexanoic acid (PFHxA)	**0.71**	**J**	2.0	0.55	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
Perfluoroheptanoic acid (PFHpA)	**1.3**	**J**	2.0	0.23	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
Perfluorodecanoic acid (PFDA)	**39**		2.0	0.21	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
Perfluoroundecanoic acid (PFUnA)	**3.9**		2.0	0.54	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
Perfluorobutanesulfonic acid (PFBS)	**0.92**	**J**	2.0	0.34	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
Perfluoropentanesulfonic acid (PFPeS)	**33**		2.0	0.36	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
4:2 FTS	ND		2.0	0.53	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
6:2 FTS	**1.1**	**J**	2.0	0.85	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
8:2 FTS	**17**		2.0	0.20	ug/Kg		04/29/23 07:58	05/03/23 00:57	1
10:2 FTS	**0.30**	**J B**	2.0	0.20	ug/Kg		04/29/23 07:58	05/03/23 00:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*100*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
13C5 PFPeA	*109*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
13C2 PFHxA	*101*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
13C4 PFHpA	*102*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
13C2 PFDA	*106*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
13C2 PFUnA	*116*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
13C3 PFBS	*108*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
M2-4:2 FTS	*110*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
M2-6:2 FTS	*115*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
M2-8:2 FTS	*111*		*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*
13C2 10:2 FTS	*165*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/03/23 00:57*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	**200**		200	40	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
Br-Perfluorooctanoic acid	ND		200	40	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
Total PFOA	**200**		200	40	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
Perfluorononanoic acid (PFNA)	**400**		200	35	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
Br-Perfluorohexanesulfonic acid	**210**		200	30	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
Total PFHxS	**4300**		200	30	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
L-Perfluorohexanesulfonic acid	**4100**		200	30	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
Perfluoroheptanesulfonic acid (PFHpS)	**250**		200	37	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
L-Perfluorooctanesulfonic acid	**11000**		500	41	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
Br-Perfluorooctanesulfonic acid	**2900**		500	41	ug/Kg		04/29/23 07:58	05/15/23 02:52	100
Total PFOS	**14000**		500	41	ug/Kg		04/29/23 07:58	05/15/23 02:52	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*94*		*25 - 150*	*04/29/23 07:58*	*05/15/23 02:52*	*100*
13C5 PFNA	*89*		*25 - 150*	*04/29/23 07:58*	*05/15/23 02:52*	*100*
18O2 PFHxS	*96*		*25 - 150*	*04/29/23 07:58*	*05/15/23 02:52*	*100*
13C4 PFOS	*103*		*25 - 150*	*04/29/23 07:58*	*05/15/23 02:52*	*100*

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283675
Lab Sample ID: 320-98863-48
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.1		1.0	0.24	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
Perfluoropentanoic acid (PFPeA)	0.32	J	1.0	0.18	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
Perfluorohexanoic acid (PFHxA)	0.52	J	1.0	0.27	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
Perfluoroheptanoic acid (PFHpA)	0.95	J	1.0	0.12	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
L-Perfluorooctanoic acid	54		1.0	0.20	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
Br-Perfluorooctanoic acid	1.4		1.0	0.20	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
Total PFOA	55		1.0	0.20	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
Perfluorodecanoic acid (PFDA)	36		1.0	0.10	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
Perfluoroundecanoic acid (PFUnA)	4.8		1.0	0.27	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
Perfluorobutanesulfonic acid (PFBS)	0.74	J	1.0	0.17	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
Perfluoropentanesulfonic acid (PFPeS)	31		1.0	0.18	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
4:2 FTS	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
6:2 FTS	1.1		1.0	0.42	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
8:2 FTS	13		1.0	0.10	ug/Kg		04/29/23 07:58	05/03/23 01:19	1
10:2 FTS	0.85	J B	1.0	0.10	ug/Kg		04/29/23 07:58	05/03/23 01:19	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
13C5 PFPeA	*100*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
13C2 PFHxA	*101*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
13C4 PFHpA	*98*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
13C4 PFOA	*94*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
13C2 PFDA	*94*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
13C2 PFUnA	*104*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
13C3 PFBS	*105*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
M2-4:2 FTS	*104*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
M2-6:2 FTS	*110*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
M2-8:2 FTS	*113*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*
13C2 10:2 FTS	*134*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:19*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	280		100	18	ug/Kg		04/29/23 07:58	05/15/23 03:15	100
Br-Perfluorohexanesulfonic acid	240		100	15	ug/Kg		04/29/23 07:58	05/15/23 03:15	100
Total PFHxS	2200		100	15	ug/Kg		04/29/23 07:58	05/15/23 03:15	100
L-Perfluorohexanesulfonic acid	2000		100	15	ug/Kg		04/29/23 07:58	05/15/23 03:15	100
Perfluoroheptanesulfonic acid (PFHpS)	150		100	19	ug/Kg		04/29/23 07:58	05/15/23 03:15	100
L-Perfluorooctanesulfonic acid	8300		250	20	ug/Kg		04/29/23 07:58	05/15/23 03:15	100
Br-Perfluorooctanesulfonic acid	3000		250	20	ug/Kg		04/29/23 07:58	05/15/23 03:15	100
Total PFOS	11000		250	20	ug/Kg		04/29/23 07:58	05/15/23 03:15	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFNA	*81*		*25 - 150*	*04/29/23 07:58*	*05/15/23 03:15*	*100*
18O2 PFHxS	*95*		*25 - 150*	*04/29/23 07:58*	*05/15/23 03:15*	*100*
13C4 PFOS	*97*		*25 - 150*	*04/29/23 07:58*	*05/15/23 03:15*	*100*

Client Sample ID: NK 283680
Lab Sample ID: 320-98863-49

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.3**	**CI**	1.8	0.42	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.31	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.49	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.21	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
L-Perfluorooctanoic acid	**1.2**	**J**	1.8	0.36	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Br-Perfluorooctanoic acid	ND		1.8	0.36	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Total PFOA	**1.2**	**J**	1.8	0.36	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Perfluorononanoic acid (PFNA)	**11**		1.8	0.31	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Perfluorodecanoic acid (PFDA)	**4.1**		1.8	0.18	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Perfluoroundecanoic acid (PFUnA)	**1.4**	**J**	1.8	0.49	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.30	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Perfluoropentanesulfonic acid (PFPeS)	**0.46**	**J**	1.8	0.32	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
Perfluoroheptanesulfonic acid (PFHpS)	**35**		1.8	0.33	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
4:2 FTS	ND		1.8	0.48	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
6:2 FTS	**1.2**	**J**	1.8	0.76	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
8:2 FTS	**2.8**		1.8	0.18	ug/Kg		04/29/23 07:58	05/03/23 01:42	1
10:2 FTS	**0.89**	**J B**	1.8	0.18	ug/Kg		04/29/23 07:58	05/03/23 01:42	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*15*	**5-*	*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C5 PFPeA	*77*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C2 PFHxA	*84*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C4 PFHpA	*92*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C4 PFOA	*91*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C5 PFNA	*73*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C2 PFDA	*94*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C2 PFUnA	*107*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C3 PFBS	*82*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C4 PFOS	*78*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
M2-4:2 FTS	*105*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
M2-6:2 FTS	*145*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
M2-8:2 FTS	*106*		*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*
13C2 10:2 FTS	*175*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/03/23 01:42*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	ND		36	5.3	ug/Kg		04/29/23 07:58	05/15/23 00:13	20
Total PFHxS	**170**		36	5.3	ug/Kg		04/29/23 07:58	05/15/23 00:13	20
L-Perfluorohexanesulfonic acid	**170**		36	5.3	ug/Kg		04/29/23 07:58	05/15/23 00:13	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*92*		*25 - 150*	*04/29/23 07:58*	*05/15/23 00:13*	*20*
13C4 PFOS	*96*		*25 - 150*	*04/29/23 07:58*	*05/15/23 00:13*	*20*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**1400**		89	7.3	ug/Kg		04/29/23 07:58	05/22/23 07:56	20
Br-Perfluorooctanesulfonic acid	**320**		89	7.3	ug/Kg		04/29/23 07:58	05/22/23 07:56	20
Total PFOS	**1800**		89	7.3	ug/Kg		04/29/23 07:58	05/22/23 07:56	20

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283680
Lab Sample ID: 320-98863-49
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	120		25 - 150	04/29/23 07:58	05/22/23 07:56	20

Client Sample ID: NK 283754
Lab Sample ID: 320-98863-50

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.4**	**J**	2.7	0.64	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Perfluoropentanoic acid (PFPeA)	ND		2.7	0.47	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Perfluorohexanoic acid (PFHxA)	ND		2.7	0.74	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Perfluoroheptanoic acid (PFHpA)	ND		2.7	0.31	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
L-Perfluorooctanoic acid	**7.3**		2.7	0.55	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Br-Perfluorooctanoic acid	ND		2.7	0.55	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Total PFOA	**7.3**		2.7	0.55	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Perfluorononanoic acid (PFNA)	**51**		2.7	0.47	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Perfluorodecanoic acid (PFDA)	**6.9**		2.7	0.28	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Perfluoroundecanoic acid (PFUnA)	**2.7**		2.7	0.74	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.7	0.46	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
Perfluoropentanesulfonic acid (PFPeS)	**0.50**	**J**	2.7	0.49	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
4:2 FTS	ND		2.7	0.72	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
6:2 FTS	**2.2**	**J**	2.7	1.1	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
8:2 FTS	**47**		2.7	0.27	ug/Kg		04/29/23 07:58	05/03/23 02:05	1
10:2 FTS	**1.9**	**J B**	2.7	0.27	ug/Kg		04/29/23 07:58	05/03/23 02:05	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*100*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
13C5 PFPeA	*102*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
13C2 PFHxA	*104*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
13C4 PFHpA	*107*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
13C4 PFOA	*102*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
13C5 PFNA	*109*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
13C2 PFDA	*110*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
13C2 PFUnA	*123*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
13C3 PFBS	*103*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
M2-4:2 FTS	*122*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
M2-6:2 FTS	*152*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
M2-8:2 FTS	*113*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*
13C2 10:2 FTS	*191*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/03/23 02:05*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	ND		140	20	ug/Kg		04/29/23 07:58	05/24/23 11:43	50
Total PFHxS	**280**		140	20	ug/Kg		04/29/23 07:58	05/24/23 11:43	50
L-Perfluorohexanesulfonic acid	**280**		140	20	ug/Kg		04/29/23 07:58	05/24/23 11:43	50
Perfluoroheptanesulfonic acid (PFHpS)	**76**	**J**	140	25	ug/Kg		04/29/23 07:58	05/24/23 11:43	50
L-Perfluorooctanesulfonic acid	**5400**		340	27	ug/Kg		04/29/23 07:58	05/24/23 11:43	50
Br-Perfluorooctanesulfonic acid	**1800**		340	27	ug/Kg		04/29/23 07:58	05/24/23 11:43	50
Total PFOS	**7200**		340	27	ug/Kg		04/29/23 07:58	05/24/23 11:43	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*100*		*25 - 150*	*04/29/23 07:58*	*05/24/23 11:43*	*50*
13C4 PFOS	*94*		*25 - 150*	*04/29/23 07:58*	*05/24/23 11:43*	*50*

Client Sample ID: NK 283756
Lab Sample ID: 320-98863-51

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.0**	**J**	3.8	0.91	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Perfluoropentanoic acid (PFPeA)	ND		3.8	0.67	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Perfluorohexanoic acid (PFHxA)	ND		3.8	1.1	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Perfluoroheptanoic acid (PFHpA)	**1.1**	**J**	3.8	0.45	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
L-Perfluorooctanoic acid	**10**		3.8	0.78	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Br-Perfluorooctanoic acid	**1.0**	**J**	3.8	0.78	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Total PFOA	**11**		3.8	0.78	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Perfluorononanoic acid (PFNA)	**42**		3.8	0.67	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Perfluorodecanoic acid (PFDA)	**3.9**		3.8	0.40	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Perfluoroundecanoic acid (PFUnA)	**1.9**	**J**	3.8	1.0	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Perfluorobutanesulfonic acid (PFBS)	ND		3.8	0.65	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Perfluoropentanesulfonic acid (PFPeS)	**0.80**	**J**	3.8	0.70	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Br-Perfluorohexanesulfonic acid	**21**		3.8	0.57	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Total PFHxS	**290**		3.8	0.57	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
L-Perfluorohexanesulfonic acid	**270**		3.8	0.57	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
Perfluoroheptanesulfonic acid (PFHpS)	**55**		3.8	0.71	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
4:2 FTS	ND		3.8	1.0	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
6:2 FTS	**2.9**	**J**	3.8	1.6	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
8:2 FTS	**13**		3.8	0.38	ug/Kg		04/29/23 07:58	05/03/23 02:27	1
10:2 FTS	**2.6**	**J B**	3.8	0.39	ug/Kg		04/29/23 07:58	05/03/23 02:27	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*99*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C5 PFPeA	*103*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C2 PFHxA	*99*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C4 PFHpA	*104*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C4 PFOA	*101*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C5 PFNA	*105*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C2 PFDA	*104*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C2 PFUnA	*113*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C3 PFBS	*106*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
18O2 PFHxS	*101*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C4 PFOS	*82*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
M2-4:2 FTS	*105*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
M2-6:2 FTS	*167*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
M2-8:2 FTS	*109*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*
13C2 10:2 FTS	*196*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/03/23 02:27*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**3500**		190	16	ug/Kg		04/29/23 07:58	05/15/23 00:36	20
Br-Perfluorooctanesulfonic acid	**770**		190	16	ug/Kg		04/29/23 07:58	05/15/23 00:36	20
Total PFOS	**4300**		190	16	ug/Kg		04/29/23 07:58	05/15/23 00:36	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*104*		*25 - 150*	*04/29/23 07:58*	*05/15/23 00:36*	*20*

Client Sample ID: NK 283693-Muscle
Lab Sample ID: 320-98863-52

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.6**		1.4	0.32	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
Perfluoropentanoic acid (PFPeA)	ND		1.4	0.24	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
Perfluorohexanoic acid (PFHxA)	ND		1.4	0.37	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
Perfluoroheptanoic acid (PFHpA)	**1.3**	**J**	1.4	0.16	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
Perfluorononanoic acid (PFNA)	**93**		1.4	0.24	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
Perfluorodecanoic acid (PFDA)	**8.6**		1.4	0.14	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
Perfluoroundecanoic acid (PFUnA)	**1.3**	**J**	1.4	0.37	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
Perfluorobutanesulfonic acid (PFBS)	**0.27**	**J**	1.4	0.23	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
Perfluoropentanesulfonic acid (PFPeS)	**17**		1.4	0.25	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
Perfluoroheptanesulfonic acid (PFHpS)	**110**		1.4	0.25	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
4:2 FTS	ND		1.4	0.36	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
6:2 FTS	ND		1.4	0.58	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
8:2 FTS	**3.9**		1.4	0.14	ug/Kg		04/29/23 07:58	05/03/23 02:50	1
10:2 FTS	**1.2**	**J B**	1.4	0.14	ug/Kg		04/29/23 07:58	05/03/23 02:50	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*96*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
13C5 PFPeA	*101*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
13C2 PFHxA	*102*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
13C4 PFHpA	*107*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
13C4 PFOA	*98*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
13C5 PFNA	*100*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
13C2 PFDA	*110*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
13C2 PFUnA	*118*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
13C3 PFBS	*106*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
M2-4:2 FTS	*125*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
M2-6:2 FTS	*123*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
M2-8:2 FTS	*126*		*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*
13C2 10:2 FTS	*171*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/03/23 02:50*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	**200**		68	14	ug/Kg		04/29/23 07:58	05/24/23 12:06	50
Br-Perfluorooctanoic acid	ND		68	14	ug/Kg		04/29/23 07:58	05/24/23 12:06	50
Total PFOA	**200**		68	14	ug/Kg		04/29/23 07:58	05/24/23 12:06	50
Br-Perfluorohexanesulfonic acid	**100**		68	10	ug/Kg		04/29/23 07:58	05/24/23 12:06	50
Total PFHxS	**3000**		68	10	ug/Kg		04/29/23 07:58	05/24/23 12:06	50
L-Perfluorohexanesulfonic acid	**2900**		68	10	ug/Kg		04/29/23 07:58	05/24/23 12:06	50
L-Perfluorooctanesulfonic acid	**2200**		170	14	ug/Kg		04/29/23 07:58	05/24/23 12:06	50
Br-Perfluorooctanesulfonic acid	**480**		170	14	ug/Kg		04/29/23 07:58	05/24/23 12:06	50
Total PFOS	**2700**		170	14	ug/Kg		04/29/23 07:58	05/24/23 12:06	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*95*		*25 - 150*	*04/29/23 07:58*	*05/24/23 12:06*	*50*
18O2 PFHxS	*99*		*25 - 150*	*04/29/23 07:58*	*05/24/23 12:06*	*50*
13C4 PFOS	*95*		*25 - 150*	*04/29/23 07:58*	*05/24/23 12:06*	*50*

Client Sample ID: NK 283771
Lab Sample ID: 320-98863-53

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.3**	**J**	5.6	1.3	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Perfluoropentanoic acid (PFPeA)	ND		5.6	0.97	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Perfluorohexanoic acid (PFHxA)	**1.9**	**J**	5.6	1.5	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Perfluoroheptanoic acid (PFHpA)	**7.4**		5.6	0.64	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
L-Perfluorooctanoic acid	**130**		5.6	1.1	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Br-Perfluorooctanoic acid	**9.2**		5.6	1.1	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Total PFOA	**140**		5.6	1.1	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Perfluorononanoic acid (PFNA)	**470**		5.6	0.97	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Perfluorodecanoic acid (PFDA)	**32**		5.6	0.57	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Perfluoroundecanoic acid (PFUnA)	**6.9**		5.6	1.5	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Perfluorobutanesulfonic acid (PFBS)	ND		5.6	0.94	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Perfluoropentanesulfonic acid (PFPeS)	**3.0**	**J**	5.6	1.0	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
Perfluoroheptanesulfonic acid (PFHpS)	**430**		5.6	1.0	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
4:2 FTS	ND		5.6	1.5	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
6:2 FTS	ND		5.6	2.4	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
8:2 FTS	**66**		5.6	0.56	ug/Kg		04/29/23 07:58	05/03/23 03:35	1
10:2 FTS	**1.7**	**J B**	5.6	0.56	ug/Kg		04/29/23 07:58	05/03/23 03:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*95*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C5 PFPeA	*90*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C2 PFHxA	*90*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C4 PFHpA	*93*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C4 PFOA	*98*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C5 PFNA	*93*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C2 PFDA	*94*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C2 PFUnA	*100*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C3 PFBS	*96*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C4 PFOS	*64*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
M2-4:2 FTS	*94*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
M2-6:2 FTS	*147*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
M2-8:2 FTS	*98*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*
13C2 10:2 FTS	*152*	**5+*	*25 - 150*	*04/29/23 07:58*	*05/03/23 03:35*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	ND		560	82	ug/Kg		04/29/23 07:58	05/15/23 03:37	100
Total PFHxS	**1800**		560	82	ug/Kg		04/29/23 07:58	05/15/23 03:37	100
L-Perfluorohexanesulfonic acid	**1800**		560	82	ug/Kg		04/29/23 07:58	05/15/23 03:37	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*106*		*25 - 150*	*04/29/23 07:58*	*05/15/23 03:37*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**16000**		1400	110	ug/Kg		04/29/23 07:58	05/22/23 08:13	100
Br-Perfluorooctanesulfonic acid	**7200**		1400	110	ug/Kg		04/29/23 07:58	05/22/23 08:13	100
Total PFOS	**23000**		1400	110	ug/Kg		04/29/23 07:58	05/22/23 08:13	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283771
Lab Sample ID: 320-98863-53
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	82		25 - 150	04/29/23 07:58	05/22/23 08:13	100

Client Sample ID: NK 283770
Lab Sample ID: 320-98863-54

Date Collected: 04/11/23 00:00
Matrix: Tissue

Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.1**	**J CI**	1.9	0.44	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Perfluoropentanoic acid (PFPeA)	ND		1.9	0.32	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Perfluorohexanoic acid (PFHxA)	ND		1.9	0.51	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Perfluoroheptanoic acid (PFHpA)	**0.55**	**J**	1.9	0.21	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
L-Perfluorooctanoic acid	**14**		1.9	0.37	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Br-Perfluorooctanoic acid	**1.8**	**J**	1.9	0.37	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Total PFOA	**15**		1.9	0.37	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Perfluorononanoic acid (PFNA)	**68**		1.9	0.32	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Perfluorodecanoic acid (PFDA)	**10**		1.9	0.19	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Perfluoroundecanoic acid (PFUnA)	**7.9**		1.9	0.50	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.9	0.31	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Perfluoropentanesulfonic acid (PFPeS)	**0.64**	**J**	1.9	0.34	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
Perfluoroheptanesulfonic acid (PFHpS)	**170**		1.9	0.34	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
4:2 FTS	ND		1.9	0.49	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
6:2 FTS	**1.5**	**J**	1.9	0.79	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
8:2 FTS	**70**		1.9	0.19	ug/Kg		04/29/23 07:58	05/03/23 03:58	1
10:2 FTS	**4.5**	**B**	1.9	0.19	ug/Kg		04/29/23 07:58	05/03/23 03:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*80*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C5 PFPeA	*90*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C2 PFHxA	*88*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C4 PFHpA	*91*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C4 PFOA	*89*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C5 PFNA	*53*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C2 PFDA	*93*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C2 PFUnA	*101*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C3 PFBS	*87*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C4 PFOS	*69*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
M2-4:2 FTS	*102*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
M2-6:2 FTS	*124*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
M2-8:2 FTS	*104*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*
13C2 10:2 FTS	*150*		*25 - 150*	*04/29/23 07:58*	*05/03/23 03:58*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	ND		190	27	ug/Kg		04/29/23 07:58	05/15/23 04:45	100
Total PFHxS	**390**		190	27	ug/Kg		04/29/23 07:58	05/15/23 04:45	100
L-Perfluorohexanesulfonic acid	**390**		190	27	ug/Kg		04/29/23 07:58	05/15/23 04:45	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*111*		*25 - 150*	*04/29/23 07:58*	*05/15/23 04:45*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	**3600**		460	38	ug/Kg		04/29/23 07:58	05/22/23 08:30	100
Br-Perfluorooctanesulfonic acid	**1800**		460	38	ug/Kg		04/29/23 07:58	05/22/23 08:30	100
Total PFOS	**5400**		460	38	ug/Kg		04/29/23 07:58	05/22/23 08:30	100

