JACKSON HOLE AIRPORT

PFAS MANAGEMENT, MITIGATION AND REMEDIATION PLAN

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JACKSON HOLE AIRPORT
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What's New in This Revision?

Changes from the December 9, 2022 version of this Plan are shown in italics. Those changes may be found in a new Executive Summary; Section 1, which discusses the current regulatory framework; Section 5.2, discussing the PFAS threshold selected at which water filters will be offered by the Airport to residents in the Phase 2 and 3 testing areas; Section 5.3, which discusses continued monitoring of off-Airport wells, and the addition of a new Attachment 11.

EXECUTIVE SUMMARY

Per- or poly-fluoroalkyl substances (PFAS) are a family of more than 5,000 man-made chemicals used in a wide range of common products. They are found in non-stick pans, water repellant fabrics, fast food packaging, and even some brands of dental floss. Among those products is Aqueous Film Forming Foam (AFFF), which is effective in fighting petroleum-based fires. As a result, the Federal Aviation Administration (FAA) has required all airports serving airlines to use AFFF containing PFAS in aircraft fire emergencies.

Until several years ago, PFAS was not widely known to be an environmental concern. Studies found that prolonged exposure to certain PFAS chemicals could result in risks to human health. In 2016, EPA established a lifetime health advisory (LHA) for drinking water of 70 parts per trillion (ppt) for total PFOA and PFOS (two PFAS compounds).

A part per trillion is an extremely small unit of measurement. 70 parts per trillion equates to approximately 3.5 drops of water in an Olympic size swimming pool (660,000 gallons). An LHA is in turn based on a conservative assumption that an average adult, weighing 154 pounds, drinks 8.5 cups of water per day from the same unfiltered house tap for a period of 70 years.

There are currently no requirements that Wyoming airports test for PFAS in groundwater. Nonetheless, because FAA has required the use of PFAS on airports, in 2019 the Jackson Hole Airport (Airport) proactively decided to test its monitoring wells. Of the 13 wells tested on the airfield, PFAS was detected in five. Of these, two contained concentrations higher than EPA's LHA level of 70 ppt.

The Airport then moved quickly to test private residential wells located in the Phase 1 Area adjacent to and downgradient from the airfield. Initially, 32 homeowners volunteered their wells for testing. Of these, 31 wells tested as either "no detect" or were below EPA's then current LHA of 70 ppt; only one well tested slightly above it. Soon after, 14 more Phase I homes volunteered for the program, and additional testing occurred. PFAS was detected in all but two of these wells, but no results were above the 2016 EPA LHA of 70 ppt. Though not required by any regulation or standard, the Airport proceeded to offer point-of-entry treatment (POET) filtration systems for all

homes located in this Phase I Area, upon request and regardless of whether PFAS was detected in the well. The filters offered by the Airport are certified to remove both PFOA and PFOS.

To determine the extent of PFAS migration in groundwater, the Airport then sequentially tested wells in the Phase 2 and Phase 3 Areas, located farther from the airfield. These tests were of 94 residential wells, 3 utility wells, 1 irrigation well, and one surface water test. Of these, no wells tested above the 2016 EPA LHA.

Though these wells tested safely below the 2016 LHA, to ensure protection of the community, the Airport then offered POET filtration systems for all domestic water wells adjacent to the airfield which were estimated to test at or above 10 ppt for either PFOA or PFOS, or a combination of them. The threshold of 10 ppt mirrored the most stringent regulatory standard then adopted by any jurisdiction in the United States.

To date, 55 filters have been installed on 55 residential properties located in the Phase 1 Area, and 46 filters have been installed on 34 residential properties located in the Phase 2 and Phase 3 Areas. In total, 101 filters have been installed on 89 properties. Additional filters may be installed in the future at homeowner request.

In June 2022, EPA revised its 2016 LHA downward to 0.004 ppt for PFOA and 0.02 ppt for PFOS. The Airport responded by offering filters for all domestic water wells near the airfield in which any PFOA or PFOS were detected or were expected to be present.

In March 2023, EPA proposed to adopt enforceable Maximum Concentration Limits (MCLs) for PFOS and PFOA at 4 ppt each. If adopted, these proposed MCLs will supersede the use of LHAs. These MCLs are expected to be issued as early as end of 2023 but could be as late as Fall 2024. Once finalized, the MCLs for PFOA and PFOS will be applicable to all drinking water sources (private and public well systems). Public water supply systems will be required to meet the new limits within three years.

In addition to investigating PFAS in groundwater and acting to protect drinking water sources, the Airport has implemented measures to both limit the use of AFFF containing PFAS on the airfield, and to manage any future releases which are required by FAA. AFFF containing PFAS will only be discharged on the airfield when necessary to protect human life. When use of firefighting foam which does not contain PFAS is authorized by FAA, the Airport will use the alternative product as soon as possible.

The Airport will continue to re-test wells both on the airfield and in residential areas off the airfield for at least the next two years, both in wet and dry seasons, to account for seasonal variability in groundwater conditions. Overall, the results from August 2022 sampling of airfield wells showed a decrease in concentrations of PFAS. Results from the August 2022 residential well sampling event were generally consistent with prior testing events, but some wells showed slight increases in PFOA or PFOS. The February 2023 off-airfield testing showed decreases in average PFAS levels in the Phase 1 and Phase 2 Areas. The next on-airfield sampling occurred in June 2023

(results have not yet been received), while the next residential well testing is scheduled for fall of 2023.

This PFAS Plan was developed to communicate the Airport's approach for the investigation and mitigation of PFAS found on and near its airfield. It has been updated from time-to-time as additional information has become available and will continue to be updated in the future. The Airport is communicating on a regular basis with the Wyoming Department of Environmental Quality, the National Park Service, FAA, the Teton Conservation District, and the Teton County Public Health Department. Public outreach is being conducted through direct communication with surrounding residents and by website postings.

Our number one priority at the Airport is the safety of our operations – both for passengers and the surrounding community. As this PFAS Plan shows, we also make environmental stewardship a vital part of everything we do.

Introduction

This PFAS Management, Mitigation and Remediation Plan (the "Plan") has been developed to provide information to the public and affected governmental agencies regarding PFAS at the Jackson Hole Airport (the "Airport"). It will explain why PFAS is present in soils and groundwater at the Airport. It will also set forth the actions the Airport has taken, is taking and will take in the future to minimize the use of PFAS on the airfield, protect drinking water supplies in adjacent areas, and investigate and start removing or isolating PFAS in soils and groundwater on the airfield.

The science surrounding PFAS, how it can best be remediated, and its possible adverse health effects continues to evolve. This Plan is therefore intended to be a living document which will be updated from time-to-time as more is known, and as the Jackson Hole Airport Board (the "Airport Board") undertakes further actions to investigate and manage PFAS, mitigate its possible adverse effects, and remediate its existence on and adjacent to the airfield. This Plan was originally prepared as an interim document in April 2020. This form of the Plan was first issued in December 2020 and has since been periodically revised. Further information concerning this Plan may be obtained by contacting Megan Jenkins, at megan.jenkins@jhairport.org or at 307-733-7685.

1. Background

Per- or poly-fluoroalkyl substances (PFAS) comprise a family of more than 10,000 man-made chemicals used in a wide range of common household, commercial and industrial products. They are found in products such as non-stick pans, water repellant fabrics and applications, fast food packaging, and even some brands of dental floss. Among those products containing PFAS is Aqueous Film Forming Foam (AFFF), a fire extinguishing agent used to fight petroleum-based fires.

AFFF was developed in the 1970s and used at airports for aircraft fire emergencies. AFFF is an ideal extinguishing agent for flammable liquid fires, such as those caused by jet fuel, due to its ability to form a layer of aqueous film over fuel to extinguish and prevent fire. The effectiveness of this film forming layer is dependent upon PFAS, which has stable chemical and thermal properties that do not easily break down when exposed to water or heat. Due to its effectiveness, the United States military created specification MIL-F-24385F which requires that AFFF contain PFAS. In turn, the Federal Aviation Administration (FAA) ordered certificated airports supporting air carrier operations, such as the Jackson Hole Airport, to use MIL-F-24385F-certified AFFF containing PFAS for aircraft fire emergencies.

Until several years ago, AFFF containing PFAS was not widely known to be an environmental concern. However, studies have found that prolonged exposure to certain PFAS chemicals, including those contained in MIL-F-24385F AFFF, could result in risks to human health. Therefore, although AFFF containing PFAS has a positive role in saving lives and FAA requires it be used by U.S. airports in the event of an aircraft fire emergency, there is a concern that releases to the environment could infiltrate groundwater and potentially affect the health of those that have prolonged exposure.

As concerns regarding PFAS grew, in the 2018 FAA Reauthorization Act, Congress mandated that FAA cease requiring airports to use AFFF containing PFAS by October 4, 2021. Though FAA has been working on this issue since that time, has tested at least 15 different foam products, and spent millions of dollars in an effort to find an effective alternative, none has yet been found. Therefore, on October 4, 2021, FAA issued a directive that an airport will no longer be required to use AFFF containing PFAS, but only if that airport finds an alternative which meets applicable performance standards and obtains an exemption from FAA. Airports do not have this expertise, and no airport has yet found such an alternative.

PFAS has not yet been classified as a hazardous substance or a carcinogen by either the U.S. Environmental Protection Agency (EPA) or the Wyoming Department of Environmental Quality (WDEQ). EPA is conducting rulemaking on the subject, but what that rule will specify is not yet known. [1]

In 2016, EPA established a drinking water lifetime health advisory (LHA) *["2016 LHA" hereinafter]* of 70 parts per trillion (ppt) for total PFOA and PFOS (two compounds in PFAS) in drinking water based on the Agency's assessment of the latest peer-reviewed science.[2] Then on

[1] *While PFAS has not yet been classified as a hazardous substance, on September 6, 2022, EPA released a proposed rule which seeks for the first time to exercise its authority under Section 102(a) of the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") to designate PFOA and PFOS under the CERCLA definition of "hazardous substances." EPA accepted public comments on the proposed rule until November 7, 2022, and intends to publish a final rule in 2023.*

[2] The lifetime health advisory (LHA) is derived for an adult weighing 70 kg (154 pounds) and assumes daily exposure over a period of an average lifetime (approximately 70 years). For PFAS, one would have to drink two liters (8.5 cups) of water per day from the same unfiltered tap with PFAS concentrations above 70 ppt for a total of 70 years. A ppt, or part per trillion, is an extremely small measurement unit. In units of time, it would be 1 second

June 15, 2022, EPA released a revised and unexpectedly low LHA which reduced recommended levels from a combined 70 ppt, to 0.004 ppt for PFOA and 0.02 ppt for PFOS *["2022 LHA" hereinafter]*. This is several thousand times lower than 70 ppt, and below the level which can even be detected or measured by current technology. The health advisory is non-enforceable and non-regulatory and is meant to provide technical information to state agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water.

