Release Notification *11/29/22 2:38 PM*

Case Number: 20221129-1438

Name: Navy Red Hill Aqueous Film Forming Foam (AFFF) Release

Status: Open
Comment: None

Reported On: 11/29/22 2:38 PM

Assigned SOSC: Liz Galvez

Actual Release On: None

Release Duration: None

Media: Soil

Summary: On 11/29/2022, there was an 1100 gallons release of AFFF concentrate from a relief valve. According to the Navy, the cause is still under investigation. Release was discovered at approximately 12:45 - 1:00 pm by a worker. As explained by a Navy representative, the spill from the AFFF concentrate pipe went to the concrete in Adit 6, then out the door to the asphalt road then to soil and a concrete culvert, crossed below the asphalt and then to vegetation that eventually leads to Halawa Stream. The AFFF did not appear to go beyond the culvert as there was dense vegetation in the culvert. Once federal fire cleared the area, excavation of asphalt, soil, and concrete commenced. Waste will remain on-site until a waste determination has been done.

SOSC requested technical assistance from the EPA. Sampling plan requested from the Navy.

NRC Incident Report Number: None

Location (Address)

Oahu

Adit 6 Red Hill Bulk Storage Facility

Honolulu

HI

Caller

Sherri Eng

Substances

Category	Name	Reported	Potential	Actual
Unlisted	Liquid - AFFF	1100 Gallons		

11/30/2022: Received Navy's Sampling Plan for Soil and Groundwater.

DOH provided Comments on PFAS-Specific Sampling and Analysis plan, Red Hill Bulk Fuel Storage Facility, Adit 6
JOINT BASE PEARL HARBOR-HICKAM, O'AHU, HAWAI'I Date: 30 NOV 2022
DOH and DOH contractors shall be afforded the opportunity to be present and observe and elect to collect independent samples.
1. Project Action Limits. Also compare all soil and groundwater data to HDOH Environmental Action Levels for PFASs (attached; HDOH 2021). For soil, this includes action levels for both direct exposure and potential leaching concerns. For groundwater, this includes action levels for drinking water toxicity and aquatic habitat toxicity.
2. Soil Sampling. State that Multi Increment soil samples will be collected in accordance with Section 4.2 of the HEER Office Technical Guidance Manual (TGM). Collect a minimum 1-2kg sample prepared by combining a minimum of 30 increments from the subject DU. This is necessary to ensure that the sample collected is adequately representative of the DU area where it was collected.
3. Soil Sampling. State that increments will be collected from exposed to a depth of approximately six inches (DU depth/thickness). Use this to state the approximate volume of soil associated with each DU and DU sample.
4. Soil Sampling. Collect two (not one) replicate samples of soil from the DU where the most contamination is assumed to have occurred in accordance with Section 4.2.7 of the HEER Office TGM. Use the resulting triplicate data (primary sample plus two replicates) in conjunction with the final sample collection and processing method to assess the precision and usability of the data in accordance with Section 4.2.8 of the HEER TGM.
5. Soil Sampling. Collect one Multi Increment sample (not "composite") of the soil that was excavated from the site in the same manner as described for the excavation confirmation samples.
• Collect triplicates of samples from the dump truck bed

• Sampling plan from drums need to have more details

6 Sample Analysis. State that the samples will be processed (e.g., air dried and sieved to <2mm particle size), subsampled (minimum 30 increments) and tested by the laboratory using Multi Increment methods and in accordance with Section 4.2.6 of the HEER TGM. State that this will include the collection and testing of a minimum of 10 grams per sample. This is necessary to ensure that the subsample collected is adequately representative of sample provided. Include a summary of sample processing and subsampling methods in the report for the project.

DOH also requested EPA to review the Sampling Plan and they provided comments.

Navy revised the Sampling Plan. DOH concurred with the Sampling Plan with the changes and wanted the Navy to proceed with the sampling.

12/2/2022 DOH provided additional comments to the Sampling Plan:... one of the important points regarding sampling for PFAS is that we do not know what are the other proprietary PFAS compounds in the AFFF released. Using draft Method 1633 may not identify the other PFAS components. Per our discussion, please sample and analyze for the other constituents, such as 2-(2-Butoxyethoxy)ethanol that are in the SDS.