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283770
Lab Sample ID: 320-98863-54
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	107		25 - 150	04/29/23 07:58	05/22/23 08:30	100

Client Sample ID: NK 283604-Muscle
Lab Sample ID: 320-98863-55

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**1.0**		1.0	0.24	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Perfluoropentanoic acid (PFPeA)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.28	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Perfluoroheptanoic acid (PFHpA)	**0.17**	**J**	1.0	0.12	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
L-Perfluorooctanoic acid	**4.9**		1.0	0.20	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Br-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Total PFOA	**4.9**		1.0	0.20	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Perfluorononanoic acid (PFNA)	**27**		1.0	0.18	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Perfluorodecanoic acid (PFDA)	**3.0**		1.0	0.10	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Perfluoroundecanoic acid (PFUnA)	**0.39**	**J**	1.0	0.27	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Perfluorobutanesulfonic acid (PFBS)	**0.19**	**J**	1.0	0.17	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Perfluoropentanesulfonic acid (PFPeS)	**3.0**		1.0	0.18	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
Perfluoroheptanesulfonic acid (PFHpS)	**32**		1.0	0.19	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
4:2 FTS	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
6:2 FTS	ND		1.0	0.43	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
8:2 FTS	**1.8**		1.0	0.10	ug/Kg		04/29/23 07:58	05/03/23 04:21	1
10:2 FTS	**0.12**	**J B**	1.0	0.10	ug/Kg		04/29/23 07:58	05/03/23 04:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*86*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C5 PFPeA	*96*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C2 PFHxA	*89*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C4 PFHpA	*93*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C4 PFOA	*94*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C5 PFNA	*86*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C2 PFDA	*96*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C2 PFUnA	*95*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C3 PFBS	*91*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C4 PFOS	*75*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
M2-4:2 FTS	*116*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
M2-6:2 FTS	*111*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
M2-8:2 FTS	*106*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*
13C2 10:2 FTS	*136*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:21*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	**17**	**J**	20	3.0	ug/Kg		04/29/23 07:58	05/15/23 00:58	20
Total PFHxS	**400**		20	3.0	ug/Kg		04/29/23 07:58	05/15/23 00:58	20
L-Perfluorohexanesulfonic acid	**380**		20	3.0	ug/Kg		04/29/23 07:58	05/15/23 00:58	20
L-Perfluorooctanesulfonic acid	**1000**		51	4.1	ug/Kg		04/29/23 07:58	05/15/23 00:58	20
Br-Perfluorooctanesulfonic acid	**300**		51	4.1	ug/Kg		04/29/23 07:58	05/15/23 00:58	20
Total PFOS	**1300**		51	4.1	ug/Kg		04/29/23 07:58	05/15/23 00:58	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*97*		*25 - 150*	*04/29/23 07:58*	*05/15/23 00:58*	*20*
13C4 PFOS	*96*		*25 - 150*	*04/29/23 07:58*	*05/15/23 00:58*	*20*

Client Sample ID: NK 283609-Liver
Lab Sample ID: 320-98863-56

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.1		1.2	0.28	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Perfluoropentanoic acid (PFPeA)	0.21	J	1.2	0.21	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Perfluorohexanoic acid (PFHxA)	0.35	J	1.2	0.33	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Perfluoroheptanoic acid (PFHpA)	0.62	J	1.2	0.14	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
L-Perfluorooctanoic acid	100		1.2	0.24	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Br-Perfluorooctanoic acid	1.9		1.2	0.24	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Total PFOA	100		1.2	0.24	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Perfluorononanoic acid (PFNA)	70		1.2	0.21	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Perfluorodecanoic acid (PFDA)	6.0		1.2	0.12	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Perfluoroundecanoic acid (PFUnA)	0.67	J	1.2	0.33	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Perfluorobutanesulfonic acid (PFBS)	0.23	J	1.2	0.20	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Perfluoropentanesulfonic acid (PFPeS)	9.9		1.2	0.22	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
Perfluoroheptanesulfonic acid (PFHpS)	82		1.2	0.22	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
4:2 FTS	ND		1.2	0.32	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
6:2 FTS	ND		1.2	0.51	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
8:2 FTS	3.3		1.2	0.12	ug/Kg		04/29/23 07:58	05/03/23 04:43	1
10:2 FTS	0.14	J B	1.2	0.12	ug/Kg		04/29/23 07:58	05/03/23 04:43	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*97*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C2 PFHxA	*100*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C4 PFHpA	*102*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C4 PFOA	*97*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C5 PFNA	*96*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C2 PFDA	*107*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C2 PFUnA	*118*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C3 PFBS	*98*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C4 PFOS	*77*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
M2-4:2 FTS	*149*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
M2-6:2 FTS	*129*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
M2-8:2 FTS	*131*		*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*
13C2 10:2 FTS	*174*	*5+	*25 - 150*	*04/29/23 07:58*	*05/03/23 04:43*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Br-Perfluorohexanesulfonic acid	65		24	3.6	ug/Kg		04/29/23 07:58	05/15/23 01:21	20
Total PFHxS	1700		24	3.6	ug/Kg		04/29/23 07:58	05/15/23 01:21	20
L-Perfluorohexanesulfonic acid	1700		24	3.6	ug/Kg		04/29/23 07:58	05/15/23 01:21	20
L-Perfluorooctanesulfonic acid	1700		60	4.9	ug/Kg		04/29/23 07:58	05/15/23 01:21	20
Br-Perfluorooctanesulfonic acid	430		60	4.9	ug/Kg		04/29/23 07:58	05/15/23 01:21	20
Total PFOS	2200		60	4.9	ug/Kg		04/29/23 07:58	05/15/23 01:21	20

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*98*		*25 - 150*	*04/29/23 07:58*	*05/15/23 01:21*	*20*
13C4 PFOS	*99*		*25 - 150*	*04/29/23 07:58*	*05/15/23 01:21*	*20*

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Client Sample ID: NK 283623-Liver
Lab Sample ID: 320-98863-57
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.3	CI	1.3	0.31	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
Perfluoropentanoic acid (PFPeA)	0.40	J	1.3	0.23	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
Perfluorohexanoic acid (PFHxA)	0.50	J	1.3	0.36	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
Perfluoroheptanoic acid (PFHpA)	0.68	J	1.3	0.15	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
L-Perfluorooctanoic acid	39		1.3	0.27	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
Br-Perfluorooctanoic acid	0.96	J	1.3	0.27	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
Total PFOA	40		1.3	0.27	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
Perfluorodecanoic acid (PFDA)	57		1.3	0.14	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
Perfluoroundecanoic acid (PFUnA)	5.9		1.3	0.36	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
Perfluorobutanesulfonic acid (PFBS)	0.82	J	1.3	0.23	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
Perfluoropentanesulfonic acid (PFPeS)	21		1.3	0.24	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
4:2 FTS	ND		1.3	0.35	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
6:2 FTS	0.95	J	1.3	0.57	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
8:2 FTS	20		1.3	0.13	ug/Kg		04/29/23 07:58	05/03/23 05:06	1
10:2 FTS	0.39	J B	1.3	0.13	ug/Kg		04/29/23 07:58	05/03/23 05:06	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*81*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
13C5 PFPeA	*92*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
13C2 PFHxA	*92*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
13C4 PFHpA	*92*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
13C4 PFOA	*88*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
13C2 PFDA	*94*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
13C2 PFUnA	*102*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
13C3 PFBS	*96*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
M2-4:2 FTS	*96*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
M2-6:2 FTS	*156*	*5+	*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
M2-8:2 FTS	*105*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*
13C2 10:2 FTS	*133*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:06*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	530		130	23	ug/Kg		04/29/23 07:58	05/15/23 05:08	100
Br-Perfluorohexanesulfonic acid	100	J	130	20	ug/Kg		04/29/23 07:58	05/15/23 05:08	100
Total PFHxS	3500		130	20	ug/Kg		04/29/23 07:58	05/15/23 05:08	100
L-Perfluorohexanesulfonic acid	3400		130	20	ug/Kg		04/29/23 07:58	05/15/23 05:08	100
Perfluoroheptanesulfonic acid (PFHpS)	330		130	25	ug/Kg		04/29/23 07:58	05/15/23 05:08	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFNA	*79*		*25 - 150*	*04/29/23 07:58*	*05/15/23 05:08*	*100*
18O2 PFHxS	*94*		*25 - 150*	*04/29/23 07:58*	*05/15/23 05:08*	*100*
13C4 PFOS	*97*		*25 - 150*	*04/29/23 07:58*	*05/15/23 05:08*	*100*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - RADL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanesulfonic acid	29000	E	330	27	ug/Kg		04/29/23 07:58	05/22/23 08:47	100
Br-Perfluorooctanesulfonic acid	9500		330	27	ug/Kg		04/29/23 07:58	05/22/23 08:47	100
Total PFOS	38000		330	27	ug/Kg		04/29/23 07:58	05/22/23 08:47	100

Client Sample ID: NK 283623-Liver
Lab Sample ID: 320-98863-57
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFOS	60		25 - 150	04/29/23 07:58	05/22/23 08:47	100

Client Sample ID: NK 283693-Liver
Lab Sample ID: 320-98863-58

Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.2		1.1	0.25	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
Perfluoropentanoic acid (PFPeA)	0.30	J	1.1	0.19	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
Perfluorohexanoic acid (PFHxA)	0.64	J	1.1	0.29	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
Perfluoroheptanoic acid (PFHpA)	3.9		1.1	0.12	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
Perfluorodecanoic acid (PFDA)	51		1.1	0.11	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
Perfluoroundecanoic acid (PFUnA)	4.7		1.1	0.29	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
Perfluorobutanesulfonic acid (PFBS)	1.0	J	1.1	0.18	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
Perfluoropentanesulfonic acid (PFPeS)	77		1.1	0.19	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
4:2 FTS	ND		1.1	0.29	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
6:2 FTS	0.75	J	1.1	0.46	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
8:2 FTS	21		1.1	0.11	ug/Kg		04/29/23 07:58	05/03/23 05:29	1
10:2 FTS	0.36	J B	1.1	0.11	ug/Kg		04/29/23 07:58	05/03/23 05:29	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*79*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
13C5 PFPeA	*77*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
13C2 PFHxA	*77*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
13C4 PFHpA	*75*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
13C5 PFNA	*68*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
13C2 PFDA	*79*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
13C2 PFUnA	*89*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
13C3 PFBS	*77*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
M2-4:2 FTS	*69*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
M2-6:2 FTS	*79*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
M2-8:2 FTS	*84*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*
13C2 10:2 FTS	*143*		*25 - 150*	*04/29/23 07:58*	*05/03/23 05:29*	*1*

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
L-Perfluorooctanoic acid	940		110	22	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
Br-Perfluorooctanoic acid	37	J	110	22	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
Total PFOA	980		110	22	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
Perfluorononanoic acid (PFNA)	610		110	19	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
Br-Perfluorohexanesulfonic acid	450		110	16	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
Total PFHxS	9000		110	16	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
L-Perfluorohexanesulfonic acid	8600		110	16	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
Perfluoroheptanesulfonic acid (PFHpS)	480		110	20	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
L-Perfluorooctanesulfonic acid	16000	E	270	22	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
Br-Perfluorooctanesulfonic acid	3900		270	22	ug/Kg		04/29/23 07:58	05/15/23 05:31	100
Total PFOS	20000		270	22	ug/Kg		04/29/23 07:58	05/15/23 05:31	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*65*		*25 - 150*	*04/29/23 07:58*	*05/15/23 05:31*	*100*
13C5 PFNA	*63*		*25 - 150*	*04/29/23 07:58*	*05/15/23 05:31*	*100*
18O2 PFHxS	*108*		*25 - 150*	*04/29/23 07:58*	*05/15/23 05:31*	*100*
13C4 PFOS	*65*		*25 - 150*	*04/29/23 07:58*	*05/15/23 05:31*	*100*

Isotope Dilution Summary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Method: B/L/T PFAS - Branched, Linear and Total PFAS

Matrix: Tissue **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-98863-33	NK 283645	48	97	100	108	100	114	103	117
320-98863-33 - DL	NK 283645								
320-98863-34	NK 283648	101	98	99	103	104	82	106	117
320-98863-34 - DL	NK 283648								
320-98863-35	NK 283603	86	96	96	95	93	62	90	97
320-98863-35 - DL	NK 283603								
320-98863-35 - RADL	NK 283603								
320-98863-36	NK 283604-Liver	97	102	105	105	94		92	106
320-98863-36 - DL	NK 283604-Liver						88		
320-98863-36 - RADL	NK 283604-Liver								
320-98863-37	NK 283609-Muscle	94	92	94	90			85	96
320-98863-37 - DL	NK 283609-Muscle					77	80		
320-98863-37 - RADL	NK 283609-Muscle								
320-98863-38	NK 283610	94	103	99	99	92		91	102
320-98863-38 - DL	NK 283610						92		
320-98863-38 - RADL	NK 283610								
320-98863-39	NK 283612	104	96	99	104	98	111	103	118
320-98863-39 - DL	NK 283612								
320-98863-40	NK 283623-Muscle	89	98	92	100	93	87	95	109
320-98863-40 - DL	NK 283623-Muscle								
320-98863-41	NK 283628	49	48	48	49		49	48	51
320-98863-41 - DL	NK 283628					48	50		
320-98863-42	NK 283630	86	95	98	97			89	99
320-98863-42 - DL	NK 283630					84	90		
320-98863-42 - RADL	NK 283630								
320-98863-43	NK 283634	94	100	95	93	88		93	100
320-98863-43 - DL	NK 283634						84		
320-98863-43 - RADL	NK 283634								
320-98863-44	NK 283635	109	102	104	102			104	115
320-98863-44 - DL	NK 283635					94	93		
320-98863-44 - RADL	NK 283635								
320-98863-45	NK 283637	93	98	101	106	98	110	104	122
320-98863-45 - DL	NK 283637								
320-98863-46	NK 283666	88	90	85	86			84	93
320-98863-46 - DL	NK 283666					74	73		
320-98863-47	NK 283668	100	109	101	102			106	116
320-98863-47 - DL	NK 283668					94	89		
320-98863-48	NK 283675	101	100	101	98	94		94	104
320-98863-48 - DL	NK 283675						81		
320-98863-49	NK 283680	15 *5-	77	84	92	91	73	94	107
320-98863-49 - DL	NK 283680								
320-98863-49 - RADL	NK 283680								
320-98863-50	NK 283754	100	102	104	107	102	109	110	123
320-98863-50 - DL	NK 283754								
320-98863-51	NK 283756	99	103	99	104	101	105	104	113
320-98863-51 - DL	NK 283756								
320-98863-52	NK 283693-Muscle	96	101	102	107	98	100	110	118
320-98863-52 - DL	NK 283693-Muscle					95			
320-98863-53	NK 283771	95	90	90	93	98	93	94	100

Isotope Dilution Summary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Matrix: Tissue
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-98863-53 - DL	NK 283771								
320-98863-53 - RADL	NK 283771								
320-98863-54	NK 283770	80	90	88	91	89	53	93	101
320-98863-54 - DL	NK 283770								
320-98863-54 - RADL	NK 283770								
320-98863-55	NK 283604-Muscle	86	96	89	93	94	86	96	95
320-98863-55 - DL	NK 283604-Muscle								
320-98863-56	NK 283609-Liver	97	98	100	102	97	96	107	118
320-98863-56 - DL	NK 283609-Liver								
320-98863-57	NK 283623-Liver	81	92	92	92	88		94	102
320-98863-57 - DL	NK 283623-Liver						79		
320-98863-57 - RADL	NK 283623-Liver								
320-98863-58	NK 283693-Liver	79	77	77	75		68	79	89
320-98863-58 - DL	NK 283693-Liver					65	63		
LCS 320-671099/2-A	Lab Control Sample	102	97	96	100	97	94	96	101
LCS 320-671101/2-A	Lab Control Sample	61	91	95	99	94	94	95	103
LCSD 320-671099/3-A	Lab Control Sample Dup	86	98	96	101	98	97	101	108
LCSD 320-671101/3-A	Lab Control Sample Dup	91	100	98	101	100	97	100	108
MB 320-671099/1-A	Method Blank	100	100	99	102	97	94	99	97
MB 320-671101/1-A	Method Blank	101	98	94	104	98	97	99	102

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)	
320-98863-33	NK 283645	96	99	101	95	158 *5+	107	234 *5+	
320-98863-33 - DL	NK 283645			103					
320-98863-34	NK 283648	100	100	96	116	152 *5+	116	213 *5+	
320-98863-34 - DL	NK 283648			97					
320-98863-35	NK 283603	97			99	124	103	136	
320-98863-35 - DL	NK 283603		95	74					
320-98863-35 - RADL	NK 283603			187 *5+					
320-98863-36	NK 283604-Liver	102			136	176 *5+	105	137	
320-98863-36 - DL	NK 283604-Liver		88	87					
320-98863-36 - RADL	NK 283604-Liver			46					
320-98863-37	NK 283609-Muscle	89			91	100	92	163 *5+	
320-98863-37 - DL	NK 283609-Muscle		96	83					
320-98863-37 - RADL	NK 283609-Muscle			50					
320-98863-38	NK 283610	99			95	107	100	152 *5+	
320-98863-38 - DL	NK 283610		97	85					
320-98863-38 - RADL	NK 283610			109					
320-98863-39	NK 283612	97	99	101	104	116	110	170 *5+	
320-98863-39 - DL	NK 283612			112					
320-98863-40	NK 283623-Muscle	95		66	88	92	102	153 *5+	
320-98863-40 - DL	NK 283623-Muscle		99	97					
320-98863-41	NK 283628	47			43	49	49	79	
320-98863-41 - DL	NK 283628		55	27					
320-98863-42	NK 283630	93			92	105	103	121	
320-98863-42 - DL	NK 283630		94	90					
320-98863-42 - RADL	NK 283630			95					
320-98863-43	NK 283634	94			91	130	100	147	
320-98863-43 - DL	NK 283634		111	100					

Isotope Dilution Summary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Matrix: Tissue
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)
320-98863-43 - RADL	NK 283634			84				
320-98863-44	NK 283635	102			102	112	112	171 *5+
320-98863-44 - DL	NK 283635		90	87				
320-98863-44 - RADL	NK 283635			60				
320-98863-45	NK 283637	100	100	93	118	144	120	158 *5+
320-98863-45 - DL	NK 283637			111				
320-98863-46	NK 283666	89			91	97	91	147
320-98863-46 - DL	NK 283666		86	80				
320-98863-47	NK 283668	108			110	115	111	165 *5+
320-98863-47 - DL	NK 283668		96	103				
320-98863-48	NK 283675	105			104	110	113	134
320-98863-48 - DL	NK 283675		95	97				
320-98863-49	NK 283680	82		78	105	145	106	175 *5+
320-98863-49 - DL	NK 283680		92	96				
320-98863-49 - RADL	NK 283680			120				
320-98863-50	NK 283754	103			122	152 *5+	113	191 *5+
320-98863-50 - DL	NK 283754		100	94				
320-98863-51	NK 283756	106	101	82	105	167 *5+	109	196 *5+
320-98863-51 - DL	NK 283756			104				
320-98863-52	NK 283693-Muscle	106			125	123	126	171 *5+
320-98863-52 - DL	NK 283693-Muscle		99	95				
320-98863-53	NK 283771	96		64	94	147	98	152 *5+
320-98863-53 - DL	NK 283771		106					
320-98863-53 - RADL	NK 283771			82				
320-98863-54	NK 283770	87		69	102	124	104	150
320-98863-54 - DL	NK 283770		111					
320-98863-54 - RADL	NK 283770			107				
320-98863-55	NK 283604-Muscle	91		75	116	111	106	136
320-98863-55 - DL	NK 283604-Muscle		97	96				
320-98863-56	NK 283609-Liver	98		77	149	129	131	174 *5+
320-98863-56 - DL	NK 283609-Liver		98	99				
320-98863-57	NK 283623-Liver	96			96	156 *5+	105	133
320-98863-57 - DL	NK 283623-Liver		94	97				
320-98863-57 - RADL	NK 283623-Liver			60				
320-98863-58	NK 283693-Liver	77			69	79	84	143
320-98863-58 - DL	NK 283693-Liver		108	65				
LCS 320-671099/2-A	Lab Control Sample	97	93	96	91	96	92	102
LCS 320-671101/2-A	Lab Control Sample	97	92	98	86	90	91	105
LCSD 320-671099/3-A	Lab Control Sample Dup	97	93	97	91	96	94	109
LCSD 320-671101/3-A	Lab Control Sample Dup	96	96	101	84	95	95	116
MB 320-671099/1-A	Method Blank	98	92	97	95	99	95	105
MB 320-671101/1-A	Method Blank	98	96	99	93	92	95	121

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA

Isotope Dilution Summary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
M102FTS = 13C2 10:2 FTS

Method: B/L/T PFAS - Branched, Linear and Total PFAS

Lab Sample ID: MB 320-671099/1-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 671099

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.0	0.24	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoropentanoic acid (PFPeA)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.12	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
L-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Br-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Total PFOA	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.10	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.17	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Br-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Total PFHxS	ND		1.0	0.15	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
L-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.19	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
L-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Br-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
Total PFOS	ND		2.5	0.20	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
4:2 FTS	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
6:2 FTS	ND		1.0	0.42	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
8:2 FTS	ND		1.0	0.10	ug/Kg		04/29/23 07:58	05/02/23 03:14	1
10:2 FTS	ND		1.0	0.10	ug/Kg		04/29/23 07:58	05/02/23 03:14	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C5 PFPeA	*100*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C2 PFHxA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C4 PFHpA	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C4 PFOA	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C5 PFNA	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C2 PFDA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C2 PFUnA	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C3 PFBS	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
18O2 PFHxS	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C4 PFOS	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
M2-4:2 FTS	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
M2-6:2 FTS	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
M2-8:2 FTS	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*
13C2 10:2 FTS	*105*		*25 - 150*	*04/29/23 07:58*	*05/02/23 03:14*	*1*