*In March 2023, the EPA **proposed** to adopt enforceable Maximum Concentration Limits (MCLs) for PFOS and PFOA at 4 ppt each. Commercial laboratories using the current analytical methods can detect these compounds at 4 ppt. Certain treatment systems (including granulated activated carbon filters such as those funded by the Board) are already capable of removal of PFOS and PFOA at these proposed levels.*

EPA's timeline for finalizing these MCLs into federally enforceable levels is as early as the end of 2023 but could be as late as Fall 2024. Once finalized, MCLs for PFOA and PFOS will be applicable to all drinking water sources (private and public well systems). When the MCLs are finalized, public water supply systems will be required to meet the limits within three years.

The Airport Board is committed to continuing its role as an environmental steward and good neighbor. It is therefore proactively investigating the existence of PFAS on and adjacent to the airfield to determine what action is needed to mitigate possible adverse effects and to remediate its presence in soils and groundwater.

To continue this commitment, the Airport developed this PFAS Plan in December 2020 to document its approach for the investigation and mitigation of PFAS found on and in areas surrounding the airfield. The Plan has been updated from time-to-time as additional information has become known.

Because PFAS is used commonly in many products and manufacturing processes, it may be difficult to attribute all PFAS found in the environment with any specific source or activity, including the airfield. Nevertheless, understanding that the use of AFFF containing PFAS has occurred on the airfield, this PFAS Plan has been developed, in conjunction with actions the Airport has already taken, to limit the use of AFFF containing PFAS, investigate past use of AFFF containing PFAS, take actions to mitigate PFAS concentrations in drinking water wells downgradient from the airfield, and conduct any appropriate remediation of PFAS which has migrated to soils and groundwater. The sections below provide an overview on past use, actions taken to date, and steps forward to effectively address this emerging environmental issue.

in 32,000 years. Even the original lifetime health advisory of 70 parts per trillion equates to approximately 3.5 droplets of water in an Olympic size swimming pool (660,000 gallons).

2. Actions Taken to Limit & Manage Future PFAS Use

As noted above, FAA has ordered certificated airports supporting air carrier operations, including the Jackson Hole Airport, to use MIL-F-24385F certified AFFF containing PFAS for aircraft fire emergencies. FAA also requires that airports periodically test firefighting equipment to ensure its operational capability in the event of an emergency.

The Airport has implemented measures to limit the use of AFFF containing PFAS, and to protectively manage any releases which are necessary in the future. Under these measures, PFAS will only be discharged on the airfield when necessary to protect human life. These limiting measures include the following:

2.1 Eliminating Discharges of Foam for Training.

FAA requires periodic training for firefighters at commercial service airports to prevent or extinguish fuel-based fires in the event of an emergency. Historically, this training has been conducted at an FAA-approved training site located outside Teton County, and only occasionally at the Airport itself. As the possible harmful effects of PFAS in AFFF have become known, training with AFFF on the Airport has ceased. No further training using AFFF will occur on the airfield.

2.2 Eliminating Discharges for Equipment Calibration.

FAA also requires that commercial service airports annually calibrate equipment used to dispense AFFF to ensure proper flow in the event of a life-safety emergency. Such calibration requires a discharge of AFFF from the airport's firefighting equipment. In the past, it has been common practice at airports to calibrate the equipment by discharging AFFF on the airfield. To eliminate this need to discharge on the airfield, the Airport has purchased and now uses a "no foam" system. This system eliminates discharging AFFF for equipment calibration. All semi-annual testing of equipment as directed by the FAA shall be performed on the airfield using the "no foam" system.

2.3 Transitioning from a C8 to a C6 Foam.

In 2000, 3M voluntarily initiated a phase-out of all C8 PFOS and PFOA production, and associated AFFF products. This phaseout was completed in 2002. The Environmental Protection Agency's 2010/2015 PFOA Stewardship Program focused on reducing C8 PFOA content in products and PFOA emissions, because data show that shorter chain C6 compounds have a lower potential for toxicity and bioaccumulation. The Airport took the step of transitioning from C8 to C6 foam in 2009. Only AFFF containing shorter chain perfluorinated chemicals has since been used on the airfield.

2.4 Limiting Future Use of AFFF Containing PFAS.

AFFF shall only be dispensed on the airfield to protect against or suppress Class B fuel fires. Such fires on airports are usually associated with aircraft accidents, and thus are almost always classified as emergency, life-safety events. AFFF containing PFAS shall not be utilized on the airfield for any other purpose, including brush fires, structural fires, or any incident that doesn't involve a Class B fuel.

2.5 Post-Emergency Response Plan.

To the maximum extent possible there will be timely containment, collection, and proper disposal of AFFF containing PFAS in the event an aircraft fire emergency requires the use of AFFF. The same procedures shall be utilized if there is any accidental discharge of AFFF on the airfield. If AFFF is dispensed by Airport staff on or off the airfield, all practical efforts will be made to contain the product and prevent any AFFF from entering the Underground Detention System or other drainage systems. The Environmental Manager will be notified of any AFFF discharge, and he/she will promptly (a) identify and document the maximum area affected by the discharge, and (b) oversee reasonable restoration procedures, based on current requirements and/or best practices, as needed. Environmental cleanup may be contracted to a professional environmental remediation service, and the third-party costs of such activity may be charged back to the responsible party.

2.6 Protection of Personnel.

All Airport personnel working with AFFF shall wear proper personal protective equipment (PPE). PPE shall, at a minimum, include Nitrile gloves and eye protection. Respirators or SCBAs are required when refilling AFFF into the firefighting apparatus or dealing with large spills. If personnel come into contact with AFFF they shall rinse their eyes and/or skin immediately upon contact. If AFFF is ingested, personnel shall seek medical attention.

2.7 Commitment to Transition to AFFF Which Does Not Contain PFAS, when Available.

The Airport is staying abreast of possible changes to FAA requirements with respect to the use of AFFF containing PFAS. When use of firefighting foam products which do not contain PFAS is authorized by the FAA, the Airport will use the alternative AFFF product as soon as possible. At such time, the Airport will also follow best practices with respect to the continued use or replacement of equipment which has come in contact with AFFF containing PFAS, and which therefore may itself hold residual traces of PFAS.

On May 31, 2022, the Department of Defense published a draft Military Specification (MILSPEC) for new, PFAS-free firefighting foam. Titled "MIL-PRF-XX727, Fire Extinguishing Agent, Fluorine-Free Foam (F3) Liquid Concentrate, for Land-Based, Fresh Water Applications. The draft MILSPEC lays out the desired performance standards and chemical properties for fluorine-free AFFF replacements. If and when finalized, the MILSPEC is expected to be adopted by the FAA as the standard for commercial service airports under 14 C.F.R. § 139.

In November 2022, the Airport adopted a Fluorine-Free Foam (F3) Transition Plan (the "Transition Plan") for aircraft rescue and firefighting (AFFF) operations at the Airport. In 2023 FAA is expected to certify for use F3 that do not contain PFAS, as a replacement to AFFF to meet Part 139 ARFF extinguishing agent requirements. The demand for F3 will be high when this certification occurs. This is because in addition to Part 139 airports, military facilities will also be procuring large amounts of the new formula F3. Initial supplies of F3 are anticipated to be limited until production increases. The Airport therefore believed it important to plan efficiently and cost-effectively to procure F3. The Transition Plan outlines steps that can be taken to procure and transition to the use of F3. These steps are organized by three focus areas: Pre-Procurement Planning, Procurement / ARFF Operational Transition, and ARFF Operational Practices. ARFF Operational Practices will not assume the safety of the non-PFAS F3, even if certified by the manufacturers and distributors. Rather, precautions will be taken to limit the discharge of new-formula F3 to ensure there are no unintended negative effects on the environment and water supplies.

3. Actions Taken to Investigate Legacy PFAS Use

PFAS has historically been used on the airfield as required by FAA. This has included discharges necessary to respond to aircraft and vehicle fires, and the periodic testing and calibration of firefighting equipment. The Jackson Hole Airport has never had an Aircraft Rescue and Firefighting training facility on its premises, and therefore any AFFF discharges on the airfield in the past for training purposes were minimal.

With respect to the identification of potential legacy PFAS use, the Airport first worked with the nationally recognized environmental consulting firm of Mead & Hunt to complete the *Managing AFFF and PFAS at Airports (MAPA) Screening Tool*, as recommended in the Airport Cooperative Research Program Report 173,[3] *Use and Potential Impacts of AFFF Containing PFAS at Airports*. That screening determined that, though the presence of some on-airfield PFAS was likely, the extent of that risk was relatively low.[4]

A map of probable areas in which PFAS has been used on the airfield for training and calibration purposes (in blue circles) and for emergency response (in green circles) is illustrated in **Attachment 1** – Past Use of AFFF (with PFAS) at Jackson Hole Airport**.**

[3] The Airport Cooperative Research Program (ACRP) operates under the National Academy of Sciences, Engineering, and Medicine, and is managed by the Transportation Research Board. ACRP is an industry-driven, applied research program that develops near-term, practical solutions to Airport challenges.

[4] Factors that attributed to a lower risk score from the MAPA Screening Tool included: previous AFFF was discharged on concrete that absorbed some of the material, lessening impact into the soil & groundwater and a low volume of AFFF was discharged.

4. Actions Taken to Determine PFAS Presence in Groundwater

Because it has not officially been classified as either a hazardous substance or a carcinogen, there are no legal requirements to test groundwater for the presence of PFAS. Nonetheless, because the Airport is and has been legally required to use AFFF containing PFAS, and because the screening indicated PFAS in groundwater, the Airport proactively decided to test water wells located on and off Airport property.

4.1 On Airport Testing.

In February 2020, sampling was conducted at 13 wells on the airfield to assess the potential for PFAS to exist in groundwater. This testing event, the results for which were received in March 2020, identified the presence of PFAS in certain groundwater wells on the airfield. Of the 13 wells tested, PFAS was detected in five wells. Of these, two wells contained concentrations higher than EPA's 2016 LHA (70 ppt). Reported concentrations of PFOS and PFOA[5] in these two wells were 128.5 ppt and 382 ppt. All five wells in which PFAS was detected are monitoring wells, and none are used for drinking water. (See **Attachments 2** - Jackson Hole Airport Well Cumulative PFAS Figure **and 3** - Jackson Hole Airport Well Cumulative PFAS Data Table).

Based on the results of this initial sampling, two additional wells were tested in late March 2020. One is on-airfield and used in connection with drinking water for the control tower. No PFAS was detected in this well. The other is a domestic water well located near the airfield and directly downgradient from the on-airfield well which yielded the highest PFAS readings in the first round of testing. PFAS was detected in this off-airfield well at 60 ppt, which was below the 2016 LHA (70 ppt).