In addition, attached is a comment given to me that I failed to attach yesterday morning. "...on the issue of the specific PFAS in the AFFF mixture, and the implications for analytical chemistry. One useful approach to elucidating the AFFF mixture that was brought up in the Teams discussions today (and that is not in the comment) is using *Draft Method 1633 to analyze a diluted sample of the AFFF concentrate to see which of the 40 target PFAS compounds are present, if any.*"

12/7/2022 DOH requested from the Navy: Per my previous requests , please provide:

1. Waste disposal plan of the waste from the AFFF release prior to disposal.
2. Written Daily situation reps
3. Sampling plan revisions to include PFAS groundwater sampling schedule:

   a.GW sampling calendar for the PFAS sampling: Please include the other sampling events in the schedule such as May 6th-Nov 20th NOIs, LTM sampling. An example is attached above.

   b. Navy's point of contact for overall communication during the DOH's sampling events. E.g., For communicating changes in schedules.

   c. Navy's on-field point of contact for the field activities and escorting the DOH Staff and DOH contractors at the RH Facility and the relevant MW locations.

4. When are the sampling results anticipated?

- 12/9/2022: Navy's response: Waste Management and Disposal Plan – The Navy is drafting a Waste Management/Disposal Plan that will be shared with DOH. If DOH has any requests for the plan they will be considered as we develop the final product. The estimated timeline for delivery of the plan is by 15 Dec 2022. All waste will remain in JBPHH custody until a Waste Disposal Plan is submitted. In addition, all asphalt, soil, water runoff, and debris removed from the excavation are stored in 55-gallon drums, roll-off, FRAC tanks, and dump trucks.
- SITREP covering initial excavation will be provided by Monday 12/12/22.
- The sampling plan is being updated to include the added sampling needed for the underground culvert. A draft revision was submitted to DOH on December 8th.
- The schedule for additional groundwater sampling is very dynamic due to the requirement for new pumps that don't contain Teflon components or pose a risk for cross contamination and the need to purge the wells once the pump has been replaced. Mike Klapec will continue to notify Anay each day once the sampling schedule is finalized.
- The Navy's POC for sampling is Mike Klapec, Red Hill EV OIC Monitoring and Sampling lead.
- Raw, unvalidated data is expected about 9 days after sampling. It will be available simultaneously to the Navy and the DOH in EDMS. Once the data is validated, it will be posted publicly in an easily digestible format similar to the one used for drinking water data.

12/7/2022: Navy submitted revisions to the Sampling Plan to include the following:

Attached is the latest version of the AFFF sampling plan. Changes of note include:

1. Replacing RHMW11 and RHMW13 with RHMW10 and RHMW16.

    1. RHMW11 and RHMW13 are Westbay wells installed with Teflon tubing between layers that cannot be removed, which could impact results.
    2. RHMW04 is near RHMW13 so that area is covered. There are no other wells in that direction.
    3. RHMW16 is the next well west of RHMW11.
    4. RHMW10 is the next nearest well to Adit 6 and covers an area beyond the tunnel in case of movement in that direction.
2. Addition of EPA Method 8018_DAI to groundwater and soil to analyze for 2-(2-Butoxyethoxy)ethanol
3. Addition of sampling the concentrated AFFF in the overflow holding tank inside Adit 6 for total organofluorines (TOF) to potentially identify additional PFAS compounds that may not register in Draft EPA Method 1633.
4. Addition of Decision Units (DU) 5-9 to cover the area of excavation of the storm sewer under the access road, specifically between DU1 (storm drain) and DU4 (stormwater outfall).
5. Moving discussion of specific DUs from the body of the plan to an enclosure to facilitate any future changes to DUs.

12/9/2022: DOH responded by providing the following comments:

Attached is the latest version of the AFFF sampling plan. Changes of note include:

1. Replacing RHMW11 and RHMW13 with RHMW10 and RHMW16. DOH is okay with the replacements. Please note that we reserve the right to request an increase in the monitoring wells to be sampled at a later time.
    1. RHMW11 and RHMW13 are Westbay wells installed with Teflon tubing between layers that cannot be removed, which could impact results.
    2. RHMW04 is near RHMW13 so that area is covered. There are no other wells in that direction.
    3. RHMW16 is the next well west of RHMW11.
    4. RHMW10 is the next nearest well to Adit 6 and covers an area beyond the tunnel in case of movement in that direction.
2. Addition of EPA Method 8018_DAI to groundwater and soil to analyze for 2-(2-Butoxyethoxy)ethanol Okay, thank you
3. Addition of sampling the concentrated AFFF in the overflow holding tank inside Adit 6 for total organofluorines (TOF) to potentially identify additional PFAS compounds that may not register in Draft EPA Method 1633. Okay, thank you
4. Addition of Decision Units (DU) 5-9 to cover the area of excavation of the storm sewer under the access road, specifically between DU1 (storm drain) and DU4 (stormwater outfall). Okay.
5. Moving discussion of specific DUs from the body of the plan to an enclosure to facilitate any future changes to DUs. Okay