Lab Sample ID: LCS 320-671099/2-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 671099

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	10.8		ug/Kg		108	76 - 136

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCS 320-671099/2-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 671099

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluoropentanoic acid (PFPeA)			10.0	10.8		ug/Kg		108	69 - 129		
Perfluorohexanoic acid (PFHxA)			10.0	10.0		ug/Kg		100	71 - 131		
Perfluoroheptanoic acid (PFHpA)			10.0	10.6		ug/Kg		106	71 - 131		
L-Perfluorooctanoic acid			10.0	10.6		ug/Kg		106	72 - 132		
Total PFOA			10.0	10.6		ug/Kg		106			
Perfluorononanoic acid (PFNA)			10.0	10.5		ug/Kg		105	73 - 133		
Perfluorodecanoic acid (PFDA)			10.0	10.6		ug/Kg		106	72 - 132		
Perfluoroundecanoic acid (PFUnA)			10.0	10.4		ug/Kg		104	66 - 126		
Perfluorobutanesulfonic acid (PFBS)			8.88	9.22		ug/Kg		104	69 - 129		
Perfluoropentanesulfonic acid (PFPeS)			9.40	9.94		ug/Kg		106	66 - 126		
Total PFHxS			9.12	9.57		ug/Kg		105			
L-Perfluorohexanesulfonic acid			9.12	9.57		ug/Kg		105	62 - 122		
Perfluoroheptanesulfonic acid (PFHpS)			9.54	10.2		ug/Kg		107	76 - 136		
L-Perfluorooctanesulfonic acid			9.30	9.34		ug/Kg		100	68 - 141		
Total PFOS			9.30	9.34		ug/Kg		100			
4:2 FTS			9.38	10.7		ug/Kg		114	68 - 143		
6:2 FTS			9.52	11.0		ug/Kg		116	73 - 139		
8:2 FTS			9.60	10.6		ug/Kg		110	75 - 135		
10:2 FTS			9.66	10.6		ug/Kg		110	69 - 145		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*102*		*25 - 150*
13C5 PFPeA	*97*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C4 PFHpA	*100*		*25 - 150*
13C4 PFOA	*97*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C2 PFDA	*96*		*25 - 150*
13C2 PFUnA	*101*		*25 - 150*
13C3 PFBS	*97*		*25 - 150*
18O2 PFHxS	*93*		*25 - 150*
13C4 PFOS	*96*		*25 - 150*
M2-4:2 FTS	*91*		*25 - 150*
M2-6:2 FTS	*96*		*25 - 150*
M2-8:2 FTS	*92*		*25 - 150*
13C2 10:2 FTS	*102*		*25 - 150*

Lab Sample ID: LCSD 320-671099/3-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671099

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)			10.0	10.8		ug/Kg		108	76 - 136	0	30
Perfluoropentanoic acid (PFPeA)			10.0	10.1		ug/Kg		101	69 - 129	7	30
Perfluorohexanoic acid (PFHxA)			10.0	9.93		ug/Kg		99	71 - 131	1	30
Perfluoroheptanoic acid (PFHpA)			10.0	10.1		ug/Kg		101	71 - 131	4	30

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCSD 320-671099/3-A
Matrix: Tissue
Analysis Batch: 673760

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671099

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
L-Perfluorooctanoic acid			10.0	10.4		ug/Kg		104	72 - 132	2	30
Total PFOA			10.0	10.4		ug/Kg		104		2	
Perfluorononanoic acid (PFNA)			10.0	10.5		ug/Kg		105	73 - 133	0	30
Perfluorodecanoic acid (PFDA)			10.0	10.3		ug/Kg		103	72 - 132	3	30
Perfluoroundecanoic acid (PFUnA)			10.0	9.74		ug/Kg		97	66 - 126	6	30
Perfluorobutanesulfonic acid (PFBS)			8.88	8.98		ug/Kg		101	69 - 129	3	30
Perfluoropentanesulfonic acid (PFPeS)			9.40	9.78		ug/Kg		104	66 - 126	2	30
Total PFHxS			9.12	9.46		ug/Kg		104		1	
L-Perfluorohexanesulfonic acid			9.12	9.46		ug/Kg		104	62 - 122	1	30
Perfluoroheptanesulfonic acid (PFHpS)			9.54	9.92		ug/Kg		104	76 - 136	3	30
L-Perfluorooctanesulfonic acid			9.30	9.15		ug/Kg		98	68 - 141	2	30
Total PFOS			9.30	9.15		ug/Kg		98		2	
4:2 FTS			9.38	11.2		ug/Kg		120	68 - 143	5	30
6:2 FTS			9.52	10.6		ug/Kg		112	73 - 139	4	30
8:2 FTS			9.60	10.4		ug/Kg		109	75 - 135	1	30
10:2 FTS			9.66	10.2		ug/Kg		106	69 - 145	4	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*86*		*25 - 150*
13C5 PFPeA	*98*		*25 - 150*
13C2 PFHxA	*96*		*25 - 150*
13C4 PFHpA	*101*		*25 - 150*
13C4 PFOA	*98*		*25 - 150*
13C5 PFNA	*97*		*25 - 150*
13C2 PFDA	*101*		*25 - 150*
13C2 PFUnA	*108*		*25 - 150*
13C3 PFBS	*97*		*25 - 150*
18O2 PFHxS	*93*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
M2-4:2 FTS	*91*		*25 - 150*
M2-6:2 FTS	*96*		*25 - 150*
M2-8:2 FTS	*94*		*25 - 150*
13C2 10:2 FTS	*109*		*25 - 150*

Lab Sample ID: MB 320-671101/1-A
Matrix: Tissue
Analysis Batch: 673762

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 671101

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.0	0.24	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Perfluoropentanoic acid (PFPeA)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.12	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
L-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Br-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Total PFOA	ND		1.0	0.20	ug/Kg		04/29/23 07:58	05/02/23 23:26	1

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: MB 320-671101/1-A
Matrix: Tissue
Analysis Batch: 673762

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 671101

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorononanoic acid (PFNA)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.10	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.17	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.18	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Br-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Total PFHxS	ND		1.0	0.15	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
L-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.19	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
L-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Br-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
Total PFOS	ND		2.5	0.20	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
4:2 FTS	ND		1.0	0.27	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
6:2 FTS	ND		1.0	0.42	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
8:2 FTS	ND		1.0	0.10	ug/Kg		04/29/23 07:58	05/02/23 23:26	1
10:2 FTS	0.109	J I	1.0	0.10	ug/Kg		04/29/23 07:58	05/02/23 23:26	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*101*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C5 PFPeA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C2 PFHxA	*94*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C4 PFHpA	*104*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C4 PFOA	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C5 PFNA	*97*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C2 PFDA	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C2 PFUnA	*102*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C3 PFBS	*98*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
18O2 PFHxS	*96*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C4 PFOS	*99*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
M2-4:2 FTS	*93*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
M2-6:2 FTS	*92*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
M2-8:2 FTS	*95*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*
13C2 10:2 FTS	*121*		*25 - 150*	*04/29/23 07:58*	*05/02/23 23:26*	*1*

Lab Sample ID: LCS 320-671101/2-A
Matrix: Tissue
Analysis Batch: 673762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 671101

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	10.7		ug/Kg		107	76 - 136
Perfluoropentanoic acid (PFPeA)	10.0	10.9		ug/Kg		109	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	9.46		ug/Kg		95	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	9.84		ug/Kg		98	71 - 131
L-Perfluorooctanoic acid	10.0	10.4		ug/Kg		104	72 - 132
Total PFOA	10.0	10.4		ug/Kg		104	
Perfluorononanoic acid (PFNA)	10.0	10.5		ug/Kg		105	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	10.5		ug/Kg		105	72 - 132

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCS 320-671101/2-A
Matrix: Tissue
Analysis Batch: 673762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 671101

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoroundecanoic acid (PFUnA)	10.0	10.4		ug/Kg		104	66 - 126
Perfluorobutanesulfonic acid (PFBS)	8.88	8.87		ug/Kg		100	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.54		ug/Kg		101	66 - 126
Total PFHxS	9.12	9.26		ug/Kg		101	
L-Perfluorohexanesulfonic acid	9.12	9.26		ug/Kg		101	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	9.54	9.48		ug/Kg		99	76 - 136
L-Perfluorooctanesulfonic acid	9.30	10.0		ug/Kg		108	68 - 141
Total PFOS	9.30	10.0		ug/Kg		108	
4:2 FTS	9.38	10.2		ug/Kg		109	68 - 143
6:2 FTS	9.52	10.9		ug/Kg		115	73 - 139
8:2 FTS	9.60	10.6		ug/Kg		110	75 - 135
10:2 FTS	9.66	9.71		ug/Kg		101	69 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*61*		*25 - 150*
13C5 PFPeA	*91*		*25 - 150*
13C2 PFHxA	*95*		*25 - 150*
13C4 PFHpA	*99*		*25 - 150*
13C4 PFOA	*94*		*25 - 150*
13C5 PFNA	*94*		*25 - 150*
13C2 PFDA	*95*		*25 - 150*
13C2 PFUnA	*103*		*25 - 150*
13C3 PFBS	*97*		*25 - 150*
18O2 PFHxS	*92*		*25 - 150*
13C4 PFOS	*98*		*25 - 150*
M2-4:2 FTS	*86*		*25 - 150*
M2-6:2 FTS	*90*		*25 - 150*
M2-8:2 FTS	*91*		*25 - 150*
13C2 10:2 FTS	*105*		*25 - 150*

Lab Sample ID: LCSD 320-671101/3-A
Matrix: Tissue
Analysis Batch: 673762

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671101

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	10.0	10.3		ug/Kg		103	76 - 136	4	30
Perfluoropentanoic acid (PFPeA)	10.0	10.1		ug/Kg		101	69 - 129	7	30
Perfluorohexanoic acid (PFHxA)	10.0	9.45		ug/Kg		95	71 - 131	0	30
Perfluoroheptanoic acid (PFHpA)	10.0	10.1		ug/Kg		101	71 - 131	3	30
L-Perfluorooctanoic acid	10.0	9.98		ug/Kg		100	72 - 132	4	30
Total PFOA	10.0	9.98		ug/Kg		100		4	
Perfluorononanoic acid (PFNA)	10.0	10.4		ug/Kg		104	73 - 133	1	30
Perfluorodecanoic acid (PFDA)	10.0	10.1		ug/Kg		101	72 - 132	3	30
Perfluoroundecanoic acid (PFUnA)	10.0	10.5		ug/Kg		105	66 - 126	1	30

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCSD 320-671101/3-A
Matrix: Tissue
Analysis Batch: 673762

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 671101

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanesulfonic acid (PFBS)			8.88	9.16		ug/Kg		103	69 - 129	3	30
Perfluoropentanesulfonic acid (PFPeS)			9.40	9.86		ug/Kg		105	66 - 126	3	30
Total PFHxS			9.12	9.20		ug/Kg		101		1	
L-Perfluorohexanesulfonic acid			9.12	9.20		ug/Kg		101	62 - 122	1	30
Perfluoroheptanesulfonic acid (PFHpS)			9.54	9.93		ug/Kg		104	76 - 136	5	30
L-Perfluorooctanesulfonic acid			9.30	9.61		ug/Kg		103	68 - 141	4	30
Total PFOS			9.30	9.61		ug/Kg		103		4	
4:2 FTS			9.38	10.5		ug/Kg		112	68 - 143	2	30
6:2 FTS			9.52	10.2		ug/Kg		108	73 - 139	6	30
8:2 FTS			9.60	10.1		ug/Kg		106	75 - 135	4	30
10:2 FTS			9.66	9.20		ug/Kg		95	69 - 145	5	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*91*		*25 - 150*
13C5 PFPeA	*100*		*25 - 150*
13C2 PFHxA	*98*		*25 - 150*
13C4 PFHpA	*101*		*25 - 150*
13C4 PFOA	*100*		*25 - 150*
13C5 PFNA	*97*		*25 - 150*
13C2 PFDA	*100*		*25 - 150*
13C2 PFUnA	*108*		*25 - 150*
13C3 PFBS	*96*		*25 - 150*
18O2 PFHxS	*96*		*25 - 150*
13C4 PFOS	*101*		*25 - 150*
M2-4:2 FTS	*84*		*25 - 150*
M2-6:2 FTS	*95*		*25 - 150*
M2-8:2 FTS	*95*		*25 - 150*
13C2 10:2 FTS	*116*		*25 - 150*

LCMS

Prep Batch: 671099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-33	NK 283645	Total/NA	Tissue	SHAKE	
320-98863-33 - DL	NK 283645	Total/NA	Tissue	SHAKE	
320-98863-34	NK 283648	Total/NA	Tissue	SHAKE	
320-98863-34 - DL	NK 283648	Total/NA	Tissue	SHAKE	
320-98863-35	NK 283603	Total/NA	Tissue	SHAKE	
320-98863-35 - DL	NK 283603	Total/NA	Tissue	SHAKE	
320-98863-35 - RADL	NK 283603	Total/NA	Tissue	SHAKE	
320-98863-36	NK 283604-Liver	Total/NA	Tissue	SHAKE	
320-98863-36 - DL	NK 283604-Liver	Total/NA	Tissue	SHAKE	
320-98863-36 - RADL	NK 283604-Liver	Total/NA	Tissue	SHAKE	
320-98863-37 - DL	NK 283609-Muscle	Total/NA	Tissue	SHAKE	
320-98863-37	NK 283609-Muscle	Total/NA	Tissue	SHAKE	
320-98863-37 - RADL	NK 283609-Muscle	Total/NA	Tissue	SHAKE	
320-98863-38 - DL	NK 283610	Total/NA	Tissue	SHAKE	
320-98863-38	NK 283610	Total/NA	Tissue	SHAKE	
320-98863-38 - RADL	NK 283610	Total/NA	Tissue	SHAKE	
320-98863-39	NK 283612	Total/NA	Tissue	SHAKE	
320-98863-39 - DL	NK 283612	Total/NA	Tissue	SHAKE	
320-98863-40 - DL	NK 283623-Muscle	Total/NA	Tissue	SHAKE	
320-98863-40	NK 283623-Muscle	Total/NA	Tissue	SHAKE	
320-98863-41	NK 283628	Total/NA	Tissue	SHAKE	
320-98863-41 - DL	NK 283628	Total/NA	Tissue	SHAKE	
320-98863-42	NK 283630	Total/NA	Tissue	SHAKE	
320-98863-42 - DL	NK 283630	Total/NA	Tissue	SHAKE	
320-98863-42 - RADL	NK 283630	Total/NA	Tissue	SHAKE	
320-98863-43	NK 283634	Total/NA	Tissue	SHAKE	
320-98863-43 - DL	NK 283634	Total/NA	Tissue	SHAKE	
320-98863-43 - RADL	NK 283634	Total/NA	Tissue	SHAKE	
320-98863-44	NK 283635	Total/NA	Tissue	SHAKE	
320-98863-44 - DL	NK 283635	Total/NA	Tissue	SHAKE	
320-98863-44 - RADL	NK 283635	Total/NA	Tissue	SHAKE	
320-98863-45	NK 283637	Total/NA	Tissue	SHAKE	
320-98863-45 - DL	NK 283637	Total/NA	Tissue	SHAKE	
MB 320-671099/1-A	Method Blank	Total/NA	Tissue	SHAKE	
LCS 320-671099/2-A	Lab Control Sample	Total/NA	Tissue	SHAKE	
LCSD 320-671099/3-A	Lab Control Sample Dup	Total/NA	Tissue	SHAKE	

Prep Batch: 671101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-46 - DL	NK 283666	Total/NA	Tissue	SHAKE	
320-98863-46	NK 283666	Total/NA	Tissue	SHAKE	
320-98863-47	NK 283668	Total/NA	Tissue	SHAKE	
320-98863-47 - DL	NK 283668	Total/NA	Tissue	SHAKE	
320-98863-48	NK 283675	Total/NA	Tissue	SHAKE	
320-98863-48 - DL	NK 283675	Total/NA	Tissue	SHAKE	
320-98863-49 - DL	NK 283680	Total/NA	Tissue	SHAKE	
320-98863-49	NK 283680	Total/NA	Tissue	SHAKE	
320-98863-49 - RADL	NK 283680	Total/NA	Tissue	SHAKE	
320-98863-50	NK 283754	Total/NA	Tissue	SHAKE	
320-98863-50 - DL	NK 283754	Total/NA	Tissue	SHAKE	
320-98863-51	NK 283756	Total/NA	Tissue	SHAKE	

LCMS (Continued)

Prep Batch: 671101 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-51 - DL	NK 283756	Total/NA	Tissue	SHAKE	
320-98863-52 - DL	NK 283693-Muscle	Total/NA	Tissue	SHAKE	
320-98863-52	NK 283693-Muscle	Total/NA	Tissue	SHAKE	
320-98863-53 - DL	NK 283771	Total/NA	Tissue	SHAKE	
320-98863-53	NK 283771	Total/NA	Tissue	SHAKE	
320-98863-53 - RADL	NK 283771	Total/NA	Tissue	SHAKE	
320-98863-54 - DL	NK 283770	Total/NA	Tissue	SHAKE	
320-98863-54	NK 283770	Total/NA	Tissue	SHAKE	
320-98863-54 - RADL	NK 283770	Total/NA	Tissue	SHAKE	
320-98863-55 - DL	NK 283604-Muscle	Total/NA	Tissue	SHAKE	
320-98863-55	NK 283604-Muscle	Total/NA	Tissue	SHAKE	
320-98863-56 - DL	NK 283609-Liver	Total/NA	Tissue	SHAKE	
320-98863-56	NK 283609-Liver	Total/NA	Tissue	SHAKE	
320-98863-57	NK 283623-Liver	Total/NA	Tissue	SHAKE	
320-98863-57 - DL	NK 283623-Liver	Total/NA	Tissue	SHAKE	
320-98863-57 - RADL	NK 283623-Liver	Total/NA	Tissue	SHAKE	
320-98863-58 - DL	NK 283693-Liver	Total/NA	Tissue	SHAKE	
320-98863-58	NK 283693-Liver	Total/NA	Tissue	SHAKE	
MB 320-671101/1-A	Method Blank	Total/NA	Tissue	SHAKE	
LCS 320-671101/2-A	Lab Control Sample	Total/NA	Tissue	SHAKE	
LCSD 320-671101/3-A	Lab Control Sample Dup	Total/NA	Tissue	SHAKE	

Analysis Batch: 673760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-33	NK 283645	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-34	NK 283648	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-35	NK 283603	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-36	NK 283604-Liver	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-37	NK 283609-Muscle	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-38	NK 283610	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-39	NK 283612	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-40	NK 283623-Muscle	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-41	NK 283628	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-42	NK 283630	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-43	NK 283634	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-44	NK 283635	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-45	NK 283637	Total/NA	Tissue	B/L/T PFAS	671099
MB 320-671099/1-A	Method Blank	Total/NA	Tissue	B/L/T PFAS	671099
LCS 320-671099/2-A	Lab Control Sample	Total/NA	Tissue	B/L/T PFAS	671099
LCSD 320-671099/3-A	Lab Control Sample Dup	Total/NA	Tissue	B/L/T PFAS	671099

Analysis Batch: 673762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-46	NK 283666	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-47	NK 283668	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-48	NK 283675	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-49	NK 283680	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-50	NK 283754	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-51	NK 283756	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-52	NK 283693-Muscle	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-53	NK 283771	Total/NA	Tissue	B/L/T PFAS	671101

LCMS (Continued)

Analysis Batch: 673762 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-54	NK 283770	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-55	NK 283604-Muscle	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-56	NK 283609-Liver	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-57	NK 283623-Liver	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-58	NK 283693-Liver	Total/NA	Tissue	B/L/T PFAS	671101
MB 320-671101/1-A	Method Blank	Total/NA	Tissue	B/L/T PFAS	671101
LCS 320-671101/2-A	Lab Control Sample	Total/NA	Tissue	B/L/T PFAS	671101
LCSD 320-671101/3-A	Lab Control Sample Dup	Total/NA	Tissue	B/L/T PFAS	671101

Analysis Batch: 674538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-35 - DL	NK 283603	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-36 - DL	NK 283604-Liver	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-37 - DL	NK 283609-Muscle	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-38 - DL	NK 283610	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-41 - DL	NK 283628	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-42 - DL	NK 283630	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-43 - DL	NK 283634	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-44 - DL	NK 283635	Total/NA	Tissue	B/L/T PFAS	671099

Analysis Batch: 674540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-46 - DL	NK 283666	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-47 - DL	NK 283668	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-48 - DL	NK 283675	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-49 - DL	NK 283680	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-51 - DL	NK 283756	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-53 - DL	NK 283771	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-54 - DL	NK 283770	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-55 - DL	NK 283604-Muscle	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-56 - DL	NK 283609-Liver	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-57 - DL	NK 283623-Liver	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-58 - DL	NK 283693-Liver	Total/NA	Tissue	B/L/T PFAS	671101

Analysis Batch: 676767

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-33 - DL	NK 283645	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-35 - RADL	NK 283603	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-36 - RADL	NK 283604-Liver	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-37 - RADL	NK 283609-Muscle	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-38 - RADL	NK 283610	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-39 - DL	NK 283612	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-42 - RADL	NK 283630	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-43 - RADL	NK 283634	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-44 - RADL	NK 283635	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-45 - DL	NK 283637	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-49 - RADL	NK 283680	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-53 - RADL	NK 283771	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-54 - RADL	NK 283770	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-57 - RADL	NK 283623-Liver	Total/NA	Tissue	B/L/T PFAS	671101

QC Association Summary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

LCMS

Analysis Batch: 677166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-40 - DL	NK 283623-Muscle	Total/NA	Tissue	B/L/T PFAS	671099
320-98863-50 - DL	NK 283754	Total/NA	Tissue	B/L/T PFAS	671101
320-98863-52 - DL	NK 283693-Muscle	Total/NA	Tissue	B/L/T PFAS	671101

Analysis Batch: 677447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-98863-34 - DL	NK 283648	Total/NA	Tissue	B/L/T PFAS	671099