4.2 Voluntary Residential Well Testing.

Phase 1 Testing: In June 2020, the Airport conducted testing on private residential wells located immediately adjacent to and downgradient of the airfield. This is referred to as the Phase 1 Area. Testing of residential wells within the Phase 1 Area was undertaken to evaluate the extent to which PFAS on the airfield may have reached residential wells nearest to the airfield.

The Phase 1 Area was identified by overlaying USGS groundwater flow data (USGS, *Hydrogeology and Water Quality in the Snake River Alluvial Aquifer at Jackson Hole Airport, Jackson, Wyoming, Water Years 2011 and 2012*) with data provided by the Airport to determine the potential groundwater flow direction for PFAS migration. Those parcels located within the neighborhood immediately west and southwest of the airfield wells comprise this Phase 1 Area (see **Attachment 4** – Phase 1 Voluntary Residential Testing Area). Well JH-3-20-1 was chosen as the initiation site for the vector because it tested highest in PFOS (a PFAS compound) on the airfield (382 ng/L).[6]

[5] Perfluorooctanesulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) are two PFAS compounds found in AFFF for which the EPA has issued a drinking water lifetime health advisory.
[6] 1 nanogram/liter (ng/L) = 1 part per trillion (ppt)

Approximately 54 parcels are located within the Phase 1 Area. Of these, forty-five (45) parcels contain residences. Thirty-one (31) of these residences are estimated to be occupied on a full-time basis.[7] The Airport solicited property owners located within the test area to volunteer for water sampling and analyses of their wells.

WDEQ recommended testing a minimum of thirteen (13) wells within the Phase 1 Area. The Airport nonetheless offered testing to all 45 of the Area's residences. Thirty-two (32) residents initially volunteered their wells for testing, and all were tested. Thirty-one (31) of these private wells tested as either "no detect" or were below the 2016 LHA (70 ppt). Only one well tested above the 2016 LHA advisory at 70.3 ppt.

The Airport tested for the list of PFAS compounds specified in EPA's Method 537.1 analysis. The lab reports from this and other EPA methods include the full set of parameters specified in the method. Other PFAS compounds have been detected in some samples that the Airport has collected, but PFOA and PFOS are in the highest concentrations. This is consistent with the fact that these are the two primary PFAS compounds identified in AFFF formulations. Accordingly, these are the two PFAS compounds whose presence in groundwater is likely to be associated with airport operations. For this reason, PFOA and PFOS are the focus of the Airport's investigations.

Since the time of the original testing, the 13 remaining homes volunteered for the program, and additional testing occurred. PFAS was detected in all but two of these 13 wells (results ranged from 7 to 49.5 ppt), but no results were above the 2016 LHA of 70 ppt. (See **Attachment 5** – Phase 1 Testing Results).

To avoid potential contamination from plumbing systems components, such as Teflon seals, residential testing was conducted only on the source well, not on water sources inside the home. Residents were asked to complete a questionnaire regarding their wells and any associated treatment systems. If the residents had a treatment system on their wells, the type of treatment (filtration/sedimentation, under the sink filter, etc.) were identified and documented. This data was collected for informational purposes only, as testing was conducted pre-treatment system.

Phase 2 Testing: Based on results from the Phase I voluntary residential testing effort, the Airport moved forward with Phase 2 voluntary sampling. Using scientific criteria (i.e., Phase I results, groundwater flow direction, USGS reports), water wells located farther away from the Airport were tested to better determine the geographic extent to which PFAS may exist in groundwater. Phase 2 testing used the same methodology as Phase 1 testing (EPA Method 537.1). Water wells included in Phase 2 consisted of 13 residential wells, 3 utility wells, 1 irrigation well, and one surface water test. Results of Phase 2 testing were received in late September 2020. Of the 18 samples taken, 12 resulted in non-detect, and six resulted in detectable levels which were well below the 2016 EPA LHA of 70 ppt. All three utility wells (which serve multiple homes) came

[7] Full-time (versus seasonal) use of a residence is an assumption based on tax records that show a contact address located in either the Towns of Jackson or Moose.

back as non-detect. Phase 2 testing confirmed the direction of PFAS migration from the affected area. (See **Attachment 6** – Phase 2 Testing Results).

Phase 3 Testing. Phase 2 testing provided information regarding the direction and general extent of the PFAS plume; however, a defined non-detect boundary was not identified to the southwest. Therefore, the Airport conducted a third phase of voluntary residential well testing to gain a better understanding of the extent to which PFAS has traveled off airport property.

Approximately 144 property owners were contacted regarding the Phase 3 testing effort, of which 74 volunteered to have their domestic wells sampled. Of the 74 wells tested, no groundwater samples tested above the 2016 LHA of 70 ppt. PFOS and/or PFOA was detected in 12 samples (ranging from a total of 2.4 to 28.7 ppt). (See **Attachment 7** - Phase 3 Voluntary Residential Testing Area and **Attachment 8** – Phase 3 Testing Results).

In August 2021, sampling was conducted on six additional domestic water wells located adjacent to the Phase 3 testing area. All homes were located within the Moulton Loop neighborhood. In accordance with Wyoming DEQ recommendation, EPA Method 533 was used in testing the samples. All of these samples resulted in no detectable levels of PFOA and PFOS.

5. Mitigation - Actions Taken to Protect Drinking Water Supplies

5.1 Filtration Systems in Phase 1 Testing Area.

Although only one home in the Phase I testing area was found to have a PFAS concentration above EPA's 2016 70 ppt LHA, in an abundance of caution, and because this neighborhood is located directly adjacent to the airfield, the Airport Board offered to provide point of entry treatment (POET) filtration systems, upon request, for all homes located within this Phase I testing boundary, regardless of the level of PFAS detected in the well. [8]

5.2 Filtration Systems in Phase 2 and 3 Testing Areas.

At its November 18, 2020 meeting, the Airport Board authorized the prompt installation of POET water filter systems, at Airport expense, for any domestic water well in the Phase 2 or 3 areas which tests at or above 70 ppt for PFOS+PFOA. As noted above, this was consistent with EPA's 2016 LHA level for drinking water, which was relied upon by the State of Wyoming. Per Phase 2 and Phase 3 investigation results, no residential wells in the testing areas detected PFAS levels at or even approaching 70 ppt.

After completion of Phase 3 testing, the Airport sought the input of the Wyoming Department of Environmental Quality and the Teton County Public Health Department regarding the levels at

[8] WDEQ informed the Airport that ongoing efforts at another Wyoming PFAS site were using the level of 35 ppt as a threshold for implementing mitigation measures. The Airport's provision of water filtration system to all homes in the Phase 1 Area was therefore far more protective.

which water filters should be installed at Airport expense in the Phase 2 and 3 areas. Both agencies responded that the applicable standard in Wyoming was the 2016 LHA level of 70 ppt. Teton County Public Health stated that if the Airport installed filters at any level lower than the EPA standard it should be considered to be a good neighbor. WDEQ also noted that if the EPA PFAS LHA level was reduced in the future (or a federal MCL established), the Airport would need to revisit the issue.

At its Special Meeting held on June 29, 2021, the Airport Board voted to offer whole-house filtration systems for installation on domestic water wells which, based on available testing data from domestic water wells, are estimated to test at or above a 10 ppt threshold for PFOA, 10 ppt threshold for PFOS, and 10 ppt threshold for combined PFOA and PFOS. An "allowance for variability" concept was authorized for use in developing the Eligibility Boundary ("EB") shown on Attachment 9 – Eligibility Boundary Map. This would account for possible seasonal testing, and other factors contributing to variability over time.

Though the 2016 EPA Lifetime Health Advisory limit for PFOS and PFOA in drinking water was 70 ppt, and that standard was relied upon by most state environmental agencies, including the WDEQ, several states had established lower standards. A threshold of 10 ppt mirrored the most stringent regulatory standard adopted by any jurisdiction in the United States at the time. The Airport Board selected this threshold to best support the local community and the environment.

As noted previously, in June 2022 EPA released a revised LHA for PFOS and PFOA in drinking water (0.004 ppt for PFOA and 0.02 ppt for PFOS). After this occurred, the Airport determined to provide filters not only to those within the Eligibility Boundary, but also for any well located within an area in which it was estimated that any concentration of PFOS or PFOA would be detected in groundwater, or in which PFOS and PFOA were actually detected.

Going forward, residents whose parcels fall within the EB, or within an area in which PFAS is estimated to occur or has been actually detected, will be eligible to receive, at no cost to them, a whole-house domestic water filtration system that is certified to remove PFOS and PFOA. If any portion of a parcel is located within the EB, any domestic water well on the parcel will continue to be eligible for a filter. Water filters will be provided for domestic water wells only. It is the property owner's responsibility to request installation of a filter system. If a single residence requires more than one filter due to its size, additional system(s) will be provided and installed. The Airport Board will be issuing replacement filters cartridges to maintain effectiveness of the systems at least through 2024.

If a new residence is constructed on an eligible parcel, it may receive a filter system. The owners of new residences must submit a copy of their Teton County building permit and coordinate the timing of installation with their construction. If a parcel that falls within the EB is subdivided in the future, only new domestic water wells on newly delineated parcels where some portion is within the Eligibility Boundary will be eligible to be provided with filter systems. The owners of new residences on qualified new sub-parcels must also submit a copy of their Teton County building permit, and coordinate the timing of installation with their construction.

To date, 55 filters have been installed on 55 residential properties located within the Phase 1 testing area, and 46 filters have been installed on 34 residential properties located within the Phase 2 and 3 eligibility boundaries. This makes for a total of 101 filters installed on 89 properties to date. It is anticipated that additional filters may be installed at homeowner request.

5.3 Continued Monitoring of Residential Wells.

While community drinking water will be protected with the installation of Airport-provided filtration systems, continued monitoring of these water wells is an important element of Airport PFAS remediation programs. Therefore, a Continued Monitoring program was established to collect pre-filter samples (should there be a filter installed on a residential drinking water well) from a sample of homes within the Phase 1, 2 and 3 testing areas. The goal of continued monitoring is to understand PFAS groundwater levels with regard to seasonality and to monitor any changes over time.

In August of 2021, 19 domestic water wells that had previously been tested were re-tested to evaluate potential trends in concentrations. Results for the 19 samples ranged from non-detect to 46ppt, all of which were well below the 2016 LHA of 70ppt. Some results were higher and some lower than previous testing.

In February 2022, 18 domestic water wells that had previously been tested were re-tested to evaluate potential trends in concentrations. Results for all 18 samples were well below the 2016 LHA. Some results were higher and some lower than previous testing.