You said: "In the updated sampling plan we note that the area under the underground culvert will be considered Decision Units 5-9, which represent the ground level and all 4 walls of the excavation site. The plan states that we intend to follow the same multi incremental sampling procedure as the previous DUs. We hope to have successfully excavated enough to sample on Monday afternoon. Could you give

concurrence to our proceeding with soil sampling after excavation on Monday? As always, DOH is welcome to observe and collect samples alongside our contractor. " Concur

Additional comments:

a. In the Sampling Plan, please incorporate DOH's concerns as stated in the Notice of Interest (see Attachment) given to the Navy as a result of this AFFF release such as:
    1) Including the Safety Data Sheets to include an update with the inclusion of the proprietary information that the Navy stated that they would obtain from the manufacturer
    2) Additional Decision Units may be requested. DOH requested an assessment of the secondary containment piping and the primary concentrate pipe from the pumphouse to Adit 6. The concern is that DOH was provided with an approximate amount of releases of 1100 and 1300 gallons. It is prudent to check if any release occurred under the asphalt.
    3) Waste Management and Disposal Plan – DOH understands that the "Navy is drafting a Waste Management/Disposal Plan that will be shared with DOH. The estimated timeline for delivery of the plan is by 15 Dec 2022. All waste will remain in JBPHH custody until a Waste Disposal Plan is submitted. In addition, all asphalt, soil, water runoff, and debris removed from the excavation are stored in 55-gallon drums, roll-off, FRAC tanks, and dump trucks."
b. There were two manholes at the entrance to the Adit 6 entrance. Please explain what those are and what their uses are, if any.
c. DOH understands that "the schedule for additional groundwater sampling is very dynamic due to the requirement for new pumps that don't contain Teflon components or pose a risk for cross contamination and the need to purge the wells once the pump has been replaced. Mike Klapec will continue to notify Anay each day once the sampling schedule is finalized." DOH requests that Anay will be notified and DOH team will be cc'd for situational awareness.
d. DOH understands that "Raw, unvalidated data is expected about 9 days after sampling. It will be available simultaneously to the Navy and the DOH in EDMS. Once the data is validated, it will be posted publicly in an easily digestible format similar to the one used for drinking water data." Upon submittal of raw data, please make sure that you include the language "raw unvalidated data" and an explanation about raw, unvalidated data.
e. On the cover page , please include Incident Case No.: 20221129-1438. In addition, please include language to the effect that this is an Emergency Response Sampling Plan an, is intended for the November 29, 2022 AFFF release. It does not supersede any other Red Hill Sampling Plan.

12/12/2022: Navy provided Sit Reps to DOH.

12/27/2022: Received Navy's Adit 6 Tunnel Decontamination Plan.

12/29/2022: DOH comments:

1. Instead of hand spraying and hand-wiping, use of a hand held cleaner very similar to a carpet cleaner with a rotary brush may work better. The trench along the hallway and the base of the walls may not be accessible with a carpet cleaner. Hand spraying and hand-wiping does not seem to be robust enough.
2. The acrylic-based sealant that you chose is 60-100% petroleum based. There should be sealant/ epoxy alternatives using a less toxic, less hazardous product such as

   https://www.foundationarmor.com/5-gal-sc25-siliconate-water-sealer

   The primary objective is to minimize risks related to the release of AFFF but just as important is the protection of the groundwater and the drinking water from oil. Please ensure that the product that you choose does not contain PFAS.

3. You mentioned an activity hazard analysis. Could you please provide us with a copy.
4. Confirmatory Sampling -Confirmation samples need to MIS and not discrete samples. Discrete samples will not reliably represent contamination in the core. Please define specific DU intervals for sample collection within the borehole then colllect 1-2 kg sample across the entire interval. Appropriate sample Collection methods are described in Section 4.2.9.2 and Sectiin 5.4 of the HEER TGM. Also require the lab to MI process the samples and test a minimum of 10g subsample.
5. Safety considerations - will air monitoring be conducted?
6. 4 of the HEER TGM. Also require the lab to MI process the samples and test a minimum of 10g subsample.

12/30/22 Navy's responses to questions:

1. Instead of hand spraying and hand-wiping, use of a hand held cleaner very similar to a carpet cleaner with a rotary brush may work better. The trench along the hallway and the base of the walls may not be accessible with a carpet cleaner. Hand spraying and hand-wiping does not seem to be robust enough.