Client Sample ID: NK 283645
Lab Sample ID: 320-98863-33
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.22 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 05:08	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.22 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	10	1 mL	1 mL	676767	05/22/23 03:30	AEC	EET SAC

Client Sample ID: NK 283648
Lab Sample ID: 320-98863-34
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.51 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 05:30	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.51 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	10	1 mL	1 mL	677447	05/24/23 17:03	AEC	EET SAC

Client Sample ID: NK 283603
Lab Sample ID: 320-98863-35
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.92 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 05:53	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.92 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674538	05/14/23 17:25	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.92 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 04:03	AEC	EET SAC

Client Sample ID: NK 283604-Liver
Lab Sample ID: 320-98863-36
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.79 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 06:16	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.79 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674538	05/14/23 17:47	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.79 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 04:20	AEC	EET SAC

Client Sample ID: NK 283609-Muscle
Lab Sample ID: 320-98863-37
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.91 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 06:38	D1R	EET SAC

Client Sample ID: NK 283609-Muscle
Lab Sample ID: 320-98863-37
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE	DL		0.91 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674538	05/14/23 18:10	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.91 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 04:36	AEC	EET SAC

Client Sample ID: NK 283610
Lab Sample ID: 320-98863-38
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.07 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 07:24	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.07 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674538	05/14/23 18:33	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		1.07 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 04:53	AEC	EET SAC

Client Sample ID: NK 283612
Lab Sample ID: 320-98863-39
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.76 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 07:46	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.76 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	5	1 mL	1 mL	676767	05/22/23 05:10	AEC	EET SAC

Client Sample ID: NK 283623-Muscle
Lab Sample ID: 320-98863-40
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.09 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 08:09	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.09 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	50	1 mL	1 mL	677166	05/24/23 11:21	AF	EET SAC

Client Sample ID: NK 283628
Lab Sample ID: 320-98863-41
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.01 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 08:32	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.01 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674538	05/14/23 19:41	D1R	EET SAC

Client Sample ID: NK 283630
Lab Sample ID: 320-98863-42
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.80 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 08:54	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.80 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674538	05/14/23 20:04	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.80 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 06:16	AEC	EET SAC

Client Sample ID: NK 283634
Lab Sample ID: 320-98863-43
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.05 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 09:17	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.05 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674538	05/14/23 20:26	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		1.05 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 06:33	AEC	EET SAC

Client Sample ID: NK 283635
Lab Sample ID: 320-98863-44
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.05 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 09:40	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.05 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674538	05/14/23 20:49	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		1.05 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 06:50	AEC	EET SAC

Client Sample ID: NK 283637
Lab Sample ID: 320-98863-45
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.07 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673760	05/02/23 10:02	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.07 g	10.0 mL	671099	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	10	1 mL	1 mL	676767	05/22/23 07:06	AEC	EET SAC

Client Sample ID: NK 283666
Lab Sample ID: 320-98863-46
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.71 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 00:34	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.71 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674540	05/15/23 02:29	D1R	EET SAC

Client Sample ID: NK 283668
Lab Sample ID: 320-98863-47
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.50 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 00:57	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.50 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674540	05/15/23 02:52	D1R	EET SAC

Client Sample ID: NK 283675
Lab Sample ID: 320-98863-48
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.00 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 01:19	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		1.00 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674540	05/15/23 03:15	D1R	EET SAC

Client Sample ID: NK 283680
Lab Sample ID: 320-98863-49
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.56 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 01:42	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.56 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	20	1 mL	1 mL	674540	05/15/23 00:13	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.56 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	20	1 mL	1 mL	676767	05/22/23 07:56	AEC	EET SAC

Client Sample ID: NK 283754
Lab Sample ID: 320-98863-50
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.37 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 02:05	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.37 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	50	1 mL	1 mL	677166	05/24/23 11:43	AF	EET SAC

Client Sample ID: NK 283756
Lab Sample ID: 320-98863-51
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.26 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 02:27	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.26 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	20	1 mL	1 mL	674540	05/15/23 00:36	D1R	EET SAC

Client Sample ID: NK 283693-Muscle
Lab Sample ID: 320-98863-52
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.73 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 02:50	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.73 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	50	1 mL	1 mL	677166	05/24/23 12:06	AF	EET SAC

Client Sample ID: NK 283771
Lab Sample ID: 320-98863-53
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.18 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 03:35	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.18 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674540	05/15/23 03:37	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.18 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 08:13	AEC	EET SAC

Client Sample ID: NK 283770
Lab Sample ID: 320-98863-54
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.54 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 03:58	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.54 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674540	05/15/23 04:45	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.54 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 08:30	AEC	EET SAC

Client Sample ID: NK 283604-Muscle
Lab Sample ID: 320-98863-55
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.99 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 04:21	D1R	EET SAC

Client Sample ID: NK 283604-Muscle
Lab Sample ID: 320-98863-55
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE	DL		0.99 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	20	1 mL	1 mL	674540	05/15/23 00:58	D1R	EET SAC

Client Sample ID: NK 283609-Liver
Lab Sample ID: 320-98863-56
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.83 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 04:43	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.83 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	20	1 mL	1 mL	674540	05/15/23 01:21	D1R	EET SAC

Client Sample ID: NK 283623-Liver
Lab Sample ID: 320-98863-57
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.75 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 05:06	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.75 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674540	05/15/23 05:08	D1R	EET SAC
Total/NA	Prep	SHAKE	RADL		0.75 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	RADL	100	1 mL	1 mL	676767	05/22/23 08:47	AEC	EET SAC

Client Sample ID: NK 283693-Liver
Lab Sample ID: 320-98863-58
Date Collected: 04/11/23 00:00
Matrix: Tissue
Date Received: 04/13/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			0.93 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	673762	05/03/23 05:29	D1R	EET SAC
Total/NA	Prep	SHAKE	DL		0.93 g	10.0 mL	671101	04/29/23 07:58	FX	EET SAC
Total/NA	Analysis	B/L/T PFAS	DL	100	1 mL	1 mL	674540	05/15/23 05:31	D1R	EET SAC

Laboratory References:
EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	06-01-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-24
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-24
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23 *
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Method	Method Description	Protocol	Laboratory
B/L/T PFAS	Branched, Linear and Total PFAS	EPA	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: University of New Mexico
Job ID: 320-98863-2
Project/Site: Holloman PFAS (Samples 33-58 of 58)

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-98863-33	NK 283645	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-34	NK 283648	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-35	NK 283603	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-36	NK 283604-Liver	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-37	NK 283609-Muscle	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-38	NK 283610	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-39	NK 283612	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-40	NK 283623-Muscle	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-41	NK 283628	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-42	NK 283630	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-43	NK 283634	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-44	NK 283635	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-45	NK 283637	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-46	NK 283666	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-47	NK 283668	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-48	NK 283675	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-49	NK 283680	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-50	NK 283754	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-51	NK 283756	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-52	NK 283693-Muscle	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-53	NK 283771	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-54	NK 283770	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-55	NK 283604-Muscle	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-56	NK 283609-Liver	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-57	NK 283623-Liver	Tissue	04/11/23 00:00	04/13/23 09:30
320-98863-58	NK 283693-Liver	Tissue	04/11/23 00:00	04/13/23 09:30

Chain of Custody Record

602565

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Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Jean-Lu Cartron	Site Contact:	Date:	COC No:
Company Name: Museum of SW Biology	Tel/Email: jlec@unm.edu	Lab Contact:	Carrier:	_____ of _____ COCs
Address: MSC03 2020 1 University of New Mexico	Analysis Turnaround Time			Sampler:
City/State/Zip: Albuquerque NM 87131	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (505) 277-7808	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Holloman PFAS	☐ 1 week			Job / SDG No.:
Site:	☐ 2 days			
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
NK 311397								
NK 311406								
NK 310837								
NK 310873								
NK 310884								
NK 310892								
NK 310831								
NK 310840								
NK 310883								
NK 310882								
NK 311886								
NK 311891								

320-98863 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 4.6 Corr'd: 4.6 Therm ID No. CT5

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:			Received by:	EET Sac	4/12/23 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

No Imi. date SO 4/12/23 [illegible] Relinquished SO 4/12/23
4 NO Matrix SO 4/12/23

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5/26/2023

Chain of Custody Record

602564

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Jean-Luc Cartron	Site Contact:	Date:	COC No:
Company Name: Museum of SW Biology	Tel/Email: jlec@unm.edu	Lab Contact:	Carrier:	_____ of _____ COCs
Address: MSC03 2020 University of NM	Analysis Turnaround Time			Sampler:
City/State/Zip: Albuquerque NM 87131	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (505) 277-9808	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Holloman PFAS	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
~~NK 310803~~	5/5/2022	Hand						
NK 10440								
NK 31807								
NK 31808								
NK 31806								
NK 311426								
NK 311437								
NK 311390								
NK 311395								
NK 311423								
NK 311435								
NK 311422 (2 vials) non-targeted								

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: -4.4 Corr'd: -4.4 | Therm ID No.: 120

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:			Received by:	FET SAL	4/12/23 930
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

5/26/2023

Address: _____

Chain of Custody Record

602566 eurofins | Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Jean-Luc Cartron	Site Contact:	Date:	COC No:
Company Name: Museum of SW Biology	Tel/Email: jlec@unm.edu	Lab Contact:	Carrier:	_____ of _____ COCs
Address: MSC03 2020 1 University of New Mexico	Analysis Turnaround Time			Sampler:
City/State/Zip: Albuquerque NM 87131	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (505) 277-7808	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Holloman PFAS	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
NK 311887								
NK 310922								
NK 310912								
NK 310959								
NK 310963								
NK 310939								
See attached addendum								
NK 284404								
NK 284405 (non-targeted) 3 vials								
NK 283752								

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: -4 Corr'd: -4 | Therm ID No.: CT0

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:
				EET Suc	4/12/23 930

5/26/2023

GUID	NK	PART_N	CONDITIOI	SCIENTIFIC_NAME	LOAN_NUMBER	ITEM_INSTRUCTIONS
MSB:Mamm:340078	311426	liver	excellent	Mus musculus	2023.014.Mamm	
MSB:Mamm:340081	311437	liver	excellent	Chaetodipus eremicus	2023.014.Mamm	
MSB:Mamm:340087	311390	liver	very good	Reithrodontomys megalotis	2023.014.Mamm	
MSB:Mamm:340090	311395	liver	very good	Peromyscus eremicus	2023.014.Mamm	
MSB:Mamm:340102	311423	liver	good	Mus musculus	2023.014.Mamm	
MSB:Mamm:340107	311435	liver	excellent	Chaetodipus eremicus	2023.014.Mamm	
MSB:Mamm:340121	311422	liver	very good	Mus musculus	2023.014.Mamm	non-targeted analysis; ~~double tubes~~ single tube
~~MSB:Mamm:340121~~	~~311422~~	~~liver~~	~~very good~~	~~Mus musculus~~	~~2023.014.Mamm~~	~~non-targeted analysis; double tubes~~
MSB:Mamm:340128	311397	liver	very good	Sigmodon hispidus	2023.014.Mamm	
MSB:Mamm:340136	311406	liver	good	Dipodomys merriami	2023.014.Mamm	
MSB:Mamm:341472	310837	liver	very good	Peromyscus leucopus	2023.014.Mamm	
MSB:Mamm:341543	310873	liver	very good	Sigmodon hispidus	2023.014.Mamm	
MSB:Mamm:341567	310884	liver	fair	Mus musculus	2023.014.Mamm	
MSB:Mamm:341583	310892	liver	fair	Chaetodipus eremicus	2023.014.Mamm	
MSB:Mamm:341589	310831	liver	very good	Chaetodipus eremicus	2023.014.Mamm	
MSB:Mamm:341596	310840	liver	excellent	Dipodomys merriami	2023.014.Mamm	
MSB:Mamm:341605	310883	liver	good	Mus musculus	2023.014.Mamm	
MSB:Mamm:341606	310882	liver	good	Mus musculus	2023.014.Mamm	
MSB:Mamm:342156	311886	liver	fair	Mus musculus	2023.014.Mamm	
MSB:Mamm:342158	311891	liver	good	Reithrodontomys megalotis	2023.014.Mamm	
MSB:Mamm:342170	311887	liver	fair	Mus musculus	2023.014.Mamm	
MSB:Mamm:342193	310922	liver	excellent	Mus musculus	2023.014.Mamm	
MSB:Mamm:342196	310912	liver	excellent	Mus musculus	2023.014.Mamm	
MSB:Mamm:342214	310959	liver	unknown	Mus musculus	2023.014.Mamm	
MSB:Mamm:342221	310963	liver	unknown	Reithrodontomys megalotis	2023.014.Mamm	
MSB:Mamm:342231	310939	liver	excellent	Dipodomys merriami	2023.014.Mamm	
MSB:Mamm:89197	10440	liver	unchecked	Peromyscus leucopus	2023.014.Mamm	
MSB:Mamm:91659	31807	liver	unchecked	Reithrodontomys megalotis	2023.014.Mamm	
MSB:Mamm:91660	31808	liver	unchecked	Sigmodon hispidus	2023.014.Mamm	
MSB:Mamm:92667	31806	liver	unchecked	Peromyscus leucopus	2023.014.Mamm	

29 vials

PART_BAR	PARENT_BARCODE	
A9NZ5		
A9NYJ		
A9OIX		
A9MN8		
A9NZB		
A9NYN		
	A9ONJ	
A9NZD		
A9MN4		
A9MML		
	A9V6K	
A9MKL		
A9MJZ		
A9MJJ		
A9VMN		
	A9V6Z	
A9MK1		
A9MK3		
	A9ORO	
	A9ORT	
	A9ORP	
A9WHB		
A9WGR		
A9OY6		
A9OYA		
A9WI9		
	AAX1H	
	AAX1F	
	AAX1E	
	AAX1G	

GUID	NK	PART_NA	SCIENTIFIC_NAME	LOAN_IT	LOAN_NUMBER	PART_BARCOD	PARENT_BARCODE
MSB:Bird:50946	283645	liver	Eremophila alpestris	0.4g	2023.05.Bird	MSB1011111	
MSB:Bird:50972	283648	liver	Eremophila alpestris	0.75g	2023.05.Bird	MSB1011627	
MSB:Bird:50990	283603	liver	Fulica americana	1 g	2023.05.Bird		MSB1011296
MSB:Bird:50991	283604	liver	Anas acuta	1 g	2023.05.Bird		MSB1011305
MSB:Bird:50991	283604	muscle	Anas acuta	1 g	2023.05.Bird		MSB1011306
MSB:Bird:50996	283609	muscle	Bucephala clangula	1 g	2023.05.Bird		MSB1011330
MSB:Bird:50996	283609	liver	Bucephala clangula	1 g	2023.05.Bird		MSB1011331
MSB:Bird:50997	283610	liver	Spatula clypeata	1 g	2023.05.Bird		MSB1011347
MSB:Bird:50999	283612	liver	Mergus merganser	1 g	2023.05.Bird		MSB1011380
MSB:Bird:51010	283623	muscle	Mareca americana	1 g	2023.05.Bird		MSB1011479
MSB:Bird:51010	283623	liver	Mareca americana	1 g	2023.05.Bird		MSB1011480
MSB:Bird:51015	283628	liver	Aythya americana	1 g	2023.05.Bird		MSB1011495
MSB:Bird:51017	283630	liver	Oxyura jamaicensis	1 g	2023.05.Bird		MSB1011504
MSB:Bird:51021	283634	liver	Anas crecca	1 g	2023.05.Bird		MSB1011539
MSB:Bird:51022	283635	liver	Anas crecca	1 g	2023.05.Bird		MSB1011532
MSB:Bird:51024	283637	liver	Mergus merganser	1 g	2023.05.Bird		MSB1011557
MSB:Bird:51032	283666	liver	Spatula clypeata	1 g	2023.05.Bird		MSB1011751
MSB:Bird:51034	283668	liver	Aythya americana	1 g	2023.05.Bird		MSB1011777
MSB:Bird:51039	283675	liver	Anas crecca carolinensis	1 g	2023.05.Bird		MSB1011805
MSB:Bird:51062	283680	liver	Melospiza melodia	0.5g	2023.05.Bird	MSB1011855	
MSB:Bird:51156	283754	liver	Geothlypis trichas	0.5g	2023.05.Bird	MSB1012403	
MSB:Bird:51157	283756	liver	Geothlypis trichas	0.3g	2023.05.Bird	MSB1012411	
MSB:Bird:51169	283693	muscle	Bucephala albeola	1 g	2023.05.Bird		MSB1011950
MSB:Bird:51169	283693	liver	Bucephala albeola	1 g	2023.05.Bird		MSB1011953
MSB:Bird:51309	283771	liver	Charadrius vociferus	0.5g	2023.05.Bird		MSB1015273
MSB:Bird:51310	283770	liver	Charadrius vociferus	0.5g	2023.05.Bird		MSB1015268

MSB:Bird:51519 284404 liver 0.5g
" 51518 284405 ~~liver~~ muscle 6g (3 cryovials) - non targeted *
" 51118 283752 liver 1g

29 vials

5/26/2023

Login Sample Receipt Checklist

Client: University of New Mexico

Job Number: 320-98863-2

Login Number: 98863
List Number: 1
Creator: Oropeza, Salvador

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1685156
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	dry ice
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.	False	Refer to Job Narrative for details.
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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.	False	Refer to Job Narrative for details.
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

PREPARED FOR

Attn: Jean-Luc Cartron
University of New Mexico
Museum of Southwestern Biology
Division of Mammals
CERIA Bldg 83, Room 204
Albuquerque, New Mexico 87131

Generated 6/13/2023 3:33:57 PM

JOB DESCRIPTION

Holloman PFAS (Plant Tissue)

JOB NUMBER

320-100716-1

Eurofins Sacramento
880 Riverside Parkway
West Sacramento CA 95605

See page two for job notes and contact information.

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing Northern California, LLC Project Manager.

Authorization

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Authorized for release by
Linda C. Laver, Senior Project Manager
Linda.Laver@et.eurofinsus.com
(916)374-4362

Table of Contents

Definitions/Glossary

Client: University of New Mexico
Job ID: 320-100716-1
Project/Site: Holloman PFAS (Plant Tissue)

Qualifiers

LCMS

Qualifier	Qualifier Description
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Job ID: 320-100716-1

Laboratory: Eurofins Sacramento

Narrative

Job Narrative
320-100716-1

Receipt
The samples were received on 5/23/2023 9:30 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The gel pack was thawed at time of receipt and the temperature of the cooler at receipt was 20.0º C, which is above the required temperature range.

Receipt Exceptions
The lab did not receive a proper Chain of Custody (COC), but received paperwork that lists PFAS as the requested analysis, the sample IDs and a collection date of May 17, 2023. A collection time was not provided. The samples were logged in with a collection time of 00:00.

The container label has "Dcnurr trapline" but the sample was logged in as Scrub trapline (320-100716-1) based on toe paperwork received with the samples.

LCMS
Method B/L/T PFAS: Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for the following sample: 32.812765N, -106.120059W (320-100716-2). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

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

Organic Prep
Method SHAKE: The following samples in preparation batch 320-680535 were green in color following extraction: Scrub trapline (320-100716-1) and 32.812765N, -106.120059W (320-100716-2).
preparation batch 320-680535

Method SHAKE: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-680535.