The 2022 semi-annual residential groundwater monitoring event was completed between August 22 and 24, 2022. This continued residential sampling effort involved resampling groundwater from 20 select residential wells located within the initial Phase 1, 2, and 3 areas. Results were generally consistent with prior testing events, but some wells showed slight increases in PFOA or PFOS.

In February 2023, 22 domestic water wells were tested pre-filtration system. Results were generally consistent with the previous testing events. A comparison of these results with the 2023 ***proposed*** *MCLs for PFOS and PFOA indicated the following:*

- *One PFOA result exceeded 4 ppt with a maximum value of 5.5 ppt*
- *Thirteen PFOS results exceeded 4 ppt with a maximum value of 46 ppt*

The Airport will continue to re-test these wells over the next two years, both in wet and dry seasons, for further analysis. The next round of testing is scheduled for fall of 2023. See ***Attachment 10*** *for Continued Residential Monitoring Results.* ***Attachment 11*** *illustrates aggregated data collected during Continued Residential Monitoring sampling events since 2020.*

As noted above, the filters installed at Airport expense are certified to remove PFOS and PFOA. Spot-testing of post filtration water confirms that removal has been successful. Residential water

systems on which these filters have been installed are therefore meeting the manufacturer's removal efficiencies.

5.4 Temporary Water Supplies.

While the Airport was conducting off-airfield testing and residents awaited results, the Airport offered to supply drinking water to all users of residential wells within the Phase 1 testing area as an initial mitigation measure. Two alternatives were made available upon request of the resident. The first was the AQUA TRU Countertop Water Filtration Purification System that uses reverse osmosis technology to remove contaminants. This system is certified under National Science Foundation (NSF) standards by the International Association of Plumbing and Mechanical Officials (IAPMO). The second alternative is bottom load 5-gallon water coolers from JH20.

At its meeting of November 18, 2020, the Airport Board decided to make a similar offer of temporary water supply to residents within the Phase 2 and 3 testing boundaries. Provision of temporary water supplies will continue until filtration systems are installed, or it is determined that no filtration systems are necessary.

6. Actions Taken to Investigate Soils/Materials for Potential Remediation

A soil sampling and analytical investigation is usually a part of a comprehensive PFAS remediation plan. At the Jackson Hole Airport, such an investigation has two components. The first is an investigation of source areas in which AFFF has been historically discharged on the airfield for purposes of testing, training, or response to emergency incidents. These areas were identified when the Airport undertook the MAPA evaluation discussed in Section 2 above.

The second component was necessitated by the runway replacement project which the Airport undertook in the spring of 2022. This project excavated soils, pavement, and associated subbase materials under and adjacent to the runway and taxiway. Some of these materials could have contained concentrations of PFAS. If not properly mitigated, their disturbance and relocation could have caused the spread of PFAS around the airfield and/or an acceleration of PFAS leaching into groundwater. A portion of this investigation focused on better understanding the concentration and extent of PFAS in the soils and within the pavement and associated subbase to be excavated for the runway reconstruction project. Based upon this investigation, it was determined that the runway project did not need to plan to minimize any excavation-related PFAS risks.

6.1 Soils Remediation Investigation.

In December 2020 the Airport conducted an on-site soil investigation to determine the extent to which PFAS is found in airfield soils and to identify any potential groundwater impacts. The soil investigation consisted of 28 soil borings – drilling to approximately 30 to 70 feet below ground surface, until groundwater was reached (see Attachment 12 - Approximate Locations of Soil Borings. Soil samples were taken at four depths per borehole (0 to 5 feet, 10 to 15 feet, 25 to 35 feet, and 5 feet above the groundwater table), and then a grab groundwater sample was taken.

To evaluate the sampling results, the Airport used screening levels published by the Interstate Technology Regulatory Council (IRTC), an industry leading organization that contributes to the development of uniform national guidance and standards.

The shallowest soil data (0 to 5 feet interval), representing soils that would potentially be disturbed by the runway replacement project, was compared to the published Human Health Screening Levels (IRTC, January 2021). These screening levels are 1,260 ug/kg for PFOA and PFOS individually, and 1,300,000 ug/kg for PFBS.[9] These screening levels are based on residential exposure over a lifetime (approximately 70 years). In an abundance of caution, the Airport applied a safety factor of 100 to account for unknowns and provide an extra measure of protection for construction workers associated with the runway project. This resulted in using modified Human Health Screening Levels of 12.6 ug/kg each for PFOA and PFOS, and 13,000 for PFBS in evaluating the 0 to 5-foot interval results. Sampling results found no concentrations of PFOA, PFOS, or PFBS above the modified more stringent Human Health Screening Levels in the 0 to 5 feet interval in any of the 28 borings.

For soil intervals deeper than 5 feet, which would not be disturbed by construction, the ITRC Protection of Groundwater Screening Levels were used in evaluating the sampling results: PFOA (0.172 ug/kg), PFOS (0.378 ug/kg), and PFBS (130 ug/kg). Concentrations of these compounds were detected above their respective screening levels in 8 of the 28 borings at the deeper intervals. These results are consistent with previous sampling events conducted on the airfield, expand the Airport's understanding of the extent of PFAS, and support its decision to continue its PFAS investigations.

The results of the soil sampling event were utilized in the next steps of the investigation process, including the Feasibility Study for design of a groundwater remediation system and application of best practices which were employed during the Airport's runway replacement project which occurred in the spring of 2022.

7. Actions Taken to Further Investigate Groundwater for Potential Remediation

At its November 18, 2020 meeting the Airport Board also authorized the following measures to investigate groundwater on the airfield for the purposes of designing an on-airfield groundwater remediation system.

7.1 Semi-Annual Airport Monitoring Well Testing.

On-airfield monitoring wells will be monitored twice a year to account for seasonal variability in groundwater conditions. Testing events will occur in low water season (winter/spring), while others will occur in high water season (summer/fall).

[9] *Note that the EPA's Lifetime Health Advisory for drinking water accounts for only PFOA and PFOS compounds. The ITRC standards for Human Health Soil Screening Level and protection of Groundwater Screening Level include PFBS, in addition to PFOA and PFOS.*

In May 2021, the Airport conducted a round of testing of on-airfield monitoring wells. This additional sampling event was conducted for two principal purposes. The first was to test for possible variability in PFAS concentrations as a result of seasonal differences in groundwater levels. The second was to conduct "slug tests" at wells to evaluate hydraulic connectivity. The results of these tests may be utilized in the design of a proposed groundwater remediation system. Test results showed that PFAS concentrations in some on-airfield wells decreased over February 2020 levels, concentrations in other wells increased somewhat, and some remained about the same. The differences in concentrations may be partially due to the time of year a sample was collected and/or the sampling methodology.

In November 2021, the Airport conducted a round of testing from nine of the on-airfield monitoring wells and the Control Tower drinking water well. The groundwater monitoring results are generally similar to those from previous sampling events with the exception of lower PFAS concentrations in JH-2 and JH-3 compared to February 2020. The Control Tower drinking water well resulted in non-detect.

The Airport did not conduct on-airfield testing of wells in the spring of 2022 because of the runway reconstruction project. However, another round of testing for on-airfield monitoring wells was conducted in August 2022. **Attachment 2 -** Jackson Hole Airport Well Cumulative PFAS, provides a figure with the cumulative data from on-airfield well sampling events with the cumulative data reported in **Attachment 3 -** Jackson Hole Airport Well Cumulative PFAS Data Table. In this testing event, concentrations of PFOA were detected in 8 of the 10 samples and ranged between 2.1 ng/L (JH-1.5D, and JH-4) and 4 ng/L (JH-1.5R, JH-1.5, and JH-2). Concentrations of PFOS were also detected in 8 of the 10 samples and ranged between 7.9 ng/L (JH-2) and 56 ng/L (JH-1.5). When compared with prior testing, concentrations in 5 wells were lower, in four wells there was no change, and in one well there was a slight increase.

The on-airfield wells in which PFAS was detected were not drinking water wells. Accordingly, the methodology has been revised to reflect that these results are not compared to EPA's LHA for drinking water, but rather to the USEPA Regional Screening Levels (RSLs, USEPA 2022a). Prior semi-annual monitoring reports presented the 2016 LHA, which recommended comparison of the sum of concentrations of PFOA and PFOS to 70 ppt. The USEPA issued RSLs for six PFAS compounds in November 2022 of which PFOS is 40 ppt and PFOA is 60 ppt. For screening purposes, the USEPA RSLs are used for water results from groundwater monitoring wells.

RSLs are not cleanup standards and are calculated using conservative exposure assumptions and established LHA or cleanup levels for PFAS in groundwater or surface water and have indicated they are deferring to USEPA LHA levels (WDEQ 2021).

Overall, the results from August 2022 sampling event showed a notable decrease in concentrations in on-airfield wells. Levels have decreased such that only PFOS concentrations detected in 1 of the 10 on-airfield monitoring wells (JH-1.5) are now above the current RSL (as defined above). PFOA detected concentrations in all 10 wells were not above its current RSL.

7.2 Feasibility Study for Design of Potential On-Airport Remediation System.

Engineering data has been and will continue to be collected from on-airfield wells to complete the process of identifying and designing the best groundwater remediation approach for this airport. The Airport's goal for remediation is to clean the groundwater environment itself to acceptable standards, regardless of whether all affected downgradient water wells have received filter systems.[10] Initial engineering data collection involved sampling airfield monitoring wells and conducting slug tests.[11] The feasibility study will identify any future data collection needs and the data will be modeled. The expected outcome of this feasibility study will be a recommendation on the most appropriate and cost-effective remediation system for the Jackson Hole Airport. The feasibility study will be completed when remediation standards have been published by EPA, and thus when the goals of remediation have been established.

8. Agency Coordination

It was important to involve relevant agencies early in this process to inform them of testing results, identify any other potential source of PFAS in groundwater, obtain their guidance and feedback on the Airport's efforts, and integrate these agencies into any next steps to address the issue. Coordination with these agencies also allows for a unified approach in communicating with and educating the public. While public outreach will be primarily conducted by the Airport and its consultants, these agencies can also be of assistance in distributing factual information to residents.

The Airport will continue to periodically consult with and keep the following agencies informed of the results of investigations made and remediation actions taken under this Plan:

8.1 National Park Service.

The Jackson Hole Airport is located in Grand Teton National Park (Park) under authorization provided by a 1983 Agreement, which has been amended four times. Among other things the Third Amendment to the Agreement requires that the Airport Board act in good faith and in coordination and cooperation with the National Park Service to develop and implement such reasonable and cost-effective mitigation measures as may be available to reduce environmental impacts on the Park. Consistent with this obligation, the National Park Service (NPS) was promptly informed of the Airport's well sampling results in March 2020. Periodic reports to NPS have since been made and will continue to be made as appropriate. The Airport will also include a report on PFAS related actions in it required Biennial Report to NPS.