The walls of Adit 6 are made with a textured, popcorn like substance that would most likely scrape off if cleaned with a rotary brush and cause additional waste material that is unknown. Also, based on the way the release occurred (by overflowing from an upright pipe, not spraying from overhead) we do not believe very much product spilled onto the walls. For this reason we believe that hand spraying and wiping the walls is the best COA.

2. The acrylic-based sealant that you chose is 60-100% petroleum based. There should be sealant/epoxy alternatives using a less toxic, less hazardous product such as

   https://www.foundationarmor.com/5-gal-sc25-siliconate-water-sealer

   The primary objective is to minimize risks related to the release of AFFF but just as important is the protection of the groundwater and the drinking water from oil. Please ensure that the product that you choose does not contain PFAS.

We will continue to discuss an appropriate floor sealant with the contractor. It is anticipated that the sealing of the floor would not happen until the 2nd week of January once the entire portion of the tunnel is cleaned. Once we have determined the recommended product we will inform DOH.

3. You mentioned an activity hazard analysis. Could you please provide us with a copy.

Please see attached activity hazard analysis submitted by the contractor for this work.

4. Confirmatory Sampling -Confirmation samples need to MIS and not discrete samples. Discrete samples will not reliably represent contamination in the core. Please define specific DU intervals for sample collection within the borehole then collect 1-2 kg sample across the entire interval. Appropriate sample Collection methods are described in Section 4.2.9.2 and Section 5.4 of the HEER TGM. Also require the lab to MI process the samples and test a minimum of 10g subsample.

Because space to install borings in the tunnel is limited, we are proposing 6 borings down the length with 5 intervals collected from each (30 MIS locations). Those would then be combined for lab analysis and attributed to a single DU (similar to the other samples collected as part of this emergency response).

5. Safety considerations - will air monitoring be conducted?

Air monitoring will be performed at the start of every day since the doors will be closed overnight. However, it is important to note that the main door to the Adit will be propped open during the day for all site work. Air ventilation when the door is open is strong and any generated vapors or dust would be quickly evacuated from the work area.

12/30/2022 DOH's response:

1)I did not thoroughly review the attached Activity Hazard Analysis; as I started reading it, it appeared that it was about "Project Name: Red Hill Concrete Stormwater Drain Removal and Replacement Project". Can you please clarify?

2) "The walls of Adit 6 are made with a textured, popcorn like substance that would most likely scrape off if cleaned with a rotary brush and cause additional waste material that is unknown."

Has this material been tested for asbestos? If it has not, then the textured, popcorn like substance should be tested prior to handling it. Is it compatible with water or can it cause a reaction?

3) Could you please provide a schedule? As mentioned previously, please provide us with a schedule, including times, as DOH would like to observe.

1/3/2023: DOH provided additional guidance to Navy regarding MIS:

Follow HDOH TGM guidance for "Exploratory Boreholes" (Section 3.4.4; attached). Divide a core into targeted intervals for testing (e.g., 0-1', 1-2', 2-3', 3-5', etc.). Send the entire section of the core to the laboratory for processing as a normal MI sample. If the mass of the core interval is too large (e.g., >2-3 kgs), then the core can be subsampled in accordance with the method described in the TGM.

Do not combine soil between individual boreholes. A decision on the presence or absence of contamination will instead be made based on the data for each individual borehole.

Combining soil from individual cores is only valid if a minimum of 30 boreholes can be installed. In such cases, the core from each borehole represents a single sample "increment."

Soil collected and combined from six points within a single core represents a subsample of the single core increment. The combined soil still represents a single increment. Combining soil from five points each in six cores will result in a six-increment sample, not a 30-increment sample and would not be valid for decision making. To represent valid increments, the vertical spacing between soil collection points (e.g., within a core) must be soil must the same as the lateral spacing (e.g., between cores).

The same concept applies to surface soil MI samples. Splitting a six-inch increment from a single point within a DU into two halves does not result in two increments for the DU. Increments must be collected from independent points within the DU in order to reliably capture "distributional heterogeneity."

1/3/2022: Navy stated: "We are in receipt of Rogers preferred method and can accommodate. We suggest 3 locations evenly spaced in the tunnel to follow the Single Borehole DUs method."

The Activity Hazard Analysis that was provided was done by CAPE, the contractor who performed the underground culvert removal and is doing the tunnel cleaning. Both actions are included in one AHA.

The Adit 6 walls are textured concrete (similar to popcorn texture) but not the same material as popcorn ceiling. We have not tested for asbestos because that wasn't a risk of concern.

I will provide a schedule for DOH so you can be present whenever you would like to observe.