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

Detection Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Plant Tissue)

Job ID: 320-100716-1

Client Sample ID: Scrub trapline — Lab Sample ID: 320-100716-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	14		0.98	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	9.2		0.98	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	3.5		0.98	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.0		0.98	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	0.80	J	0.98	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	0.80	J	0.98	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.40	J	0.98	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.47	J	0.98	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	1.2		0.98	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	7.5		0.98	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	6.3		0.98	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.22	J	0.98	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid	4.5		2.5	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid	3.6		2.5	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS	8.0		2.5	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	16		0.98	0.42	ug/Kg	1		B/L/T PFAS	Total/NA

Client Sample ID: 32.812765N, -106.120059W — Lab Sample ID: 320-100716-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.0		0.98	0.23	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanoic acid (PFPeA)	8.8		0.98	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorohexanoic acid (PFHxA)	1.9		0.98	0.27	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.39	J	0.98	0.11	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanoic acid	0.54	J	0.98	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOA	0.54	J	0.98	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.23	J	0.98	0.17	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.33	J	0.98	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorohexanesulfonic acid	0.76	J	0.98	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFHxS	5.9		0.98	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorohexanesulfonic acid	5.2		0.98	0.15	ug/Kg	1		B/L/T PFAS	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.20	J	0.98	0.18	ug/Kg	1		B/L/T PFAS	Total/NA
L-Perfluorooctanesulfonic acid	3.1		2.5	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Br-Perfluorooctanesulfonic acid	2.8		2.5	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
Total PFOS	6.0		2.5	0.20	ug/Kg	1		B/L/T PFAS	Total/NA
6:2 FTS	4.3		0.98	0.42	ug/Kg	1		B/L/T PFAS	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: Scrub trapline

Date Collected: 05/17/23 00:00
Date Received: 05/23/23 09:30

Lab Sample ID: 320-100716-1

Matrix: Plant Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**14**		0.98	0.23	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Perfluoropentanoic acid (PFPeA)	**9.2**		0.98	0.17	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Perfluorohexanoic acid (PFHxA)	**3.5**		0.98	0.27	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Perfluoroheptanoic acid (PFHpA)	**1.0**		0.98	0.11	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
L-Perfluorooctanoic acid	**0.80**	**J**	0.98	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Br-Perfluorooctanoic acid	ND		0.98	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Total PFOA	**0.80**	**J**	0.98	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Perfluorononanoic acid (PFNA)	ND		0.98	0.17	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Perfluorodecanoic acid (PFDA)	ND		0.98	0.10	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Perfluoroundecanoic acid (PFUnA)	ND		0.98	0.27	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Perfluorobutanesulfonic acid (PFBS)	**0.40**	**J**	0.98	0.17	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Perfluoropentanesulfonic acid (PFPeS)	**0.47**	**J**	0.98	0.18	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Br-Perfluorohexanesulfonic acid	**1.2**		0.98	0.15	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Total PFHxS	**7.5**		0.98	0.15	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
L-Perfluorohexanesulfonic acid	**6.3**		0.98	0.15	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.22**	**J**	0.98	0.18	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
L-Perfluorooctanesulfonic acid	**4.5**		2.5	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Br-Perfluorooctanesulfonic acid	**3.6**		2.5	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
Total PFOS	**8.0**		2.5	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
4:2 FTS	ND		0.98	0.26	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
6:2 FTS	**16**		0.98	0.42	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
8:2 FTS	ND		0.98	0.098	ug/Kg		06/05/23 18:24	06/12/23 16:25	1
10:2 FTS	ND		0.98	0.099	ug/Kg		06/05/23 18:24	06/12/23 16:25	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*69*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C5 PFPeA	*98*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C2 PFHxA	*101*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C4 PFHpA	*92*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C4 PFOA	*86*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C5 PFNA	*90*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C2 PFDA	*96*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C2 PFUnA	*92*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C3 PFBS	*92*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
18O2 PFHxS	*92*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C4 PFOS	*88*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
M2-4:2 FTS	*136*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
M2-6:2 FTS	*129*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
M2-8:2 FTS	*134*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*
13C2 10:2 FTS	*94*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:25*	*1*

Client Sample ID: 32.812765N, -106.120059W

Date Collected: 05/17/23 00:00
Date Received: 05/23/23 09:30

Lab Sample ID: 320-100716-2

Matrix: Plant Tissue

Method: EPA B/L/T PFAS - Branched, Linear and Total PFAS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**3.0**		0.98	0.23	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Perfluoropentanoic acid (PFPeA)	**8.8**		0.98	0.17	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Perfluorohexanoic acid (PFHxA)	**1.9**		0.98	0.27	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Perfluoroheptanoic acid (PFHpA)	**0.39**	**J**	0.98	0.11	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
L-Perfluorooctanoic acid	**0.54**	**J**	0.98	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Br-Perfluorooctanoic acid	ND		0.98	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Total PFOA	**0.54**	**J**	0.98	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Perfluorononanoic acid (PFNA)	ND		0.98	0.17	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Perfluorodecanoic acid (PFDA)	ND		0.98	0.10	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Perfluoroundecanoic acid (PFUnA)	ND		0.98	0.27	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Perfluorobutanesulfonic acid (PFBS)	**0.23**	**J**	0.98	0.17	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Perfluoropentanesulfonic acid (PFPeS)	**0.33**	**J**	0.98	0.18	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Br-Perfluorohexanesulfonic acid	**0.76**	**J**	0.98	0.15	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Total PFHxS	**5.9**		0.98	0.15	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
L-Perfluorohexanesulfonic acid	**5.2**		0.98	0.15	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Perfluoroheptanesulfonic acid (PFHpS)	**0.20**	**J**	0.98	0.18	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
L-Perfluorooctanesulfonic acid	**3.1**		2.5	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Br-Perfluorooctanesulfonic acid	**2.8**		2.5	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
Total PFOS	**6.0**		2.5	0.20	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
4:2 FTS	ND		0.98	0.26	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
6:2 FTS	**4.3**		0.98	0.42	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
8:2 FTS	ND		0.98	0.098	ug/Kg		06/05/23 18:24	06/12/23 16:48	1
10:2 FTS	ND		0.98	0.099	ug/Kg		06/05/23 18:24	06/12/23 16:48	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*67*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C5 PFPeA	*91*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C2 PFHxA	*89*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C4 PFHpA	*86*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C4 PFOA	*86*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C5 PFNA	*87*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C2 PFDA	*107*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C2 PFUnA	*91*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C3 PFBS	*87*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
18O2 PFHxS	*88*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C4 PFOS	*89*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
M2-4:2 FTS	*132*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
M2-6:2 FTS	*117*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
M2-8:2 FTS	*163*	**5+*	*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*
13C2 10:2 FTS	*83*		*25 - 150*	*06/05/23 18:24*	*06/12/23 16:48*	*1*

Isotope Dilution Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Plant Tissue)

Job ID: 320-100716-1

Method: B/L/T PFAS - Branched, Linear and Total PFAS

Matrix: Plant Tissue

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
320-100716-1	Scrub trapline	69	98	101	92	86	90	96	92
320-100716-2	32.812765N, -106.120059W	67	91	89	86	86	87	107	91

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)
320-100716-1	Scrub trapline	92	92	88	136	129	134	94
320-100716-2	32.812765N, -106.120059W	87	88	89	132	117	163 *5+	83

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
M102FTS = 13C2 10:2 FTS

Method: B/L/T PFAS - Branched, Linear and Total PFAS

Matrix: Tissue

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
LCS 320-680535/2-A	Lab Control Sample	38	86	98	94	91	90	90	95
LCSD 320-680535/3-A	Lab Control Sample Dup	72	94	92	94	92	90	89	85
MB 320-680535/1-A	Method Blank	94	101	99	98	95	93	92	96

		Percent Isotope Dilution Recovery (Acceptance Limits)						
Lab Sample ID	Client Sample ID	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	M102FTS (25-150)
LCS 320-680535/2-A	Lab Control Sample	100	98	97	125	110	94	85
LCSD 320-680535/3-A	Lab Control Sample Dup	96	94	94	118	110	90	66
MB 320-680535/1-A	Method Blank	103	103	100	127	113	100	91

Surrogate Legend

PFBA = 13C4 PFBA
PFPeA = 13C5 PFPeA
PFHxA = 13C2 PFHxA
C4PFHA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA

Isotope Dilution Summary

Client: University of New Mexico
Job ID: 320-100716-1
Project/Site: Holloman PFAS (Plant Tissue)

C3PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
M242FTS = M2-4:2 FTS
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS
M102FTS = 13C2 10:2 FTS

Method: B/L/T PFAS - Branched, Linear and Total PFAS

Lab Sample ID: MB 320-680535/1-A
Matrix: Tissue
Analysis Batch: 682363

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 680535

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.0	0.24	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Perfluoropentanoic acid (PFPeA)	ND		1.0	0.18	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Perfluorohexanoic acid (PFHxA)	ND		1.0	0.27	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Perfluoroheptanoic acid (PFHpA)	ND		1.0	0.12	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
L-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Br-Perfluorooctanoic acid	ND		1.0	0.20	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Total PFOA	ND		1.0	0.20	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Perfluorononanoic acid (PFNA)	ND		1.0	0.18	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Perfluorodecanoic acid (PFDA)	ND		1.0	0.10	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Perfluoroundecanoic acid (PFUnA)	ND		1.0	0.27	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.0	0.17	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Perfluoropentanesulfonic acid (PFPeS)	ND		1.0	0.18	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Br-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Total PFHxS	ND		1.0	0.15	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
L-Perfluorohexanesulfonic acid	ND		1.0	0.15	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Perfluoroheptanesulfonic acid (PFHpS)	ND		1.0	0.19	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
L-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Br-Perfluorooctanesulfonic acid	ND		2.5	0.20	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
Total PFOS	ND		2.5	0.20	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
4:2 FTS	ND		1.0	0.27	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
6:2 FTS	ND		1.0	0.42	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
8:2 FTS	ND		1.0	0.10	ug/Kg		06/05/23 18:24	06/12/23 15:17	1
10:2 FTS	ND		1.0	0.10	ug/Kg		06/05/23 18:24	06/12/23 15:17	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFBA	*94*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C5 PFPeA	*101*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C2 PFHxA	*99*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C4 PFHpA	*98*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C4 PFOA	*95*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C5 PFNA	*93*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C2 PFDA	*92*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C2 PFUnA	*96*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C3 PFBS	*103*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
18O2 PFHxS	*103*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C4 PFOS	*100*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
M2-4:2 FTS	*127*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
M2-6:2 FTS	*113*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
M2-8:2 FTS	*100*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*
13C2 10:2 FTS	*91*		*25 - 150*	*06/05/23 18:24*	*06/12/23 15:17*	*1*

Lab Sample ID: LCS 320-680535/2-A
Matrix: Tissue
Analysis Batch: 682363

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 680535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorobutanoic acid (PFBA)	10.0	9.61		ug/Kg		96	76 - 136

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCS 320-680535/2-A
Matrix: Tissue
Analysis Batch: 682363

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 680535

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluoropentanoic acid (PFPeA)	10.0	10.7		ug/Kg		107	69 - 129
Perfluorohexanoic acid (PFHxA)	10.0	9.95		ug/Kg		99	71 - 131
Perfluoroheptanoic acid (PFHpA)	10.0	10.4		ug/Kg		104	71 - 131
L-Perfluorooctanoic acid	10.0	10.5		ug/Kg		105	72 - 132
Total PFOA	10.0	10.5		ug/Kg		105	
Perfluorononanoic acid (PFNA)	10.0	10.5		ug/Kg		105	73 - 133
Perfluorodecanoic acid (PFDA)	10.0	10.6		ug/Kg		106	72 - 132
Perfluoroundecanoic acid (PFUnA)	10.0	9.55		ug/Kg		95	66 - 126
Perfluorobutanesulfonic acid (PFBS)	8.88	8.79		ug/Kg		99	69 - 129
Perfluoropentanesulfonic acid (PFPeS)	9.40	9.50		ug/Kg		101	66 - 126
Total PFHxS	9.12	8.89		ug/Kg		98	
L-Perfluorohexanesulfonic acid	9.12	8.89		ug/Kg		98	62 - 122
Perfluoroheptanesulfonic acid (PFHpS)	9.54	10.3		ug/Kg		108	76 - 136
L-Perfluorooctanesulfonic acid	9.30	9.70		ug/Kg		104	68 - 141
Total PFOS	9.30	9.70		ug/Kg		104	
4:2 FTS	9.38	8.93		ug/Kg		95	68 - 143
6:2 FTS	9.52	10.2		ug/Kg		107	73 - 139
8:2 FTS	9.60	10.2		ug/Kg		106	75 - 135
10:2 FTS	9.66	8.37		ug/Kg		87	69 - 145

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C4 PFBA	*38*		*25 - 150*
13C5 PFPeA	*86*		*25 - 150*
13C2 PFHxA	*98*		*25 - 150*
13C4 PFHpA	*94*		*25 - 150*
13C4 PFOA	*91*		*25 - 150*
13C5 PFNA	*90*		*25 - 150*
13C2 PFDA	*90*		*25 - 150*
13C2 PFUnA	*95*		*25 - 150*
13C3 PFBS	*100*		*25 - 150*
18O2 PFHxS	*98*		*25 - 150*
13C4 PFOS	*97*		*25 - 150*
M2-4:2 FTS	*125*		*25 - 150*
M2-6:2 FTS	*110*		*25 - 150*
M2-8:2 FTS	*94*		*25 - 150*
13C2 10:2 FTS	*85*		*25 - 150*

Lab Sample ID: LCSD 320-680535/3-A
Matrix: Tissue
Analysis Batch: 682363

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 680535

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	10.0	10.2		ug/Kg		102	76 - 136	6	30
Perfluoropentanoic acid (PFPeA)	10.0	10.4		ug/Kg		104	69 - 129	3	30
Perfluorohexanoic acid (PFHxA)	10.0	10.6		ug/Kg		106	71 - 131	7	30
Perfluoroheptanoic acid (PFHpA)	10.0	10.5		ug/Kg		105	71 - 131	0	30

Method: B/L/T PFAS - Branched, Linear and Total PFAS (Continued)

Lab Sample ID: LCSD 320-680535/3-A
Matrix: Tissue
Analysis Batch: 682363

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 680535

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
L-Perfluorooctanoic acid			10.0	10.2		ug/Kg		102	72 - 132	3	30
Total PFOA			10.0	10.2		ug/Kg		102		3	
Perfluorononanoic acid (PFNA)			10.0	10.0		ug/Kg		100	73 - 133	5	30
Perfluorodecanoic acid (PFDA)			10.0	10.2		ug/Kg		102	72 - 132	3	30
Perfluoroundecanoic acid (PFUnA)			10.0	9.79		ug/Kg		98	66 - 126	2	30
Perfluorobutanesulfonic acid (PFBS)			8.88	9.32		ug/Kg		105	69 - 129	6	30
Perfluoropentanesulfonic acid (PFPeS)			9.40	9.69		ug/Kg		103	66 - 126	2	30
Total PFHxS			9.12	9.11		ug/Kg		100		2	
L-Perfluorohexanesulfonic acid			9.12	9.11		ug/Kg		100	62 - 122	2	30
Perfluoroheptanesulfonic acid (PFHpS)			9.54	10.2		ug/Kg		107	76 - 136	1	30
L-Perfluorooctanesulfonic acid			9.30	9.43		ug/Kg		101	68 - 141	3	30
Total PFOS			9.30	9.43		ug/Kg		101		3	
4:2 FTS			9.38	9.43		ug/Kg		100	68 - 143	5	30
6:2 FTS			9.52	9.62		ug/Kg		101	73 - 139	6	30
8:2 FTS			9.60	10.1		ug/Kg		105	75 - 135	0	30
10:2 FTS			9.66	9.99		ug/Kg		103	69 - 145	18	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C4 PFBA	*72*		*25 - 150*
13C5 PFPeA	*94*		*25 - 150*
13C2 PFHxA	*92*		*25 - 150*
13C4 PFHpA	*94*		*25 - 150*
13C4 PFOA	*92*		*25 - 150*
13C5 PFNA	*90*		*25 - 150*
13C2 PFDA	*89*		*25 - 150*
13C2 PFUnA	*85*		*25 - 150*
13C3 PFBS	*96*		*25 - 150*
18O2 PFHxS	*94*		*25 - 150*
13C4 PFOS	*94*		*25 - 150*
M2-4:2 FTS	*118*		*25 - 150*
M2-6:2 FTS	*110*		*25 - 150*
M2-8:2 FTS	*90*		*25 - 150*
13C2 10:2 FTS	*66*		*25 - 150*

QC Association Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Plant Tissue)

Job ID: 320-100716-1

LCMS

Prep Batch: 680535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-100716-1	Scrub trapline	Total/NA	Plant Tissue	SHAKE	
320-100716-2	32.812765N, -106.120059W	Total/NA	Plant Tissue	SHAKE	
MB 320-680535/1-A	Method Blank	Total/NA	Tissue	SHAKE	
LCS 320-680535/2-A	Lab Control Sample	Total/NA	Tissue	SHAKE	
LCSD 320-680535/3-A	Lab Control Sample Dup	Total/NA	Tissue	SHAKE	

Analysis Batch: 682363

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-100716-1	Scrub trapline	Total/NA	Plant Tissue	B/L/T PFAS	680535
320-100716-2	32.812765N, -106.120059W	Total/NA	Plant Tissue	B/L/T PFAS	680535
MB 320-680535/1-A	Method Blank	Total/NA	Tissue	B/L/T PFAS	680535
LCS 320-680535/2-A	Lab Control Sample	Total/NA	Tissue	B/L/T PFAS	680535
LCSD 320-680535/3-A	Lab Control Sample Dup	Total/NA	Tissue	B/L/T PFAS	680535

Lab Chronicle

Client: University of New Mexico
Job ID: 320-100716-1
Project/Site: Holloman PFAS (Plant Tissue)

Client Sample ID: Scrub trapline
Lab Sample ID: 320-100716-1
Date Collected: 05/17/23 00:00
Matrix: Plant Tissue
Date Received: 05/23/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.02 g	10.0 mL	680535	06/05/23 18:24	AM	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	682363	06/12/23 16:25	D1R	EET SAC

Client Sample ID: 32.812765N, -106.120059W
Lab Sample ID: 320-100716-2
Date Collected: 05/17/23 00:00
Matrix: Plant Tissue
Date Received: 05/23/23 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	SHAKE			1.02 g	10.0 mL	680535	06/05/23 18:24	AM	EET SAC
Total/NA	Analysis	B/L/T PFAS		1	1 mL	1 mL	682363	06/12/23 16:48	D1R	EET SAC

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: University of New Mexico
Job ID: 320-100716-1
Project/Site: Holloman PFAS (Plant Tissue)

Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-23
California	State	2897	01-22-24
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-29-24
Hawaii	State	<cert No.>	01-29-24
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-23
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-24
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-24
Ohio	State	41252	01-29-24
Oregon	NELAP	4040	01-29-24
Texas	NELAP	T104704399-19-13	05-31-24
US Fish & Wildlife	US Federal Programs	58448	04-30-24
USDA	US Federal Programs	P330-18-00239	02-28-26
Utah	NELAP	CA000442021-12	02-28-24
Virginia	NELAP	460278	03-14-24
Washington	State	C581	05-05-23 *
West Virginia (DW)	State	9930C	12-31-23
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Plant Tissue)

Job ID: 320-100716-1

Method	Method Description	Protocol	Laboratory
B/L/T PFAS	Branched, Linear and Total PFAS	EPA	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

EET SAC = Eurofins Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: University of New Mexico
Project/Site: Holloman PFAS (Plant Tissue)

Job ID: 320-100716-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-100716-1	Scrub trapline	Plant Tissue	05/17/23 00:00	05/23/23 09:30
320-100716-2	32.812765N, -106.120059W	Plant Tissue	05/17/23 00:00	05/23/23 09:30

Loan 2023.024.Mamm

SPECIMEN INVOICE
Museum of Southwestern Biology
Division of Mammals
University of New Mexico

22 May 2023

This document acknowledges the loan of specimens to:

Attn: Linda C. Laver
Eurofins Environment Testing Northern California
880 Riverside Parkway
West Sacramento, CA 95605

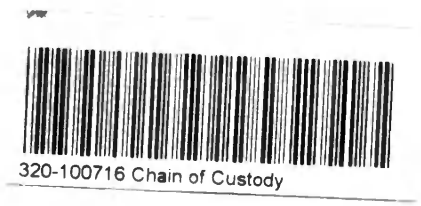
approved by:

Jonathan L. Dunnum

Loan Type: consumable

Nature of Material: Two plant samples (Atriplex canescens) from Holloman Airforce Base for PFAS testing in conjunction with the MSB's current project on bird and mammal PFAS levels at HAF.

Remarks: Sample #1 - 17 May 2023 - scrub trapline. Sample #2 - 17 May 2023 - 32.812765 N, -106.120059 W.



Instructions: Samples macerated and kept at -20C since collection date of 17 May 2023.

Upon receipt, sign and return one copy to:
Email: jldunnum@unm.edu

Expected return date:

Signature of recipient, date:

Eurofins Environment Testing Northern Date

LOAN REQUIREMENTS: RECIPIENT ACKNOWLEDGES THE FOLLOWING TERMS:

Material loaned from the MSB should be properly acknowledged by MSB catalog number (MSB:Mamm:XXXX) in subsequent publications, reports, presentations, GenBank, IsoBank, MorphoSource or other data submissions - see Loan Instructions. PDFs of publications should be provided to the MSB. By signing this form, you agree to use these materials only for the study outlined in your original proposal. You must obtain written permission for any use outside of the scope of your original proposal. Transfer of MSB material to a third party is not allowed. Non-consumable specimens on loan should be returned to the MSB within 6 months using the same packing container and materials, shipping method, and insurance value unless other arrangements are made with the MSB Mammal Curator. Thank you for your cooperation.

Printed 22 May 2023

Rec By: EDTSu Processed by Jonathan L.
5/23/23 0930 20.0°C

6/13/2023

Login Sample Receipt Checklist

Client: University of New Mexico

Job Number: 320-100716-1

Login Number: 100716
List Number: 1
Creator: Laver, Linda C.

List Source: Eurofins Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	1 block of blue ice, rcvd thawed
Cooler Temperature is acceptable.	False	Refer to Job Narrative for details.
Cooler Temperature is recorded.	True	20.0 C
COC is present.	False	Samples arrived with paperwork but not with a COC
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?	False	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
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.	False	Collection times are not provided, logged in using 00:00
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix C

Air Dispersion Modeling Report

DBS&A
a Geo-Logic Company

SANBORN HEAD

Deposition of PFOS on Lake Holloman from AFFF Training Spray Drift

HOLLOMAN AIR FORCE BASE

New Mexico

Prepared for New Mexico Environment Department

File No. 5778.00

June 2023

TABLE OF CONTENTS

1.0 INTRODUCTION

The purpose of this report is to summarize the methods and results of air emission and atmospheric deposition modeling of per- and polyfluoroalkyl substances (PFAS) at the Holloman Air Force Base (Holloman AFB, the site), located southwest of the City of Alamogordo, New Mexico. Releases of various PFAS at the site are attributed to historical firefighting training and equipment spray-testing of aqueous film forming foam (AFFF) and have been shown to have impacted soils, groundwater, and surface water in the site area. Analytical data for sampling performed in and around Lake Holloman (found in a Holloman Air Force Base 2018 Site Inspection Report by Amec Foster Wheeler, hereinafter "Holloman AFB Site Inspection Report")[1] has shown elevated concentrations of various PFAS in lake water, sediment, and lake biota, and as well as surface soil impacts in close proximity to historical AFFF spraying areas. The modeling work described below was performed to evaluate if air deposition of PFAS on Lake Holloman is plausibly significant due to historic air emissions from potential sources identified at Holloman AFB, and if there was enough mass deposited on Lake Holloman to significantly contribute to the elevated concentrations observed in recent surface water measurements.

1.1 Site Features and Air Emission Sources

The area of interest for this site includes the entire Holloman AFB and Lake Holloman, which is a lake of approximately 0.61 square kilometers (150 acres) located directly southwest of Holloman AFB. Within the limits of Holloman AFB are several known source areas of PFAS contamination including a former firefighting training area (referred to in site-related literature as FT-31) and an evaporation pond (Evaporation Pond 2, hereinafter "Evaporation Pond"), where AFFF was historically sprayed for training and equipment testing purposes. These sources are judged to be potential air emission sources.

In addition, a sewage lagoon area and the Holloman AFB Golf Course (both located within the southern area of the base) were also identified as release areas of several PFAS. Untreated wastewater was discharged to the sewage lagoons prior to 1996, and the golf course historically received treated effluent from the site wastewater treatment plant in the time since 1996. Both the historical untreated wastewater and current/recent effluent discharge from the WWTP contain or likely have contained PFAS. The locations of Lake Holloman and each identified source area is shown on Figure 1, which was adapted from the Phase 1 PFAS Investigation Report prepared by Daniel B. Stephens & Associates, Inc. (hereinafter "Phase 1 Report")[2]. The spray of wastewater treatment plant effluent water in each of these areas may have resulted in some emissions of PFAS to air. However, since the effluent water sprayed here would have had significantly lower PFAS concentrations than those in AFFF, these sources are judged of secondary potential significance and this evaluation focuses on direct AFFF-based spraying that is reported to have occurred at the FT-31 and Evaporation Pond areas.