8.2 Wyoming Department of Environmental Quality.

[10] Filtration systems are usually a near to mid-term mitigation measure.

[11] A slug test is a type of aquifer test where water is quickly added or removed from a groundwater well, and the change in hydraulic head is monitored through time, to determine the near-well aquifer characteristics. It is a method used by hydrogeologists and civil engineers to determine the transmissivity/hydraulic conductivity and storativity of the material in which the well is completed.

The Wyoming Department of Environmental Quality (DEQ) is the state's regulatory agency charged with protecting, conserving and enhancing Wyoming's land, air and water for the benefit of current and future generations. DEQ does this in part through agreements with EPA under which DEQ assumes authority for enforcement of certain federal environmental laws. Neither EPA nor DEQ have adopted any regulatory standards for the cleanup of PFAS in soil or groundwater. As noted above, EPA initially adopted a non-regulatory LHA for PFOS+PFOA in drinking water of 70 ppt. *Then in June 2022, EPA released a revised and unexpectedly low LHA which is several thousand times lower than 70 ppt, and below the level which can even be detected or measured by current technology.*

By letter to DEQ on April 28, 2020, the Airport provided a *Jackson Hole Airport (JHA) Interim PFAS Report (April 28, 2020)* and sought consultation with DEQ. The Airport has since been in periodic consultation with DEQ in both writing and telephone conference call. The Airport desires to enter into a more formal consulting relationship with DEQ under which its advice and consultation is sought and received. In any event, the Airport will provide reports to and seek consultation with DEQ at appropriate times and consistent with this Plan.

8.3 Teton County Health Department.

The mission of the Teton County Health Department (TCHD) is to promote the health and wellbeing of the Jackson Hole community through protection and prevention efforts, in collaboration with an engaged public and other community partners. The Airport gave its first formal report to TCHD and sought its consultation by letter of October 13, 2020. The Airport will provide reports to and seek consultation with TCHD as appropriate.

8.4 Teton Conservation District.

The Teton Conservation District (TCD) is a special district established under Wyoming law, which is established by local residents to conserve natural resources and develop locally driven solutions for environmental concerns. Its mission is to work with the community in the conservation of natural resources for the health and benefit of people and the environment. Upon being informed of the presence of PFAS in groundwater under and surrounding the airfield, in August 2020 TCD stepped forward and awarded the Airport Board a $40,000 grant to assist in the testing of off-airfield water wells to determine the extent of PFAS migration. This grant has assisted in making possible water testing and determining which homes should be provided with water filtration systems at Airport expense. The Airport is reporting to TCD on those test results and will provide reports to, and seek consultation with, TCD as appropriate and consistent with the terms of the grant.

In addition to the above agencies, the Airport will periodically provide reports on progress under this Plan to other agencies as and when appropriate.

9. Public Communication and Outreach

Throughout the investigation and implementation of this Plan, the Airport is dedicated to open and transparent communication with the public. To facilitate comprehensive public outreach, a variety of tools will be used to communicate with residents located within the area, as well as with the community at large.

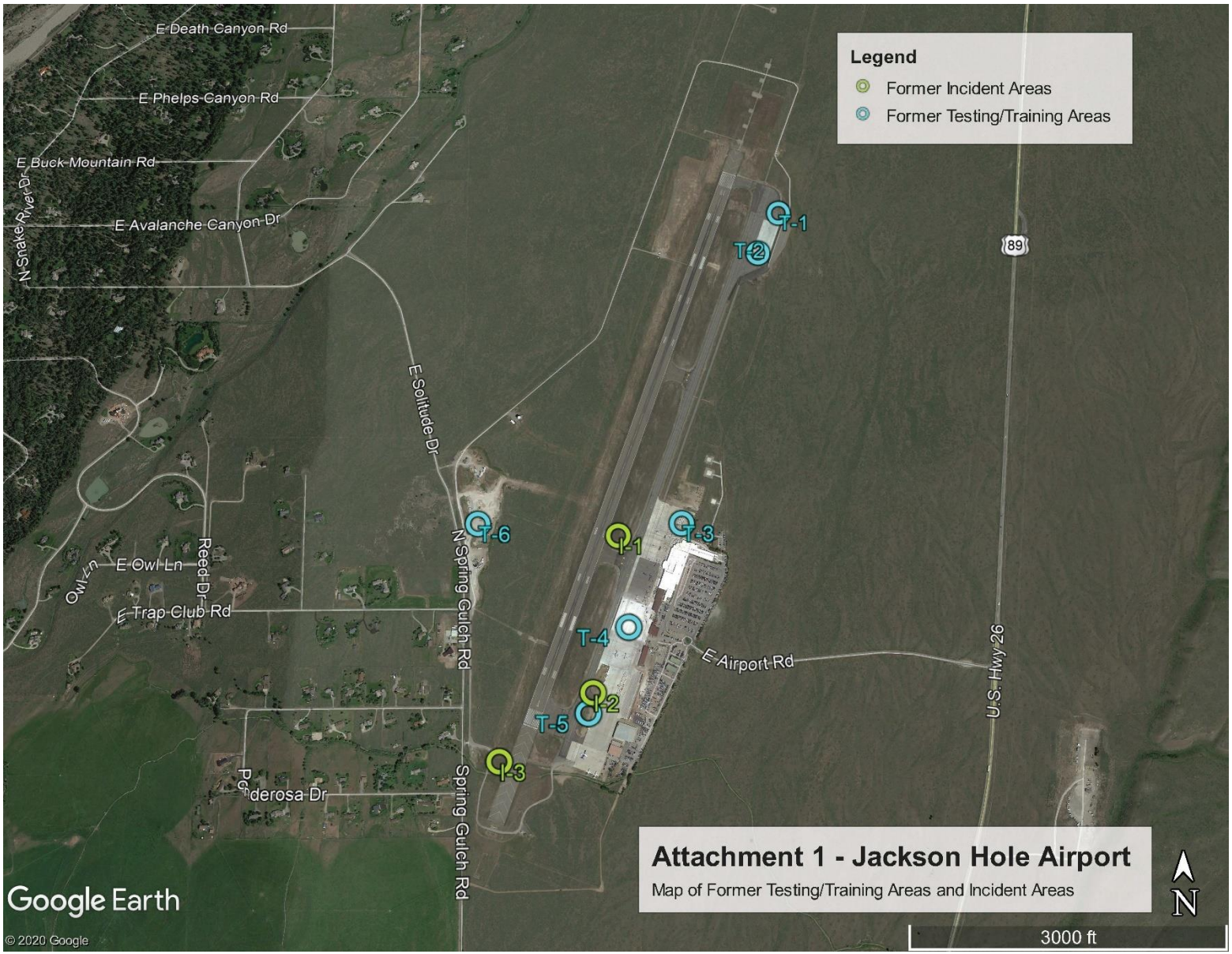
9.1 Communications with Affected Homeowners.

The Airport has and will continue to correspond with homeowners in the Phase 1, 2, and 3 areas through mail, email and telephone. These communications will be to schedule water testing and when appropriate retesting, arrange for temporary water supply delivery, arrange for filter system installation, and provide replacement filters for the homeowner when requested. Communications will also direct affected homeowners to the Airport's website where more detailed communication information on PFAS and this Plan may be obtained.

9.2 Communication with Public at Large.

The Airport will continue to communicate with the public at large through its website postings, where detailed information on the regulatory framework of PFAS and the Airport's continued monitoring activities can be reviewed. Additionally, this Plan will be updated from time to time and can be accessed via the website. The Airport is also updating video presentations about PFAS.

Attachment 1: Past use of AFFF (with PFAS) at Jackson Hole Airport



Attachment 2: Jackson Hole Airport Well Cumulative PFAS Figure

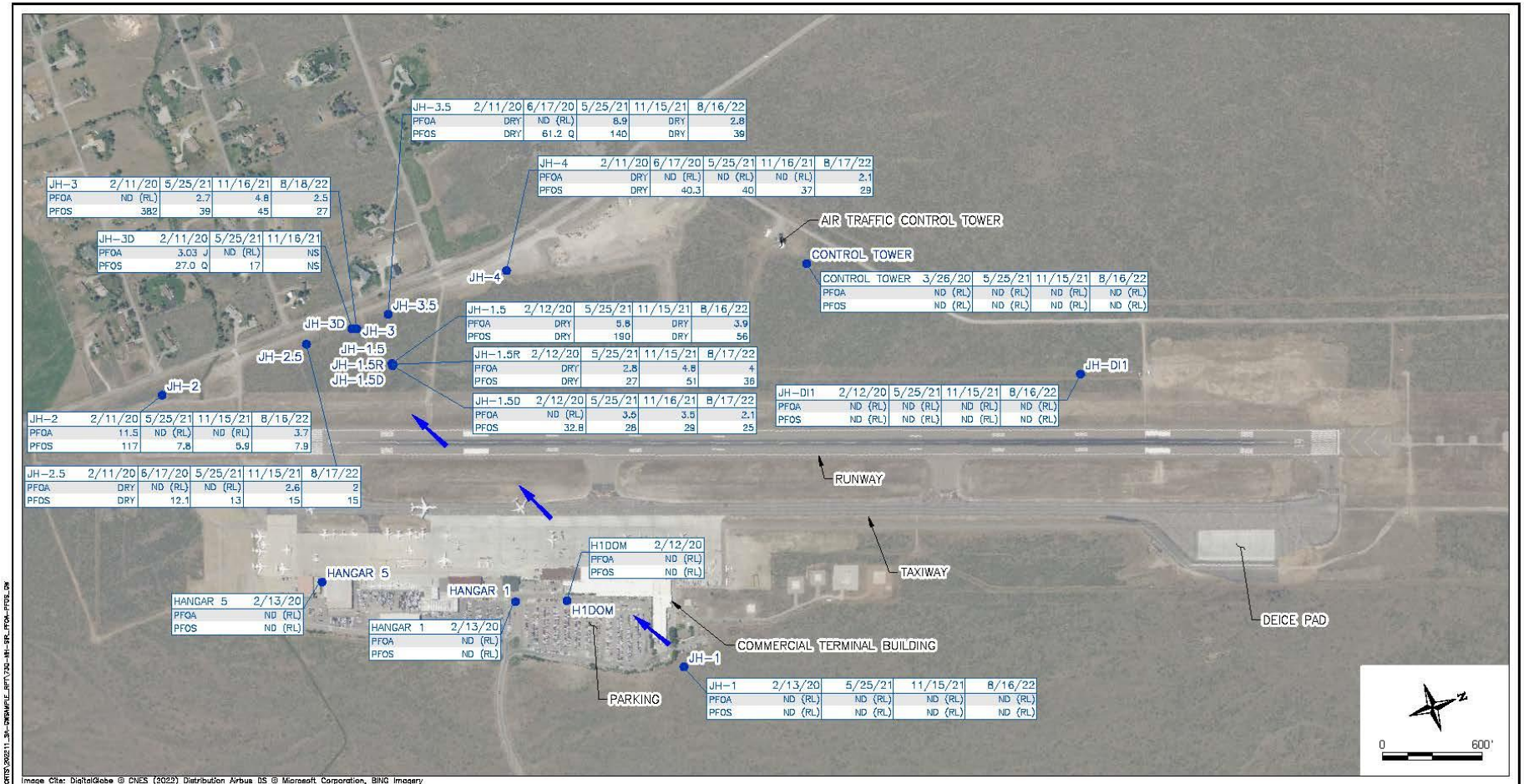


Image Cite: DigitalGlobe © CNES (2022) Distribution Airbus DS © Microsoft Corporation, BING Imagery

NOTES:

1. CONCENTRATIONS REPORTED IN NANOGRAMS PER LITER (ng/L)
2. PFOA - PERFLUOROOCTANOIC ACID
3. PFOS - PERFLUOROOCTANE SULFONATE
4. ND(RL) = NOT DETECTED AT THE REPORTING LIMIT
5. NS = NOT SAMPLED
6. Q = ION TRANSMISSION RATIO IS OUTSIDE OF THE ACCEPTANCE CRITERIA
7. DRY = INSUFFICIENT GROUNDWATER PRESENT IN THE WELL CASING

EXPLANATION

JH-1 — MONITORING WELL AND DESIGNATION 2021

ESTIMATED GROUNDWATER FLOW DIRECTION

ANALYTE TABLE EXPLANATION

Well Designation → JH-1 8/16/22 ← Sample Date
PFOA → PFOA ND (RL)
PFOS → PFOS ND (RL)

Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307.745.7474 (F) 307.745.7729

DRAFT

FIGURE 5

PFOA AND PFOS IN GROUNDWATER (2020 - 2022)

JACKSON HOLE AIRPORT
TETON COUNTY, WYOMING

Drawn By: JLP	Checked By: KM	Scale: 1" = 600'	Date: 11/30/2022	File: 73Q-MH-SIR_PFOA-PFOS_GW

Attachment 3: Jackson Hole Airport Well Cumulative PFAS Data Table

Well ID	Sample Date	PFOA	PFOS	PFOA+PFOS
		ng/L	ng/L	ng/L
Control Tower	03/26/20	ND (RL)	ND (RL)	ND (RL)
	05/25/21	ND (RL)	ND (RL)	ND (RL)
	11/15/21	ND (RL)	ND (RL)	ND (RL)
	08/16/22	ND (RL)	ND (RL)	ND (RL)
USEPA LHA, May 2016		***NA***	***NA***	***70***
USEPA Interim LHAs, June 2022		***0.004***	***0.02***	
H1DOM	2/12/20	ND (RL)	ND (RL)	ND (RL)
Hangar-1	2/13/20	ND (RL)	ND (RL)	ND (RL)
Hangar-5	2/13/20	ND (RL)	ND (RL)	ND (RL)
JH-1	2/13/20	ND (RL)	ND (RL)	ND (RL)
	05/25/21	ND (RL)	ND (RL)	ND (RL)
	11/15/21	ND (RL)	ND (RL)	ND (RL)
	08/16/22	ND (RL)	ND (RL)	ND (RL)
JH-1.5	02/12/20	DRY	DRY	DRY
	05/27/21	5.8	**190**	195.8
	11/15/21	DRY	DRY	DRY
	08/18/22	4	**56**	60
JH-1.5R	02/12/20	ND (RL)	55.9	55.9
	05/26/21	2.8	27	29.8
	11/15/21	4.8	51	56
	08/17/22	4	36	40
JH-1.5D	02/12/20	ND (RL)	32.8	32.8
(Field Duplicate)	02/12/20	ND (RL)	33.9	33.9
	05/26/21	3.5	28	31.5
	11/16/21	3.5	29	32
	08/17/22	2	25	28
JH-2	02/11/20	11.5	**117**	128.5
	05/27/21	ND (RL)	7.8	7.8
(Field Duplicate)	05/27/21	ND (RL)	8.1	8.1
	11/15/21	ND(RL)	5.9	5.9
	08/16/22	4	8	12
JH-2.5	02/11/20	DRY	DRY	DRY
	06/17/20	ND (RL)	12.1	12.1
	05/25/21	ND (RL)	13	13
	11/15/21	2.6	15	18
	08/17/22	2	15	17
(Field Duplicate)	08/17/22	2	14	16
JH-3	02/11/20	ND (RL)	**382**	382
	05/27/21	2.7	39	41.7
	11/16/21	4.8	**45**	50
	08/18/22	3	27	30
JH-3D (1)	02/11/20	3.03 J	27.0 Q	30.03 Q
	05/27/21	ND (RL)	17	17
	11/15/21	--	--	--
	08/18/22	--	--	--
JH-3.5	02/11/20	DRY	DRY	DRY
	06/17/20	ND (RL)	61.2 Q	61.2 Q
(Field Duplicate)	06/17/20	ND (RL)	**57.3**	57.3
	05/27/21	8.9	**140**	148.9
	11/15/21	DRY	DRY	DRY
	08/18/22	3	39	42
JH-4	02/11/20	DRY	DRY	DRY
	06/17/20	ND (RL)	**40.3**	40.3
	05/26/21	ND (RL)	40	40
	11/16/21	ND(RL)	37	37
	08/18/22	2	29	31
JH-DI1	02/12/20	ND (RL)	ND (RL)	ND (RL)
	05/25/21	ND (RL)	ND (RL)	ND (RL)
(Field Duplicate)	05/25/21	ND (RL)	ND (RL)	ND (RL)
	11/15/21	ND (RL)	ND (RL)	ND (RL)
(Field Duplicate)	11/15/21	ND (RL)	ND (RL)	ND (RL)
	08/18/22	ND (RL)	ND (RL)	ND (RL)
GW RSLs		**60**	**40**	

LHA is Lifetime Health Advisory based upon toxicology data only. An average-size adult (154 pounds) would need to drink 2 liters (8.5 cups) of water per day from the same unfiltered tap with PFAS concentrations above 70 ppt for a total of 70 year.

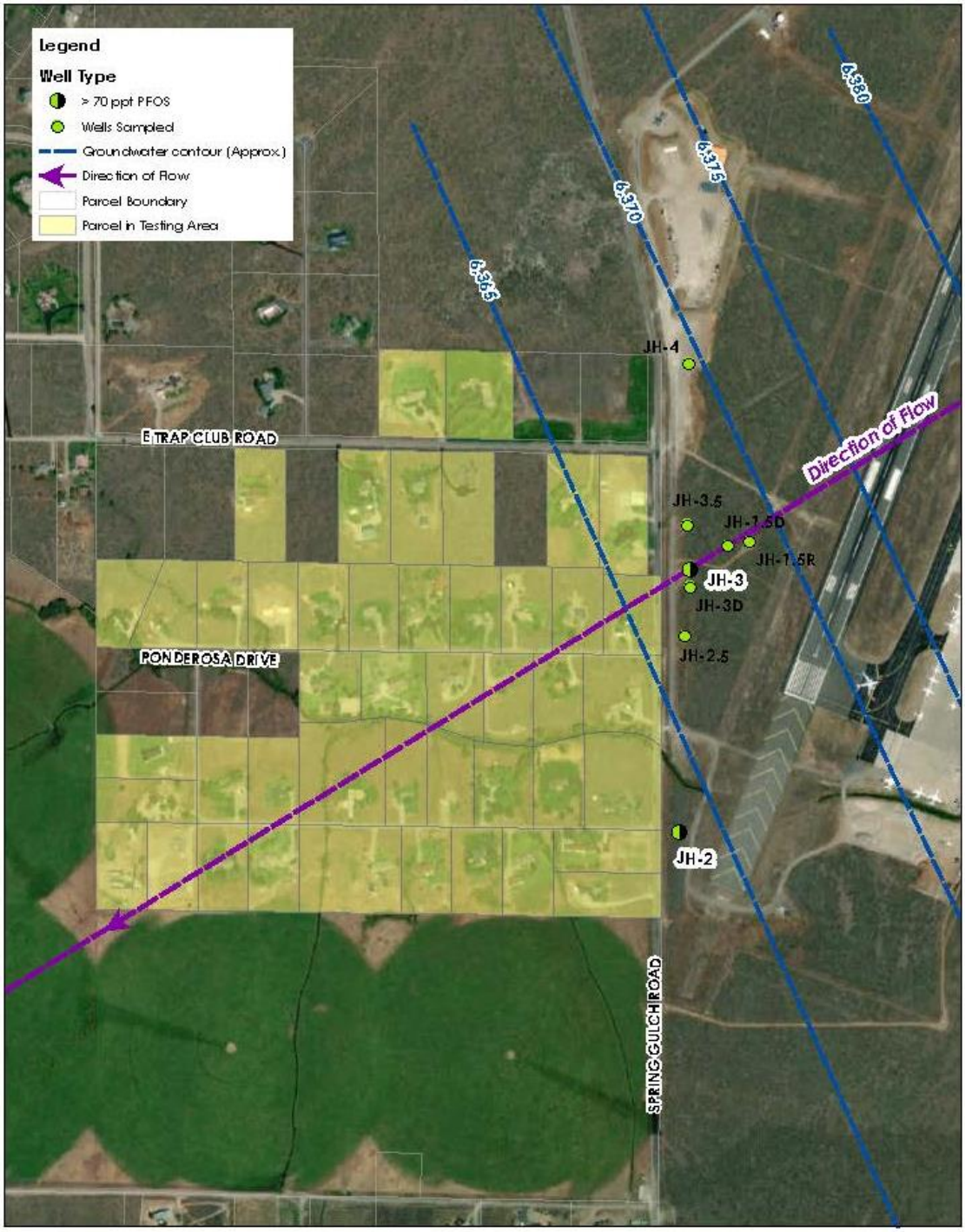
ND = Not detected above reporting limit (RL).

J and Q are qualifiers added to the data by the laboratory.

(1) - Equipment is stuck in well and water cannot be sampled.