[1] Site Inspection Report, Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas, Holloman Air Force Base, Alamogordo, New Mexico. Amec Foster Wheeler Programs, Inc., November 2018.

[2] *Phase 1 PFAS Investigation Report – Holloman Air Force Base and Surrounding Area*, June 30, 2022. DB Stephens & Associates, Inc.

2.0 CONCEPTUAL MODEL

The main purpose of this model is to determine how PFAS emitted into the air during AFFF spraying at the Holloman AFB might be influencing concentrations of PFAS found in soils samples and lake water samples at Lake Holloman. PFAS in these media could be taken up into biota at the base. The conceptual model consists of PFAS transport through the air to soils and Lake Holloman from two source areas: the FT-31 Area and the Evaporation Pond. Investigation of PFAS impacts at the base identified AFFF use at these areas, both in fire training activities at FT-31 and equipment cleaning/spraying at the Evaporation Pond. Literature review performed as part of this project concluded that there is limited specific information available describing air impacts of AFFF spraying and how it may have occurred on this or other sites. It can be reasonably assumed that a small, difficult to quantify percentage of the firefighting foam sprayed at Holloman AFB escaped the source areas during AFFF spraying due to local wind, up-drafting air and smoke from fires, and the directional variability and unpredictability of individual droplets of spray foam from the fire hose. It can also be assumed that the liquid portions of small aerosol droplets quickly evaporated due to the heat of fires and dryness of the surrounding environment, and that the remaining portion of the aerosol particle (solid salts containing PFAS) formed particulate matter that was transported intermediate to long distances away from area of direct AFFF application. To create a realistic conceptual model of PFAS release and deposition that reflects these concepts, several key assumptions were used to simplify the model and represent the most probable scenario as accurately as possible. Those are described in this section.

Although there are a variety of PFAS found in AFFF firefighting foam that have been detected in and around Lake Holloman and Holloman AFB, the decision was made to focus on a single perfluorinated compound to simplify the modeling and analysis process. Perfluorooctanesulfonic acid (PFOS) was chosen as the compound of interest due to its known historic presence in AFFF and because some of the most elevated concentrations of PFAS detected in Lake Holloman biota samples were of PFOS (suggesting the likely use of PFOS-based AFFF at Holloman AFB, which was common at Department of Defense installations). Although the report focus is on PFOS, the modeling methods and assumptions could be extended to other polar PFAS potentially present in some AFFF formulations.

While AFFF nozzles and foam are designed to deposit firefighting foam directly onto a fire, fog nozzles can produce relatively small droplets by design to enhance heat absorption from fires. It is thus assumed for this scenario that there was a small fraction of aerosolized, PFOS-containing particles that escaped the intended spray area and became entrained into the atmosphere. For this modeling scenario, it is assumed that spray drift from the two spray source areas (FT-31 and Evaporation Pond 2) was a potential source of airborne PFOS that has been deposited to soils in all directions around the spray areas (depending on wind directions) and under some meteorological conditions onto Lake Holloman within the period of analysis.

This model is intended to reflect the total period that AFFF may have been used at the Holloman AFB for firefighting training and equipment testing. AFFF was developed in the late 1960s and

was assimilated into use rapidly at Department of Defense installations.[3] PFOS was phased out of production in the early 2000s, and hence use of PFOS-based AFFF could have reasonably spanned a period of approximately 30 years or longer at Holloman AFB. While it is not clear at what times in the day Holloman AFB personnel engaged in AFFF spraying, it can be reasonably assumed that this did not happen 24/7 and that spraying occurred mostly in daylight hours between 7:00 am and 7:00 pm. To conform with standard modeling protocols to cover year-to-year variability in meteorological conditions, the modeling study assumes a period of five years,[4] and results are extrapolated to a thirty-year period.

Based on data accessibility, meteorological data for the period between 2017 and 2021 from the nearby Alamogordo Airport is utilized, which is not concurrent with the period of anticipated AFFF use. However, the reason for selecting a five-year meteorological data set is to cover longer-term variabilities in conditions that are considered representative over time, and hence extensible to both earlier and later time periods, according to modeling protocols.

Figure 2 depicts a wind rose of the 2013-2017 meteorological period from Holloman Air Force Base. The wind rose portrays the frequencies of hourly average wind directions and speeds, with the length of each "petal" corresponding to winds that originate from the sixteen cardinal wind directions. Figure 2 indicates that the most common wind direction in the site area is from the south/southwest toward the north/northeast, which implies that (on average) the PFOS plume created by the source areas would most frequently travel to the north and east of the release areas. This would indicate that only a small fraction of airborne PFOS would potentially travel toward the lake that is located southwest of the release areas, such that Lake Holloman may not have been the primary receptor of PFAS deposition. However, as reflected by the wind rose, winds would likely travel at least some percentage of the time in all directions, including at times from the source areas toward the lake.

2.1 Estimating Deposited Particle Size

To model the deposition of airborne particles to soils and Lake Holloman, a particle size distribution must be specified to accurately predict how the solid particles will settle over long distances. In this model, a single diameter was assumed for all particles in the plume of interest to simplify relevant calculations and model inputs. The initial spray of AFFF generates mostly large (millimeters [mm] to centimeters [cm]) aqueous droplets that settle very quickly (generally within the order of 1-100 meters).[5] However, some small droplets (less than one mm) would likely be produced by fog nozzles, and other droplets broken up by turbulence over a fire. These smaller droplets could evaporate leaving condensed salts to form suspended particulate matter. Therefore, it is assumed that if particles are transported several miles from Holloman AFB to Lake Holloman, there is likely a post-emission reduction in particle size that occurs due to evaporation of the volatile portions of the aqueous droplet. Assuming that 100% of the volatile components of each droplet (including water) evaporate immediately after being released to the open air, the

[3] Interstate Technology Regulatory Council (ITRC) AFFF Fact Sheet. Accessed June 28, 2023 at: https://pfas-1.itrcweb.org/wp-content/uploads/2022/09/AFFF_PFAS_FactSheet_082522_508.pdf

[4] U.S. Environmental Protection *Guideline on Air Quality Models (appendix W),* 2017. Accessed May 31, 2023 at: https://www.epa.gov/scram/2017-appendix-w-final-rule

[5] Based on review of *Dry Deposition and Spray Drift of Pesticides to Nearby Water Bodies*, 2003.

size of the particles that are transported all the way to Lake Holloman would be expected to be similar to other small, solid particles typically detected in the ambient air. Based on previous studies investigating the size distribution of total suspended particulate matter (TSP), it has been estimated that most particulate matter larger than approximately 30 microns in diameter is prone to rapid settling, [6] therefore it was assumed for this system that particles released to air and transported toward Lake Holloman and other downwind areas were nominally 30 microns in diameter. An empirical check on the importance of this assumption is made using the AERMOD plume depletion algorithms discussed below.

2.2 Estimating Source Emission Rates

Due to the lack of specific knowledge about emission rates, times, and quantities, it was necessary to make a series of key assumptions to describe the volume of AFFF that was regularly applied to the designated source areas, and how much of that volume escaped to the atmosphere to effectively become airborne PFOS plumes. Based on the uncertainty around training and spraying schedules at Holloman AFB, the assumption was made that spraying within the two source zones occurred between the hours of 7 am and 7 pm, every day, year-round. Even though spraying was not likely continuous, lacking awareness of any documented knowledge of training activities, spraying is assumed to have occurred frequently and with random regularity,, and as a simplifying assumption, spraying/emissions are modeled on average as being spread out over the daily 12-hour period. To predict deposition rates in areas of the site where soil concentration data is not available, an emission rate was estimated for each source by matching against historical data from soil monitoring around the two site source areas. This emission rate was estimated based on modeled PFOS soil deposition values generated by an air pollution modeling software in conjunction with a soil accumulation model. This method is discussed in the next section. Subsequently emission rates were decreased to better match simulated and observed PFOS soil concentrations, as discussed in Section 4.

3.0 MODELING APPROACH

Modeling of PFOS releases from the Holloman AFB and subsequent atmospheric deposition onto Lake Holloman was performed using the "BEEST" suite of air pollution modeling software[7]. BEEST incorporates various USEPA-approved air modeling programs including AERMOD, AERMET, and AERMAP to predict air concentrations and deposition of airborne environmental contaminants at any number of chosen receptor locations based on emission sources specified by the modeler. Input data for each source includes geospatial coordinates, emission rates, particle size distributions (for particle deposition only), and release elevations. Other data inputs used by the model include hourly meteorological data over a nominal five-year time period and United States Geological Survey (USGS) elevation data in an area around the site that is interpolated by BEEST based on local terrain.

Receptors

[6] Settling velocities of aerosol particles 30 µm and larger become significant, increasing roughly as the square of the particle diameter. For example, the estimated settling velocity of a 100 µm diameter particle is 25 cm/s (Cooper and Alley, Air Pollution Control: A Design Approach, 4th ed., 2011).

[7] Accessed June 27, 2023 at BEEST Suite - Air Quality Modeling, AERMOD | Providence-Oris (providenceoris.com)

Multiple receptor grid arrays were created in BEEST to observe deposition distributions in a large area around each key site location. A coarse rectangular receptor grid was generated over the Holloman AFB area with a spacing of 500 meters to display deposition results in all directions around the source areas within the base. This provided sufficient coverage to assess whether modeled deposition values were higher to the north and east of the source areas as indicated by the wind rose (Figure 2). Additional discrete receptor points were placed directly adjacent to the two source areas to assess close-proximity PFOS deposition and compare soil concentration values at these points to the analytical results of soil sampling provided in the Holloman AFB Site Inspection Report.[8] A separate, denser grid within the Lake boundary was used with 50-meter spacing between receptors, as well as receptors with decreasing density that extended outward from the Lake boundary to 500 meters. The array of receptors for this modeling effort are shown in Figure 3 (full receptor grid) and Figure 4 (Lake Holloman receptors).

Emission Sources

Emissions from the FT-31 and Evaporation Pond are modeled as area (distributed) emission sources, with the regions indicated on maps delineating the areas of likely AFFF application. Area source emissions were modeled as ground-level sources. The two designated source areas used in the model are shown in Figure 3 (full modeling domain) and Figure 5 (near source regions). The shape, size, and location of each area was based on the AFFF release areas described in the Holloman AFB Site Inspection Report (referenced above).

Emission Rates

As discussed previously, the PFOS emission rate is not known and difficult to predict. Empirical data on aerosol size distributions and a mass balance model was used to provide an estimate of the potential PFOS emission rate during periods of AFFF spraying, and yielded an estimated rate of 0.03 grams per second of PFOS (Table 1, rounded from 0.0284 g/s). Table 1 provides the information and data used as parameters for the calculations, which are based on estimating the aerosol droplet diameter that upon evaporation would yield a 30 µm diameter (transportable) particle of residual salts. The composition of this larger aerosol droplet (before evaporation) is based on the recommended mixing of AFFF with water, the salt and PFOS content of AFFF (from Safety Data Sheet information), and the estimated mass fraction of droplets in the hose spray below the critical (pre-evaporation diameter) aerosol size is based on empirical distribution data.

The critical aerosol droplet diameter of approximately 272 microns was estimated assuming a final solid particle diameter of 30 microns, an aerosol dissolved solids (salt) fraction of 0.0024 in AFFF (calculated), and a solids specific gravity of 1.8. The fraction of AFFF spray that evaporates and drifts from the spray area was estimated by first dividing the diameter of a droplet of sprayed AFFF by the diameter of the AFFF spray nozzle. This provided a dimensionless drop size coefficient (*d/D*) of approximately 0.007, which was then compared against a "*Drop size distribution according to droplet volume fraction"* plot[9] to get an empirical volume fraction of approximately 0.01, or 1% of the hose flow. Using a typical design flowrate of 150 gals/min for a firefighting

[8] Accessed June 16, 2023 at Holloman Final SI Report - Part 1.pdf (nm.gov).

[9] "Spray Characteristics from Fire Hose Stream Nozzles". Master's thesis of Brian Edward Saylers, University of Maryland, 2010. Accessed June 16, 2023 at content (umd.edu)

hose with 3% AFFF at a 1% PFOS content, a PFOS release rate of 0.03 g/s is estimated from AFFF application.

Table 1
Parameters Used to Estimate PFOS Emission Rate

Parameter	Value	Source Link
Fire hose diameter *D*	1.5 inches	firehosedirect_BrassUSCGPG.pdf (fireresq-documents.s3.amazonaws.com)
AFFF dilution in water (3% AFFF)	0.03	FC-203CF LIGHT WATER AFFF 3% (sevron.co.uk)
Salt (solids) and PFOS content of AFFF (mass fraction)	0.08 (total solids) 0.01 (PFOS)	FC-203CF LIGHT WATER AFFF 3% (sevron.co.uk)
Solids fraction in sprayed water	0.0024 by mass	$0.03 * 0.08$ (pre-evaporation solids fraction)
Specific gravity of solids	1.8	Based on ammonium perfluorooctanoic acid
Critical aerosol diameter to form 30 µm diameter particle *d*	272 µm	Calculated by mass balance
Fraction of spray mass below critical aerosol diameter	0.01	Based on empirical measurements of droplet sizes in fire hose spray (see text)
Specific gravity of solids	1.8 APFO	Based on ammonium perfluorooctanate
Fire hose flow rate	150 gals/min	Typical design flow for a 1.5" hose
Calculated emission rate	0.0284 g/s	Rounded to 0.03 g/s in the discussion below

The AERMOD software calculates deposition values at specified receptor locations with units of grams per square meter. While this is helpful for displaying potential distributions of PFOS deposited across the site, it does not explain what final concentrations of PFOS are expected to be in shallow site soils and surface water based on the chosen inputs. To achieve this, deposition values at key locations can be used as inputs to models to estimate concentrations in receiving soil or surface water, and hence compared to site monitoring results.

PFOS deposition is expected to accumulate in surface soil. The following equation is used in the USEPA Human Health Risk Assessment Protocol for calculating a cumulative contaminant concentration in soil:

$$C_s = \frac{100 * (Dydp + Dywv) * [1.0 - \exp(-ks * tD)]}{Z_s * BD * ks}$$

Where:

- C_s = Average soil concentration over exposure duration $\left(\frac{\text{mg PFOS}}{\text{kg soil}}\right)$
- 100 = Units conversion factor $\left(\frac{\text{mg}*\text{m}^2}{\text{kg}*\text{cm}^2}\right)$
- $Dydp$ = Unitized yearly dry deposition from partile phase $(\frac{\text{g}}{\text{m}^2-\text{yr}})$
- $Dywv$ = Unitized yearly wet deposition from vapor phase (assumed = 0)
- ks = PFOS soil loss constant due to all processes (yr^{-1})
- tD =
  Time period over which deposition occurs (time period of AFFF spraying) (yrs)
- Z_s = Soil mixing zone depth (cm)
- BD = Soil bulk density $(\frac{\text{g soil}}{\text{cm}^3\text{ soil}})$

Given (1) the low amount of precipitation in New Mexico and (2) the intuitively higher likelihood of training exercises being held dry weather, dry deposition is likely to be of greater importance than wet deposition, and hence modeling focuses on dry deposition. PFOS is believed to move slowly through the soil column. In the case of no loss from the surface soil layer (i.e., PFAS accumulation with *ks* equal to zero), a Taylor's series expansion of the exponential term, or a simple model reformulation, provides the simplified equation:

$$C_s = \frac{100 * Dydp * tD}{Z_s * BD}$$

This simplified equation is used in the subsequent section to estimate source-specific emission rates designed to match the magnitude of PFOS concentrations detected in soil at the Holloman AFB site.

4.0 PFOS DEPOSITION PREDICTION

The next step of this modeling effort was to use BEEST to investigate the relationship between emission rate and deposition values in the system outlined above. AERMOD is designed primarily to estimate contaminant concentrations in air. As an option, AERMOD estimates dry deposition at surfaces by multiplying ground-level concentrations by model-imputed deposition velocities.[10] This is a simple add-on calculation that does not affect airborne plume concentrations, *i.e.*, using the dry deposition option alone, AERMOD holds the mass emission rate constant, and does not modify it to account for deposition/removal from the plume. Based on experience, this typically introduces only a small error for very small particles (of the order of a µm in diameter), as the predicted rates of deposition are small, and pollutant mass deposited over distances of the order of 10 km are a few percent of the emission rate. However, for particles larger than 10 µm, the failure to remove deposited mass from the plume can lead to significant overpredictions of airborne concentrations (and deposition rates) at downwind locations. To address this issue, AERMOD provides an option for accounting for plume depletion, in which the mass of a contaminant that deposits to the ground along the wind trajectory is removed from the plume

[10] The AERMOD User's Guide and documentation of the deposition algorithms are available at: https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models#aermod

(hence decreasing the effective emission strength with travel distance from the source). Use of the plume depletion option introduces a computational time penalty, as model runs are faster if no plume depletion is assumed.

In order to test the importance of plume depletion. model runs with and without depletion for the 0.03 g/s nominal emission rate were completed, and the model results are compared in Table 2 at the three discrete receptor locations (Lake Holloman, and one near and just to the south of each source area, near areas where surface soil concentration measurements of PFOS are available). As can be seen from Table 2, consideration of plume depletion is potentially important at locations farther from the source. The predicted deposition rate at Lake Holloman is more than three times lower with the plume depletion option invoked. However, plume depletion is of lesser importance near each of the sources, causing a difference of the order of only 20% as the nearby source has not had the opportunity for significant depletion.

Table 2 also provides estimates of surface soil concentrations predicted by the simplified accumulation model. Parameters used in estimating concentrations in soil include a deposition period *tD* of 30 years, a mixing depth Z_s of 6 inches, or 0.1524 m (the depth of samples collected in the Holloman AFB Site Inspection Report), and a bulk soil density of 1.5 g/cm^3. Note that the period deposition in Table 2 is divided by the 5-year modeling period to derive the annualized deposition value *Dydp*.

Table 2
Comparison of PFOS Deposition Results with a 0.03 g/s PFOS Emission Rate for Each Source

	Period (5-year) Deposition Results by Location ($\frac{g}{m^2}$)			Inferred Soil Concentration ($\frac{mg}{kg}$)	
Plume Depletion ?	Lake Holloman (average)	South of FT-31	South of Evap. Pond	South FT-31	South Evap. Pond
No	0.00443	1.49	44.29	39.108	1162.467
Yes	0.001385	0.89835	35.5	23.579	931.759

The first observation regarding the Table 2 results is that plume depletion is an important modeling consideration. The predicted deposition levels decrease substantially with the plume depletion option invoked, indicating that particle deposition of suspended particles in the 30 µm size range is important in the vicinity of ground-level sources, and the degree of plume depletion continues to increase with travel distance from the source. Compared with the no depletion case, particle deposition/plume depletion reduced deposition estimates by 20% (Evaporation Pond), 38% (FT-31), and 69% (Lake Holloman). As these receptors reflect increasing distances from the sources, gradients in deposition (and subsequent soil impacts) can be expected to be steeper with travel distance compared to air modeling estimates that do not consider plume depletion. The assumption of 30 µm particles is key to this finding, as the

assumption of smaller particles would lead to less plume depletion. Formation of small particles from aerosolization processes, however, is not supported by atomization studies.[11]

As a second observation, the predicted rates of mass of PFOS deposited onto Lake Holloman are significantly less than at the receptors directly adjacent to the source areas. Deposition around the Evaporation Pond was consistently higher than in the close-proximity receptor locations near the FT-31 source area and all other receptor locations. This was also expected, as the source area generated for the Evaporation Pond was significantly smaller than the source area for FT-31 even though they were both nominally set to have the same emission rate in total grams per second (hence the emitted mass per unit area emission was higher for the Evaporation Pond source). The close-proximity receptors for the Evaporation Pond were also only located about 10-15 meters from the source area boundary, while most of the FT-31 receptors were between 30-70 meters from the source. These locations were selected base on the locations of soil sampling results reported in the Holloman AFB Site Inspection Report Because deposition values were shown to scale linearly with emission rates for both depletion options, the source depletion option was enabled from this point on because assuming no PFOS is depleted from the plume is not a realistic scenario and would be a less conservative approach for estimating potential PFOS impacts to soil/surface water via atmospheric deposition.

As a third observation, the predicted soil concentrations in Table 2 are significantly higher than concentrations measured in field sampling near the FT-31 and Evaporation Pond source areas (as reported in the Holloman AFB Site Inspection Report). Overprediction is not surprising, given that the initial estimate of the 0.03 g/s emission rate is based on a number of assumptions, including a continuous source over the entire 12-hour period of the day when training activities are assumed to have occurred, and the simplified soil accumulation model does not account for potential removal via leaching, AFFF spraying for limited amounts of time is judged to be the more important factor, given observations of PFOS persistence in soil.[12] Most training exercises were probably of brief duration, given that significant time was probably needed to prepare tests, and the goal was to put out fires as quickly as possible. Consequently, the next step of modeling study was to use the information gathered above to estimate an empirical emission rate for each source area that reflects the PFOS concentrations found in soil during historical environmental sampling at the site. To do so, the simple mass accumulation model is solved for the deposition rate *Dydp* using soil parameters as previously described, and then the emission rate necessary to produce the *Dydp* value is inferred from the AERMOD simulations. The results of this exercise are summarized in Table 3. Based on the shallow soil sampling results the Holloman AFB Site Inspection Report[13], an average PFOS soil concentration of 0.27 mg/kg was chosen to reflect deposition-related soil impacts near FT-31 (based only on the three soil samples taken outside of the presumed spray area), and a concentration of 3.2 mg/kg was chosen to reflect soil impacts near the Evaporation Pond. Using the simplified soil

[11] "Spray Characteristics from Fire Hose Stream Nozzles". Master's thesis of Brian Edward Saylers, University of Maryland, 2010. Accessed June 16, 2023 at content (umd.edu). Also "Fire suppression by water sprays,", Grant *et al.*, Progress in Energy and Combustion Science 26 (2000) 79–130.