RSL = USEPA Regional Screening Levels (RSLs, USEPA 2022a)

Attachment 4: Phase 1 Voluntary Residential Testing Area



Phase 1 Residential Testing Area

Jackson Hole Airport

0 150 300 600 900 1,200 Feet

Attachment 5: Phase 1 Testing Results

Location ID	Total PFOA and PFOS, ng/L	PFOA, ng/L	PFOS, ng/L
JW0121	30.6	1.1	29.5
JW0122	63.8	1.5	62.3
JW0127	5.8	ND	5.8
JW0128	0.7	ND	0.7
JW0129	ND	ND	ND
JW0130	11.9	0.9	11
JW0131	27.6	1.1	26.5
JW0133	40.7	1.2	39.5
JW0134	70.3	1.6	68.7
JW0135	35.9	1.4	34.5
JW0138	63.5	1.5	62
JW0139	39.3	1.1	38.2
JW0170	42.4	ND	42.4
JW0172	5.6	1.8	3.8
JW0173	1.7	ND	1.7
JW0174	ND	ND	ND
JW0183	ND	ND	ND
JW1210	ND	ND	ND
JW1213	8.1	ND	8.1
JW1215	32.4	0.7	31.7
JW1216	44.6	1.3	43.3
JW1217	44	1.3	42.7
JW1218	35.9	1.1	34.8
JW1219	22.6	1.2	21.4
JW1220	14	0.8	13.2
JW1222	12.1	0.7	11.4
JW1224	8	1.2	6.8
JW1310	35.2	1.2	34
JW1312	46.9	1.7	45.2
JW1313	26.5	1.1	25.4
JW1315	13.3	0.7	12.6
JW1316	6.2	ND	6.2
WW-201	23	ND	23
WW-202	14	ND	14
WW-203	17	ND	17
WW-204	7	ND	7
WW-205	ND	ND	ND
WW-206	35	ND	35
WW-210	24	ND	24
WW-211	42.7	2.7	40
WW-213	17	ND	17
WW-214	16	ND	16
WW-215	49.5	2.5	47
WW-217	28.2	2.2	26
WW-218	ND	ND	ND
WW-219	49.2	2.2	47
USEPA, 2016 LHA	70	70	70

LHA is Lifetime Health Advisory based upon toxicology data only. An average-size adult (154 pounds) would need to drink 2 liters (8.5 cups) of water per day from the same unfiltered tap with PFAS concentrations above 70 ppt for a total of 70 years.

ND = not detected at the reporting limit

ng/L = nanograms per liter, or ppt

Notes:

PFAS = Per and Polyfluorinated Alkyl Substances

PFAS Drinking Water by USEPA Method 537.1 or 533

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctane sulfonate

Attachment 6: Phase 2 Testing Results

Location ID	Total PFOA and PFOS, ng/L	PFOA, ng/L	PFOS, ng/L
SW-1	ND	ND	ND
UW-1	ND	ND	ND
UW-2	ND	ND	ND
UW-3	ND	ND	ND
WW-1	ND	ND	ND
WW-2	24	ND	24
WW-3	22	ND	22
WW-4	ND	ND	ND
WW-5	8.5	ND	8.5
WW-6	ND	ND	ND
WW-7	ND	ND	ND
WW-8	47	2	45
WW-9	32	ND	32
WW-10	ND	ND	ND
WW-11	ND	ND	ND
WW-12	ND	ND	ND
WW-13	ND	ND	ND
WW-14	4.6	ND	4.6
USEPA, 2016 LHA	70	70	70

LHA is Lifetime Health Advisory based upon toxicology data only. An average-size adult (154 pounds) would need to drink 2 liters (8.5 cups) of water per day from the same unfiltered tap with PFAS concentrations above 70 ppt for a total of 70 years.

Notes:

ng/L = nanograms per liter, or ppt

PFAS Drinking Water by USEPA Method 537.1 or 533

ND = not detected at the reporting limit

UW - Utility district well

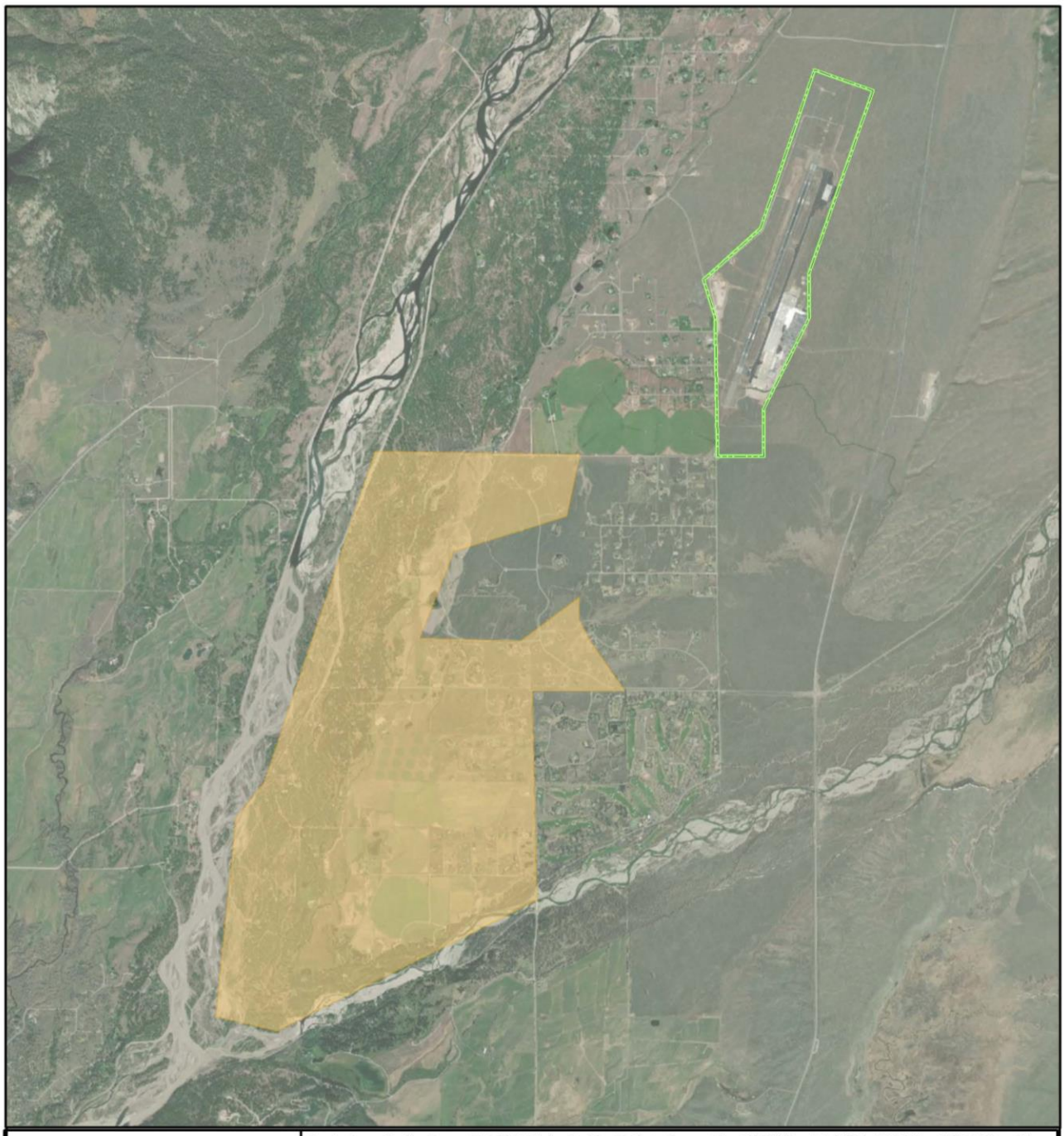
JW and WW = Residential Well water

PFAS = Per and Polyfluorinated Alkyl Substances

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctane sulfonate

Attachment 7: Phase 3 Voluntary Residential Testing Area



0 2,000 4,000 Feet

N
W E
S

Legend

Phase 3 Test Area

JAC Airport Property

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Jackson Hole Airport

Phase 3 Boundary

Attachment 8: Phase 3 Testing Results

Location ID	Total PFOA and PFOS, ng/L	PFOA, ng/L	PFOS, ng/L
WW-3002	ND	ND	ND
WW-3003	ND	ND	ND
WW-3006	ND	ND	ND
WW-3008	ND	ND	ND
WW-3009	ND	ND	ND
WW-3010	ND	ND	ND
WW-3012	ND	ND	ND
WW-3013	ND	ND	ND
WW-3014	ND	ND	ND
WW-3015	ND	ND	ND
WW-3016	ND	ND	ND
WW-3018	ND	ND	ND
WW-3021	ND	ND	ND
WW-3022	4.7	ND	4.7
WW-3024	ND	ND	ND
WW-3027	ND	ND	ND
WW-3031	2.4	ND	2.4
WW-3032	ND	ND	ND
WW-3035	ND	ND	ND
WW-3036	ND	ND	ND
WW-3037	ND	ND	ND
WW-3038	ND	ND	ND
WW-3039	ND	ND	ND
WW-3042	ND	ND	ND
WW-3044	ND	ND	ND
WW-3046	ND	ND	ND
WW-3047	ND	ND	ND
WW-3048	ND	ND	ND
WW-3049	ND	ND	ND
WW-3050	ND	ND	ND
WW-3053	ND	ND	ND
WW-3057	ND	ND	ND
WW-3059	ND	ND	ND
WW-3063	ND	ND	ND
WW-3064	ND	ND	ND
WW-3065	10	ND	10
WW-3066	ND	ND	ND
WW-3077	17.4	2.4	15
WW-3082	ND	ND	ND
WW-3085	ND	ND	ND
WW-3087	ND	ND	ND
WW-3089	ND	ND	ND
WW-3090	ND	ND	ND
WW-3091	ND	ND	ND
WW-3092	ND	ND	ND
WW-3095	ND	ND	ND
WW-3096	ND	ND	ND
WW-3097	ND	ND	ND
WW-3098	ND	ND	ND
WW-3099	ND	ND	ND
WW-3118	ND	ND	ND
WW-3119	4.3	ND	4.3
WW-3119	6.7	ND	6.7
WW-3120	23	ND	23
WW-3122	ND	ND	ND
WW-3124	ND	ND	ND
WW-3128	ND	ND	ND
WW-3129	ND	ND	ND
WW-3131	ND	ND	ND
WW-3134	ND	ND	ND
WW-3135	ND	ND	ND
WW-3139	28.7	2.7	26

WW-3141	10	ND	10
WW-3143-D	6.8	ND	6.8
WW-3143-S	ND	ND	ND
WW-3149	ND	ND	ND
WW-3150	ND	ND	ND
WW-3151	ND	ND	ND
WW-3152	ND	ND	ND
WW-3153	ND	ND	ND
WW-3154	14	ND	14
WW-3155	ND	ND	ND
WW-3158	16	ND	16
WW-3159	23	ND	23
WW-3160	ND	ND	ND
WW-401	ND	ND	ND
WW-402	ND	ND	ND
WW-403	ND	ND	ND
WW-404	ND	ND	ND
WW-405	ND	ND	ND
WW-406	ND	ND	ND
USEPA, 2016 LHA	70	70	70

LHA is Lifetime Health Advisory based upon toxicology data only. An average-size adult (154 pounds) would need to drink 2 liters (8.5 cups) of water per day from the same unfiltered tap with PFAS concentrations above 70 ppt for a total of 70 year.