[12] As an example, a long-term study of PFOS leaching found only 3.12% loss from soil over a five-year period (Stahl *et al*, *J. Agric. Food Chem.* 2013, 61, 8, 1784–1793.

[13] See pages 71 and 101 of Site Inspection Report, Site Inspection of Aqueous Film Forming Foam (AFFF) Release Areas, Holloman Air Force Base, Alamogordo, New Mexico. Amec Foster Wheeler Programs, Inc., November 2018.

concentration model equation above, the representative soil concentrations (in mg/kg) for each location was converted to theoretical deposition values (in units of g/m^2 per year) by solving for *Dydp*. This calculation used a time-period of 30 years, a soil mixing depth of 6 inches, and a soil bulk density of 1,500 kg/m^2. Since it was already shown that soil deposition scales linearly with emission rates (as long as all other variables remain constant), a new emission rate was estimated for each source area to match the simulated and observed soil concentrations. These results are provided in Table 4, below.

Table 3
Near-Source Soil Concentrations, Theoretical Dry Deposition, and Estimated Source Emission Rates for Each Source Area

	Nearby Measured Shallow Soil Concentration ($\frac{mg}{kg}$)	Dry Deposition ($\frac{g}{m^2-yr}$)	Inferred PFOS Emission Rate ($\frac{g}{s}$)
FT-31	0.27	0.00206	0.000325
Evaporation Pond	3.2	0.0244	0.0000975

To check the values above, the estimated emission rates for each source were plugged into the BEEST model and the deposition output at each location was compared to the theoretical values. The model calculated a deposition of 0.00971 g/m^2 at the receptor directly south of FT-31 over the 5-year modeling period (which equates to about 0.00194 g/m^2 per year) and a 5-year deposition of 0.115 g/m^2 south of the Evaporation Pond (about 0.0230 g/m^2 per year). The small differences between these confirmation values and the Table 3 values result from not accounting for the contributions of both sources at each receptor in the estimation of the inferred emission rates.

Values of the empirically inferred emission rates for the two sources are approximately 80 and 300 times smaller than the nominal emission rate of 0.03 g/s initially assumed. These values are plausibly more consistent with limited times of application and spraying of AFFF. A final metric for comparison is the implied usage of AFFF over time. Adding the two estimated emission rates together to derive a combined PFOS emission rate of 0.000437 g/s for 12 hours each day, and further assuming AFFF contained 1% PFOS by mass and that 1% of applied PFOS was released as aerosolized emissions, the implied use of AFFF was approximately 50 gallons per day. At 3% concentration in a fire hose delivering 150 gallons per minute (gpm) of AFFF/water mixture, the implied time of application is 11 minutes (to use 50 gal of AFFF) over the 12-hour modeling period. This time estimate is imprecise, as the PFOS emission estimate of 0.03 g/s during AFFF spraying is judged to be only order of magnitude accurate. It is, however, encouraging to derive an AFFF use time consistent with the rapid extinguishment of a fire, which would presumably be a goal of training. The spraying time estimate of 11 minutes is also based on the assumption of a single training event each day, and differences in event frequency would result in proportionally different estimates of the spray time per event.

4.1 Basewide Deposition of PFAS to Soil

The inferred emission rates of PFOS from the two sources are used in conjunction with the AERMOD receptor grids to create the PFOS deposition map depicted in Figure 6, in units of g/m^2 over the five-year model simulation period. Figure 7 translates the modeled deposition estimates into estimated concentrations in surface soils, as calculated by the simplified accumulation model using a deposition period *tD* of 30 years, a mixing depth Z_s of 0.1524 m (6 inches), and a bulk soil density of 1.5 g/cm^3. As designed, the predicted concentrations of PFOS in soil match measured values at locations just to the south of each source area. Also as anticipated, deposition rates and soil concentrations are highest near emission sources, and generally higher to the north of emission sources in accordance with the prevalent southerly (south to north) wind (Figure 2).

To assess the reduction in modeled dry deposition (and therefore potential soil concentrations) of PFOS over distances extending from each source area, shallow soil concentrations north of each of the two source areas were plotted at various distances from their northern boundaries. Concentrations were calculated using the soil accumulation model discussed above based on deposition values taken from the BEEST model results. Deposition values are associated with receptor locations at various distances north of each source area. Receptors north of each source were chosen due to the increased deposition in this direction shown in model results and predicted by the wind rose in Figure 2. The plots described herein are shown in Figures 8 and 9. As expected, shallow soil concentrations decreased with increasing distance from each source. The decreases occur over orders of magnitude as modeled plumes disperse horizontally and vertically, and ground deposition removes mass. At present, commercial laboratories are capable of measuring PFOS at reporting levels of the order of 0.001 mg/kg. As indicated in Figures 8 and 9, the modeling predicts measurable levels of PFOS at distances of several kilometers away from the suspected source emission areas.

4.2 Direct Contributions to Lake Holloman

Based on the modeling results as depicted in Figure 6, the dry deposition onto Lake Holloman modeled by BEEST was approximately 0.00001 g/m^2 for the 5-year modeled period. This translates to approximately 0.00006 g/m^2 over the full 30-year period of analysis. A simple model of lake water concentration was performed to provide a basic understanding of how BEEST-generated deposition values on Lake Holloman potentially translate to worst-case surface water concentrations, for potential comparison to benchmark concentrations and available monitoring data. To do this, the average PFOS concentration of Lake Holloman was calculated using the BEEST 5-year deposition extrapolated to a 30-year period, a lake surface area of 610,000 square meters, and a lake water volume of 640,000 cubic meters.[14] The 30-year deposition was multiplied by the surface area of the lake to get a total mass influx of approximately 37 grams of PFOS, which was then multiplied by the volume of Lake Holloman. Using this simple method (which assumes that no PFOS exited the Lake Holloman system within the 30-year period), the concentration of PFOS in Lake Holloman due to atmospheric deposition was estimated to be approximately 57 nanograms PFOS per liter of water. This estimate would

[14] Water Quality Survey Reports for Selected New Mexico Lakes, 2008, by New Mexico Environment Department Surface Water Quality Bureau. Accessed June 16, 2023 at Water Quality Survey Reports for Selected New Mexico Lakes - 2008 (nm.gov).

represent a high-end estimate of the concentration to the lake due to direct atmospheric deposition, as it assumes that the deposited PFOS would remain in the water column, and does not consider any potential removal via settling to sediments, infiltration to groundwater, or other hydrologic factors. As a comparison, PFOS concentrations 951 ng/L and 2,810 ng/L were measured in surface water samples from two outfalls to Lake Holloman in 2017.[15] These concentrations are consistent with significant PFAS loadings from direct water discharge to Lake Holloman, suggesting a potentially limited role for atmospheric deposition to overall PFOS contributions within Lake Holloman.

4.3 Uncertainties

As discussed throughout this report, there are many key information gaps that pose limitations for developing a model that accurately represents the environmental impact of AFFF spraying on Lake Holloman and the surrounding site. Due to these uncertainties, several assumptions and estimates were made for the model to reflect site conditions. Some of the major information gaps are discussed in this section.

- **Holloman Airforce Base AFFF Spraying**: There is a lack of available information about the spraying of AFFF at Holloman AFB in both the FT-31 training area and the Evaporation Pond equipment testing area. The type, volume, and schedule of AFFF spraying are all unknown, and are all necessary information to calculate an emission rate for AERMOD, which directly effects deposition outputs and modeled soil/water concentrations across the site.
- **AFFF droplet characteristics and foam spray physics:** Literature discussing typical droplet size distributions of firefighting foam spray drift are not readily available, so an estimation of particle size for AERMOD's dry deposition function was made based on the upper bound of total suspended particulate matter (30 microns). The portion of the sprayed firefighting foam that would escape the spray area into the atmosphere is also an estimated value based on interpretation of related literature data.
- **Existing distribution of PFAS impacts due to AFFF spraying on site:** There are limited soil concentration data available for the area around Holloman AFB and Lake Holloman. To properly compare predicted soil concentrations around the base and Lake Holloman area, as well as PFOS concentrations in Lake Holloman itself, additional data would be required to understand the current distribution of PFOS on site and predict what percentage of that contamination could be attributed to air deposition. Up-to-date hydrologic information on Lake Holloman (size/volume, current flow of water in/out of the water body) is also largely uncertain and would be necessary to perform a more detailed analysis of potential impacts to surface water.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The modeling study indicates that atmospheric deposition may have been responsible for adding PFOS to soils over a wide area of Holloman AFB. The patterns of deposition and inferred concentrations in soil suggest the presence of PFOS of the order of 0.001 mg/kg, or 1 part per billion (ppb), over an extensive area, and PFOS in soil may be related to uptake by local biota. Predicted PFOS levels in soil resulting from localized atmospheric deposition may be

[15] See Figure 3.4-3 of the Holloman AFB Site Inspection Report.

measurable with current laboratory analysis methods, which are capable of detecting low or even sub-ppb levels.

Based on the model results and the uncertainties discussed in this report, we provide the following recommendations for future investigation and analysis of PFAS impacts at the Holloman Air Force Base. We recommend:

1. Additional shallow soil investigation for PFAS compounds at the Holloman Air Force Base and surrounding area. A better understanding of the distribution of shallow-soil PFAS at the site would help indicate the contribution of aerial deposition to PFAS contamination at Lake Holloman and at the AFB.
2. A more thorough environmental investigation of Lake Holloman to assess all potential PFAS sources to the lake, and an in-depth water balance of the Lake Holloman system to determine potential surface water turnover in the lake and pathways for impacted water to infiltrate the subsurface or otherwise be removed from the water body.
3. A more thorough investigation of all AFFF spray activities at the Holloman AFB to determine spray schedules, volume, flow rates, and chemical properties of AFFF that was sprayed. This would provide a better foundation for any future efforts to estimate emission rates from the source areas and potential for aerial deposition of PFAS onto surrounding surface soils and Lake Holloman.

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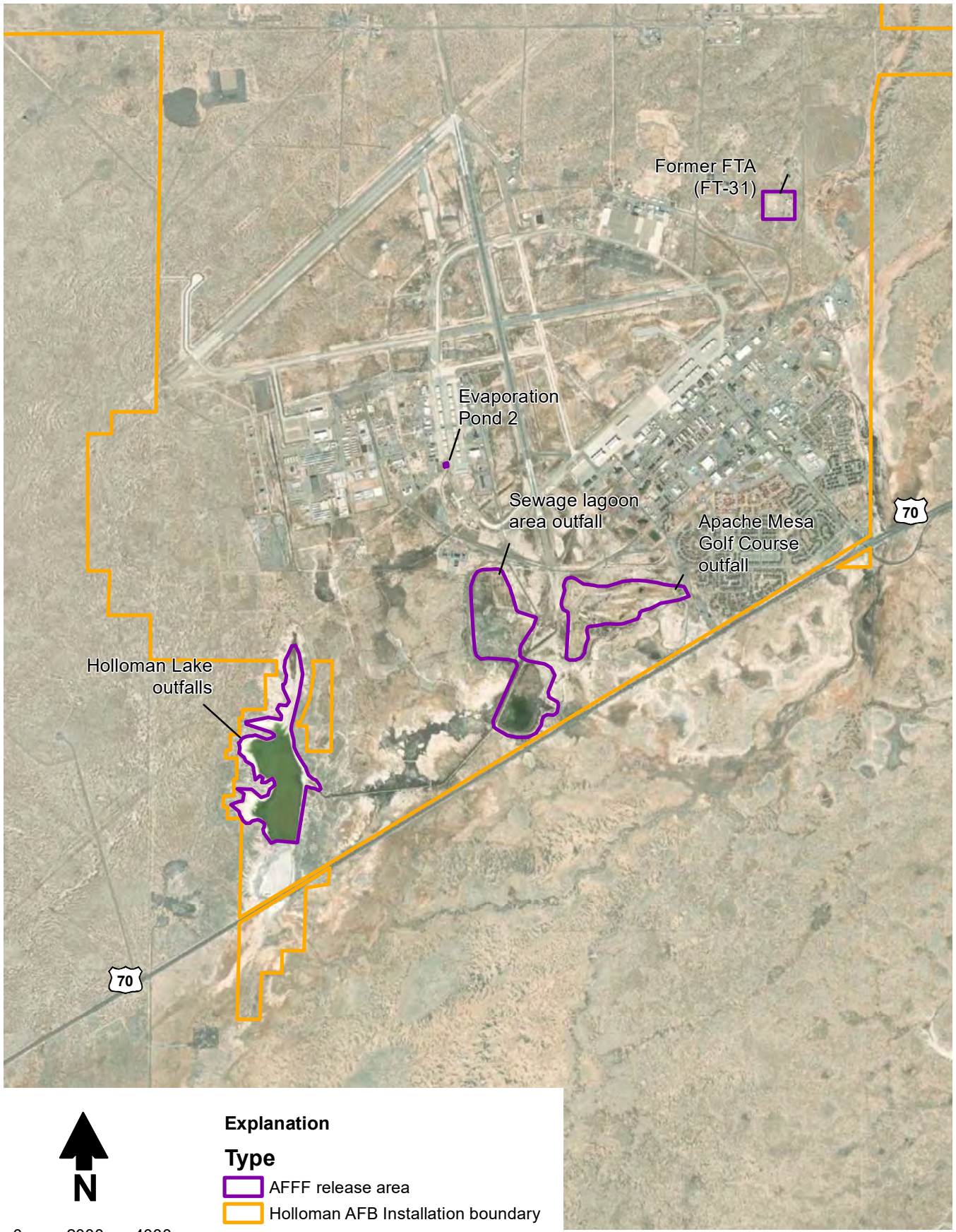

Source: Maxar, Vivid 2020 composite

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DBS&A
Daniel B. Stephens & Associates, Inc.
6/13/2022
JN DB20.1356

NMED PFAS INVESTIGATION, HOLLOMAN AFB

AFFF Release Areas

Figure 9

Figure 1 Holloman Air Force Base site features. Adapted from Phase 1 Report.

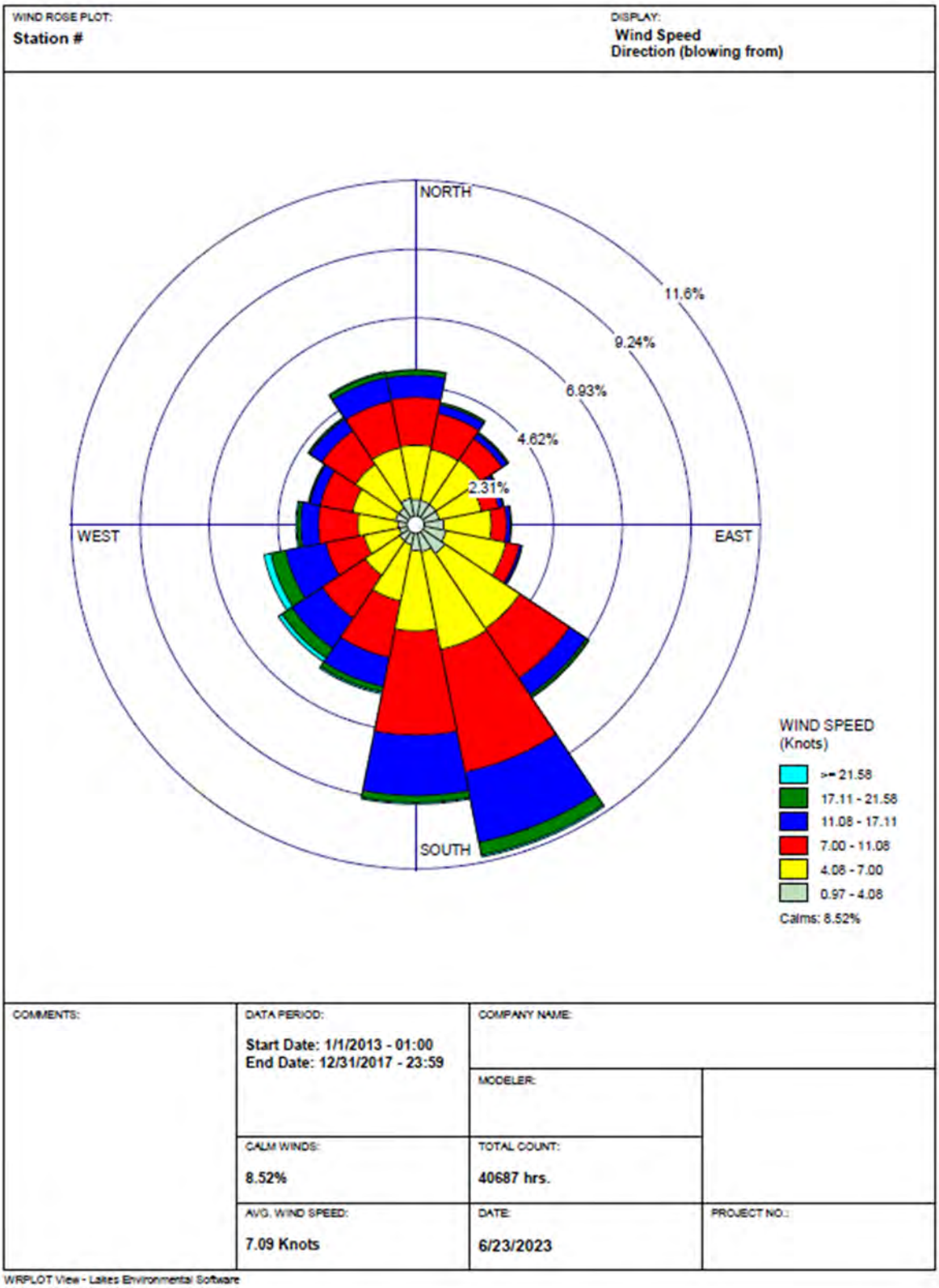


Figure 2 Wind rose for hourly meteorological data observations at the Holloman Air Force Base. Acquired using WRPLOT VIEW Version 8.0.2, accessed at WRPLOT View | Lakes Environmental Software (weblakes.com).

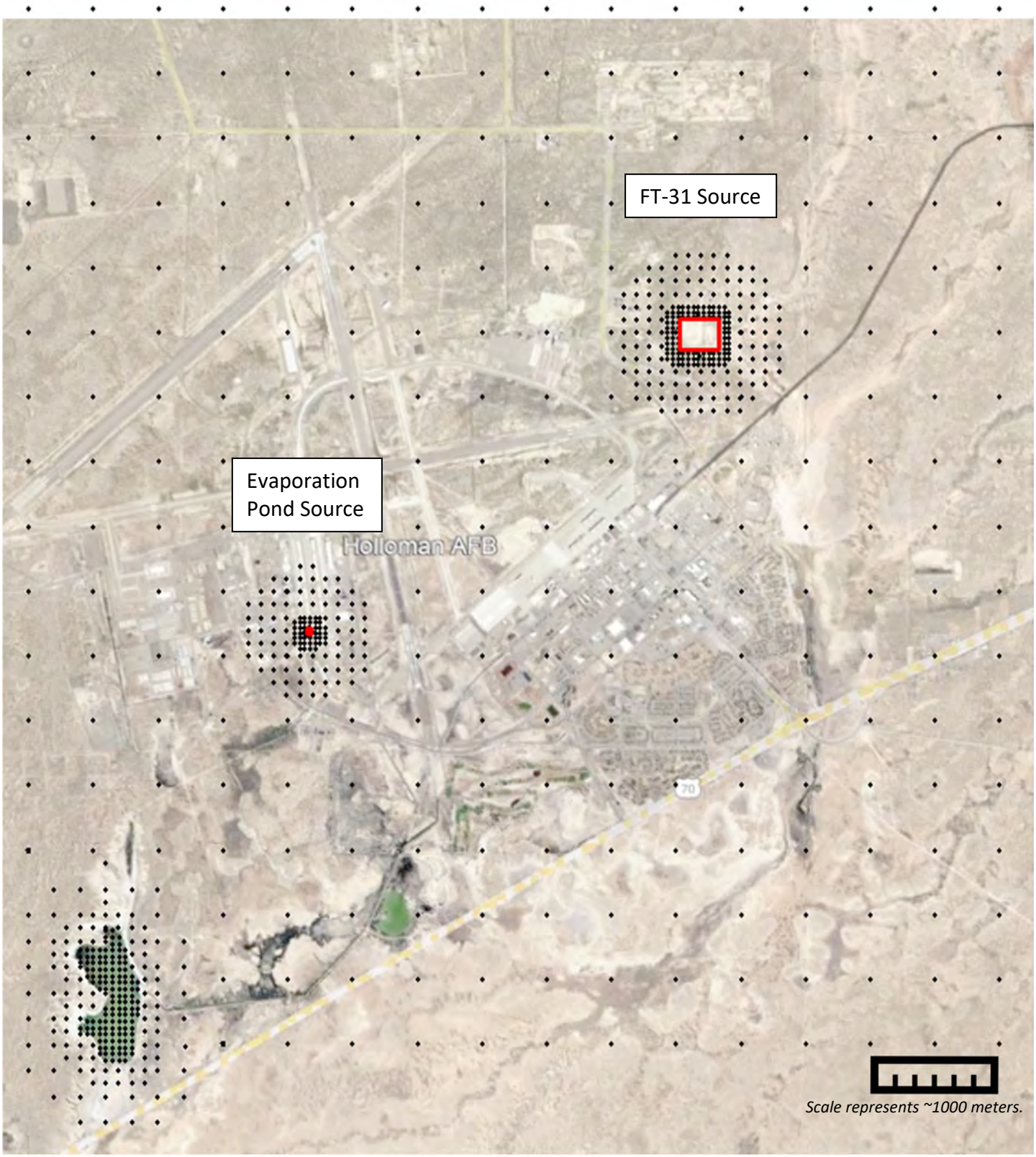


Figure 3 AERMOD receptor grids (black dots) and source areas (red rectangles)

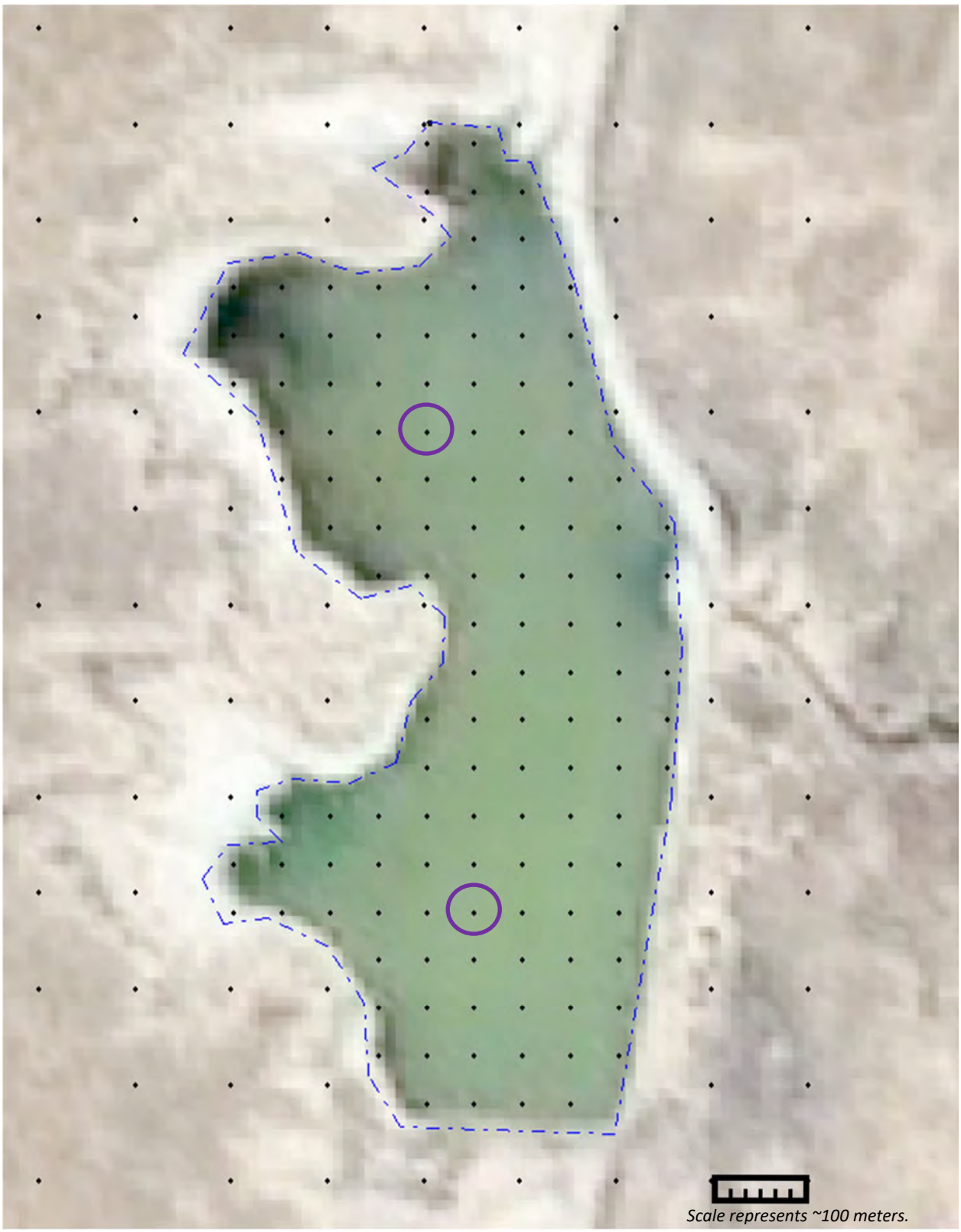


Figure 4 **Receptor modeling network for Lake Holloman. Circled receptors in northern and southern portions of the lake are treated as representative receptors.**

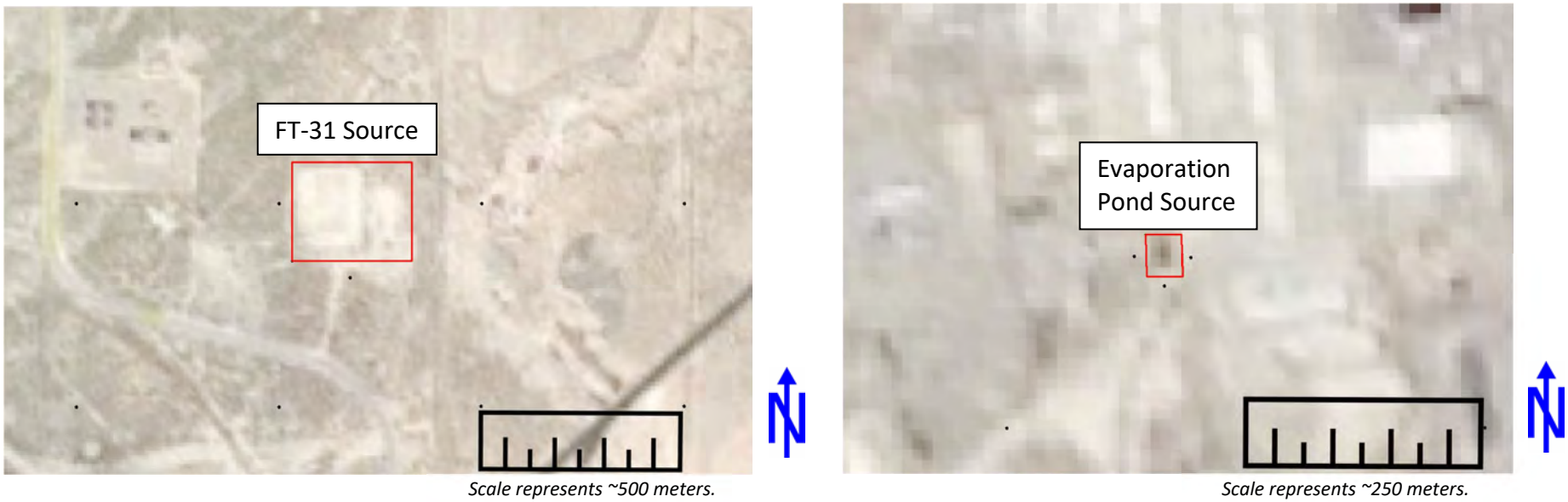


Figure 5 **Assumed configurations of the FT-31 (left) and Evaporation Pond (right) emission source areas. Sources outlined by red boxes. Blue dots indicate receptor modeling locations, with southern (bottom) locations oriented near soil sampling points.**

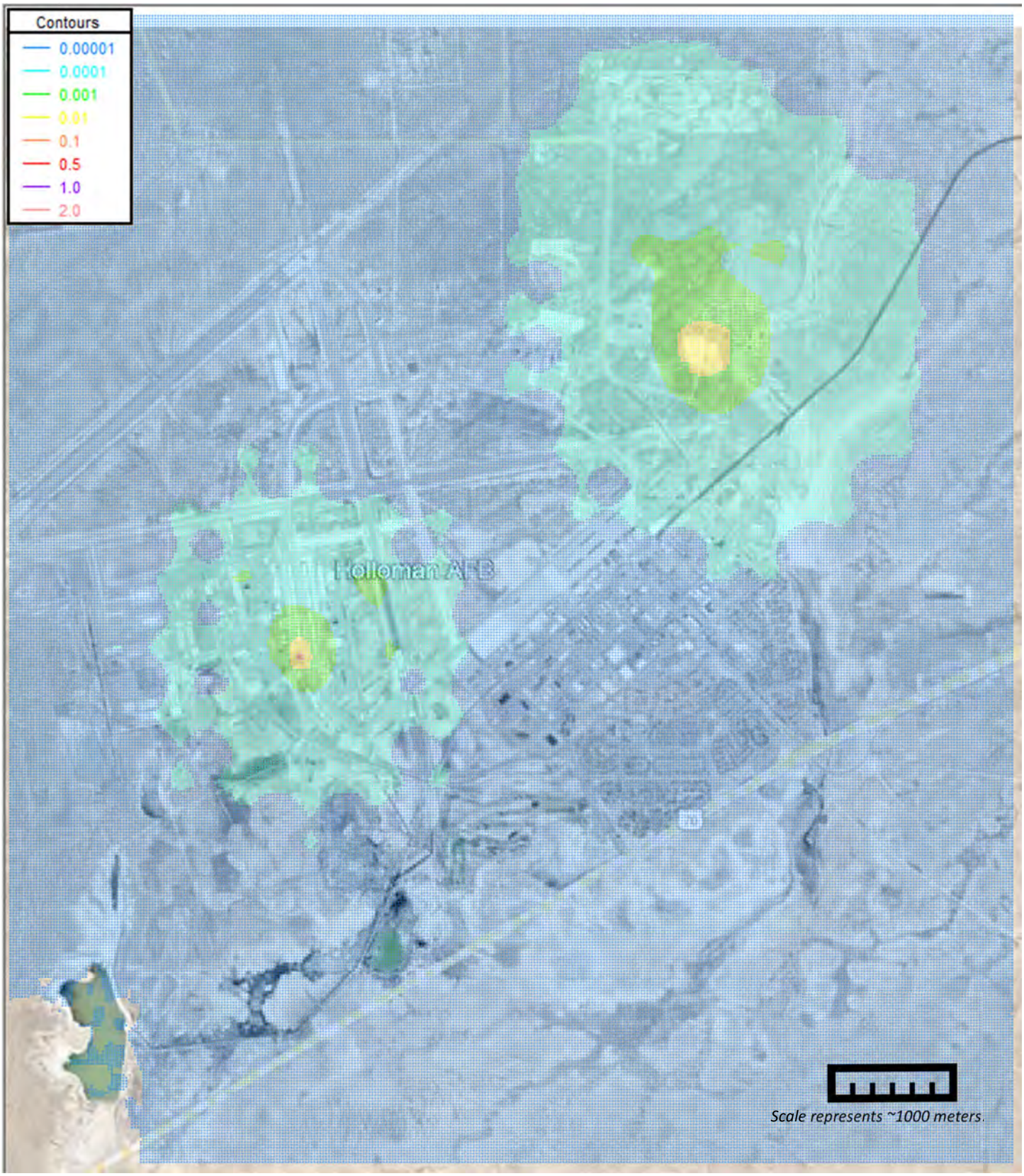


Figure 6 Modeled PFOS Deposition Contours (g/m^2) from On-Site Source Emissions over 5-Year Modeling Period

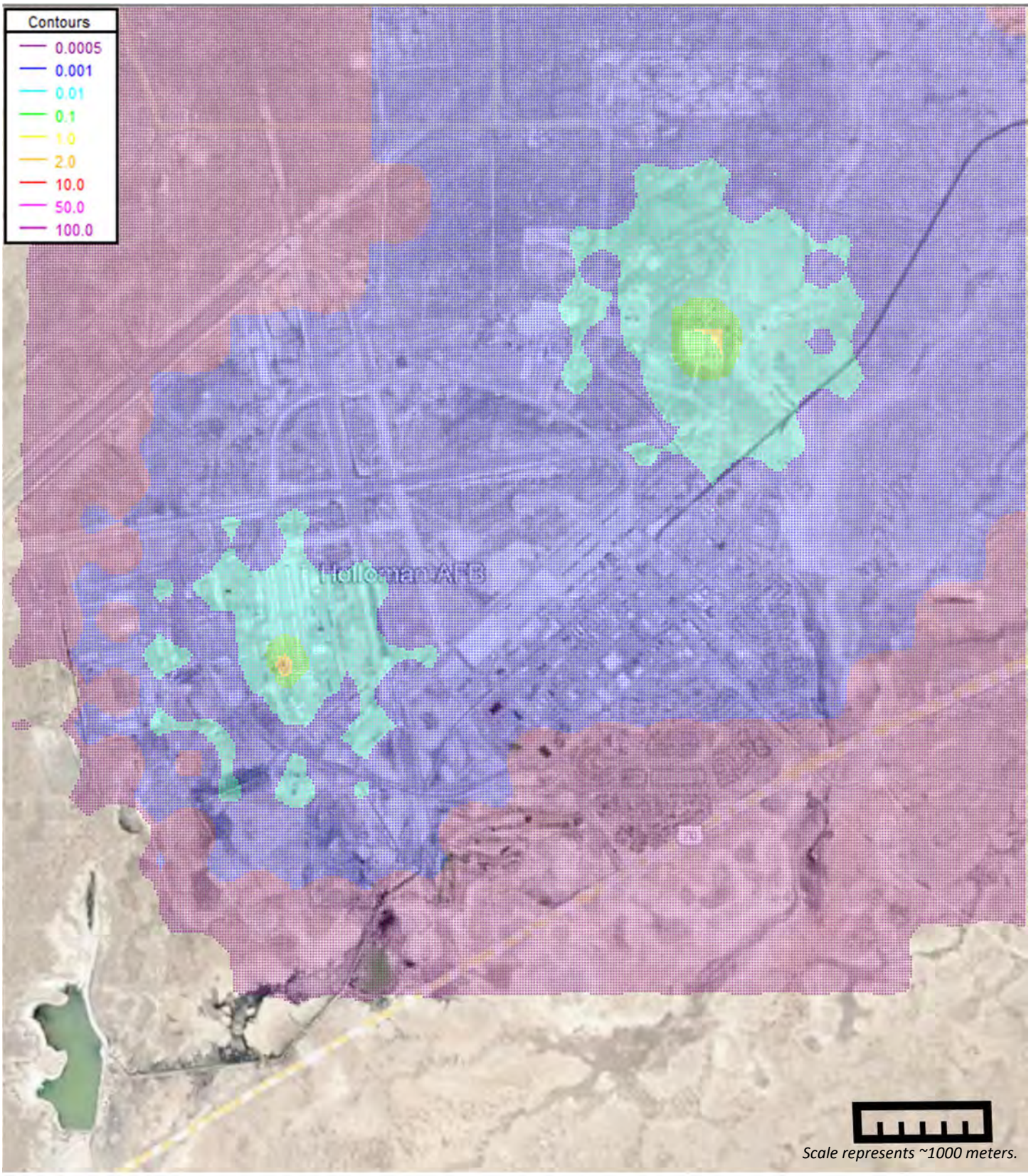
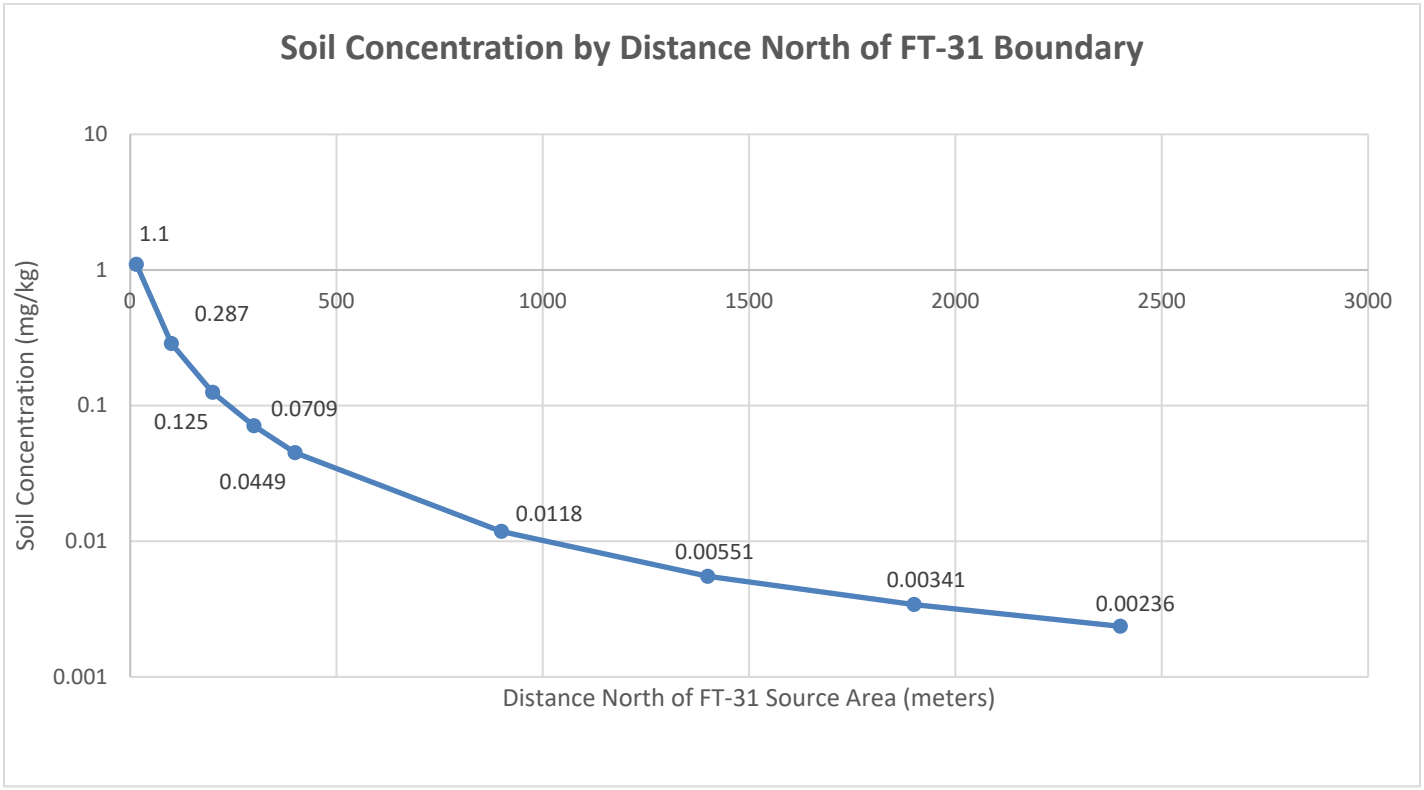
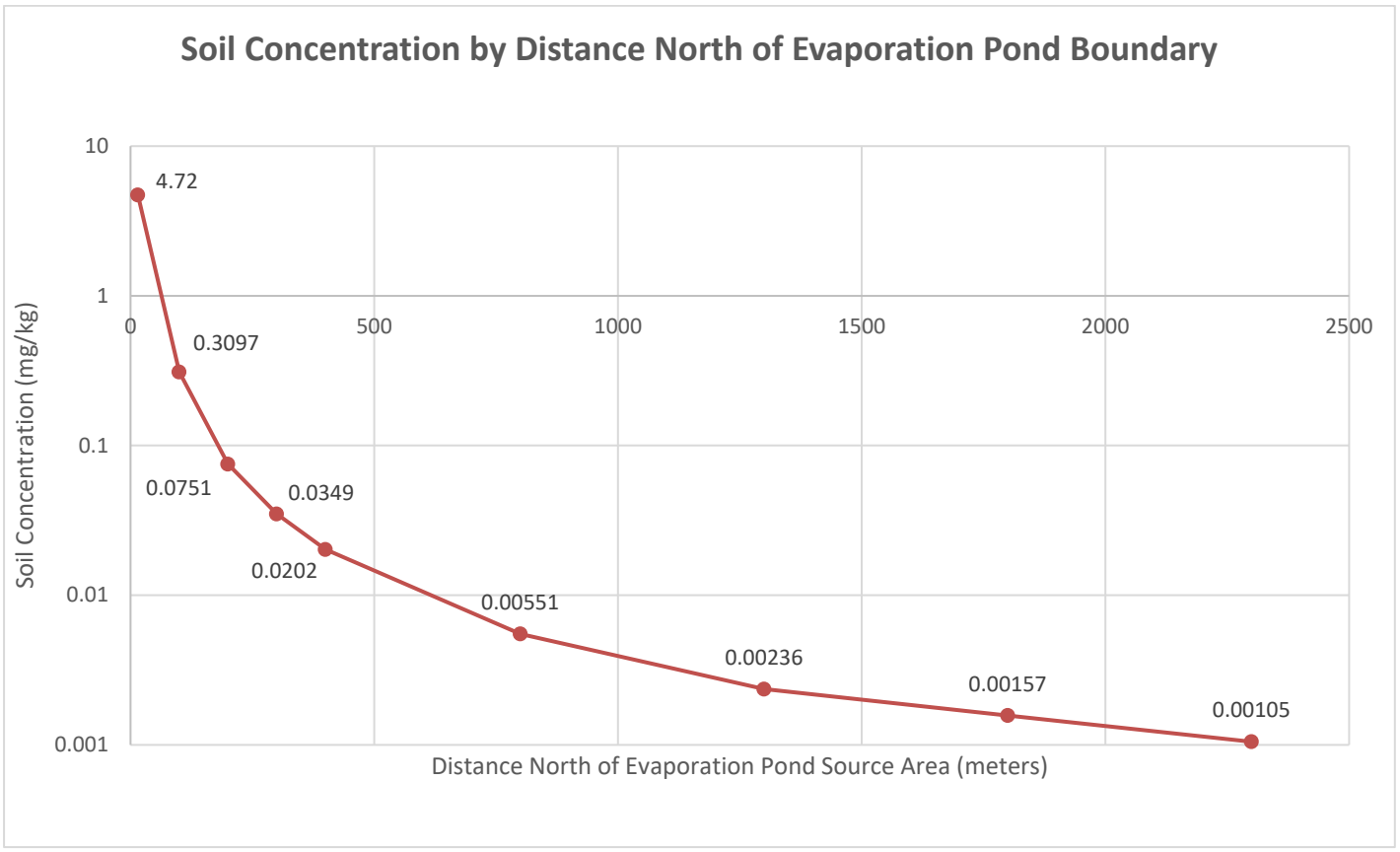


Figure 7 Contours of Estimated PFOS Concentration in Soil (mg/kg) Due to Deposition from On-Site Source Emissions



Distance north of source boundary (meters)	Soil concentration (mg/kg)
15	1.1
100	0.287
200	0.125
300	0.0709
400	0.0449
900	0.0118
1400	0.00551
1900	0.00341
2400	0.00236

Figure 8 Estimated Soil Concentrations (mg/kg) At Various Distances North of the FT-31 Source Area.



Distance north of source boundary (meters)	Soil concentration (mg/kg)
15	4.72
100	0.3097
200	0.0751
300	0.0349
400	0.0202
800	0.00551
1300	0.00236
1800	0.00157
2300	0.00105

Figure 9 Estimated Soil Concentrations (mg/kg) At Various Distances North of the Evaporation Pond Source Area