Notes:

ng/L = nanograms per liter, or ppt

PFAS Drinking Water by USEPA Method 537.1 or 533

ND = not detected at the reporting limit

WW = Residential Water Well

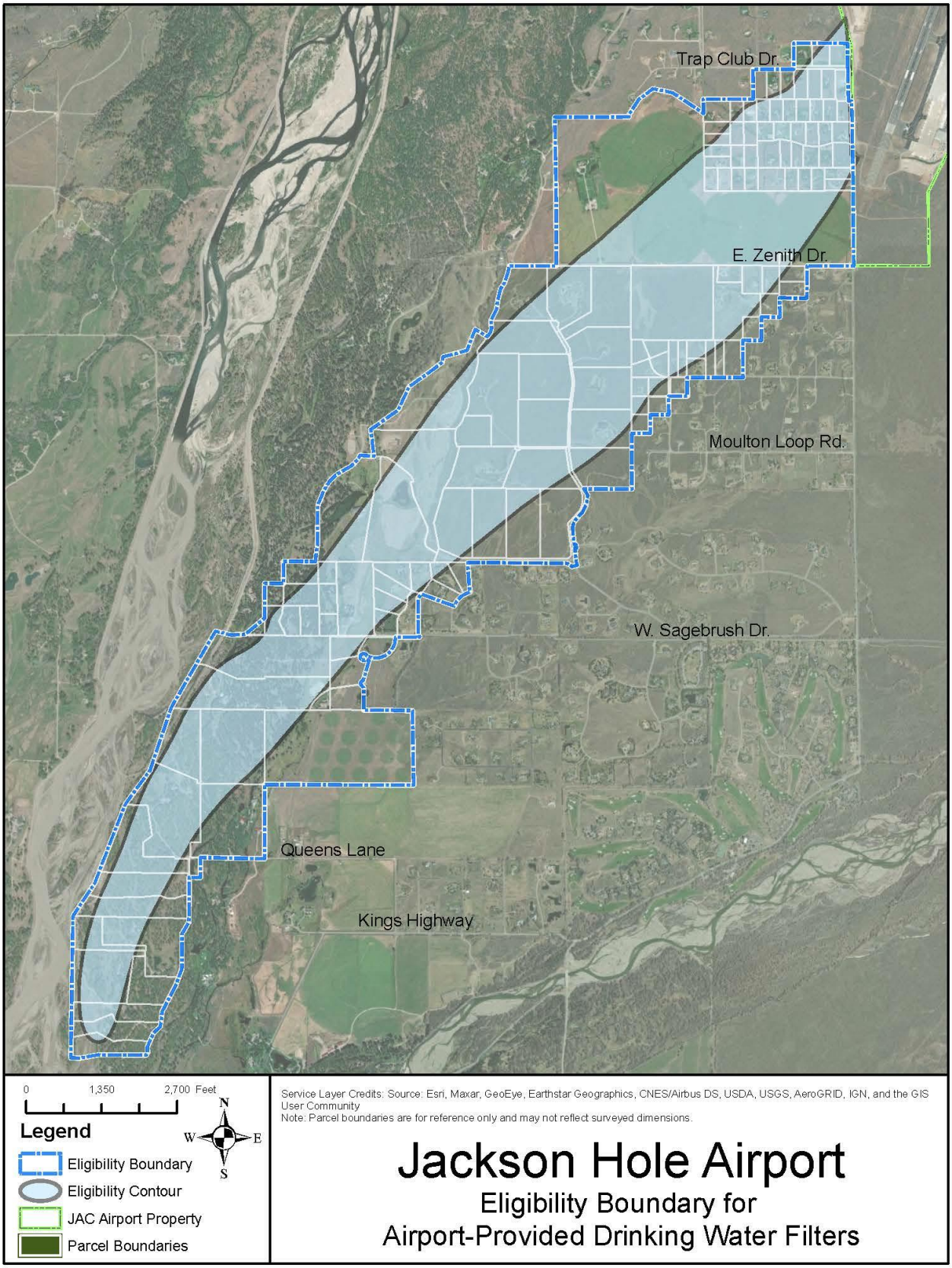
D - deep well; S - shallow well

PFAS = Per and Polyfluorinated Alkyl Substances

PFOA = Perfluorooctanoic acid

PFOS = Perfluorooctane sulfonate

Attachment 9: Eligibility Boundary Map



Attachment 10: Continued Residential Monitoring Results

Sample ID	Total PFOA + PFOS	Total PFOA + PFOS	Total PFOA + PFOS	Total PFOA + PFOS	Total PFOA + PFOS	Total PFOA + PFOS	Total PFOA + PFOS	Total PFOA + PFOS	Total PFOA + PFOS
Date	*Apr-20*	*Jun-20*	*Aug-20*	*Feb-21*	*Aug-21*	*Feb-22*	*May-22*	*Aug-22*	*Feb-23*
WW- 208	60.2	27.6			19.0	37.3		25.2	31.3
WW-207		70.3			46	46.5		53.9	43.5
JW0173		1.7			2.1	1 J		3.1 J	1 J
WW-216		44.6			24	50.1		30	49.4
WW-14 TC			4.6		3.5	ND			
WW-14 MH								18.1	19.1 J
WW-204			7		7.1	7.7 J		8.9 J	8.09 J
WW-3			22		18	19.1 J		21.5	20.3 J
WW-3022				4.7	11.4	5.8 J		11.2 J	6.7
WW-3064				ND		0.96 J		1.8 J	1.1 J
WW-3065				10	5.2	ND		9 J	13.3 J
WW-3077				17.4	14.9	0.7 J		5.7 J	4.1
WW-3119				4.3	6.7	10.8 J		12.9	13.95 J
WW-3139				28.7	30.4		40	31.6	24.3
WW-3141				10	10		11.6	15.5 J	11
WW-3143-NEW				6.8	5.4	5.8 J		8.7 J	7.35 J
WW-3159				23		20.9 J		21.9 J	20.4 J
WW-9			32		25		15	27.4	18.2 J
WW-7			ND						ND
WW-3027				ND					0.79 J
WW-3031				2.4	ND	ND		2.3 J	1.9 J
WW-3050				ND					ND
WW-401				ND		ND			ND
JW1213		8.1			8.1	7.2 J		8.1 J	
WW-3155				ND		ND		0.8 J	
WW-3120				23	21				
JW-0172		5.6			ND				

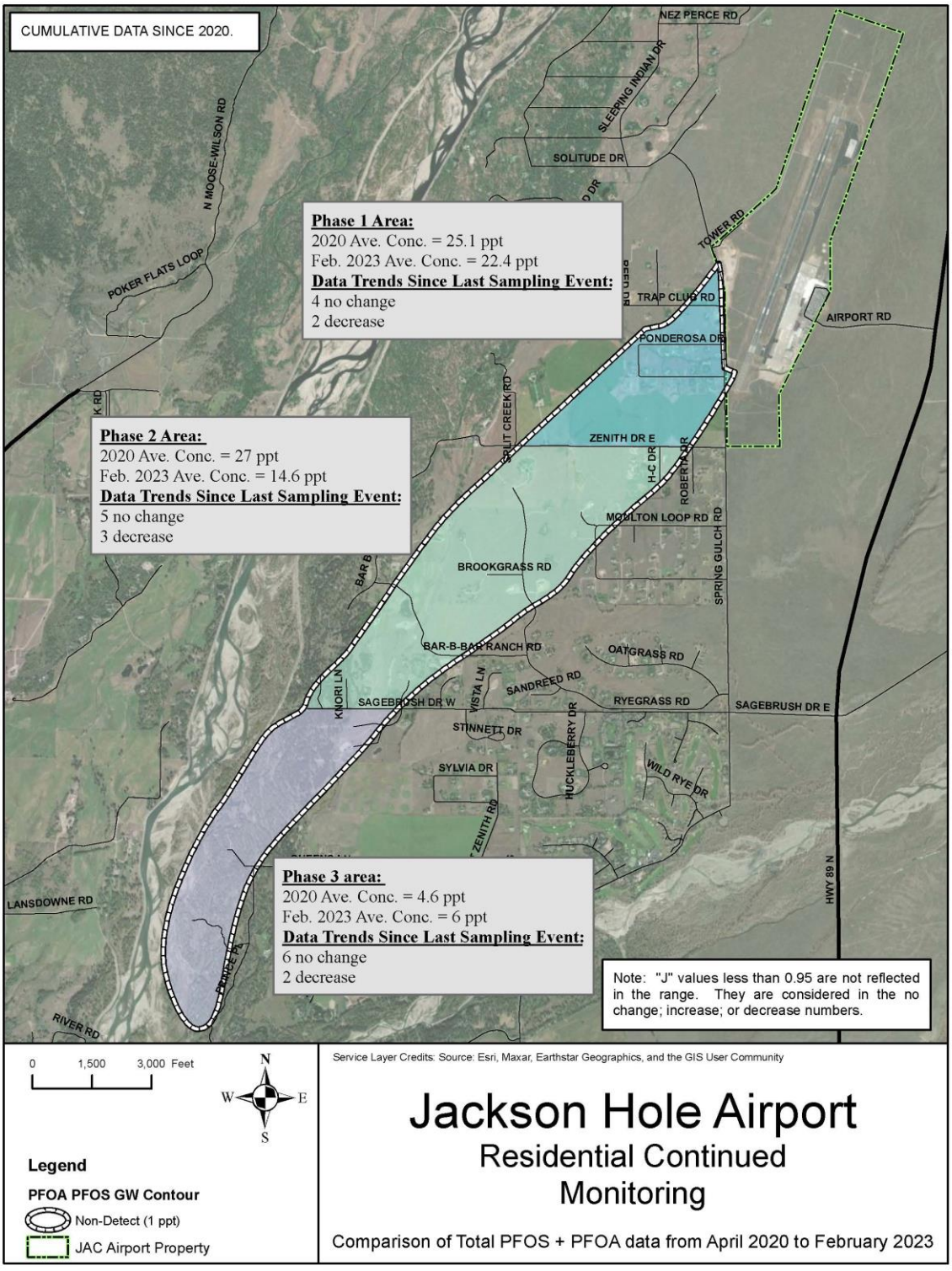
Exceeds 2016 LHA for total PFOS and PFOA of 70 ppt

Exceeds 2023 proposed MCL of 4 ppt each PFOS and PFOA

No longer in Continued Monitoring Rotation

Attachment 11: Continued Residential Monitoring – Aggregated Data

Updated



Attachment 12: Approximate Locations of Soil Borings