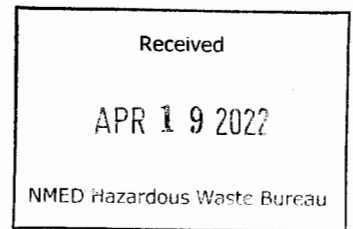




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DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER



April 18, 2022

Christipher N. Gierke
Remedial Project Manager
AFCEC/CZOW
Cannon AFB, NM 88101

Mr. Rick Shean
Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6313

RE: Draft Aqueous Film-Forming Foam Release Areas Remedial Investigation Work Plan,
May 2021, Cannon Air Force Base, New Mexico

Dear Mr. Shean

This letter responds to the attached letter, dated December 15, 2021, in which the Hazardous Waste Bureau commented on the Air Force's Phase I Remedial Investigation (RI) Work Plan for aqueous film-forming foam (AFFF) that was released during firefighting training and emergency response activities at Cannon Air Force Base.

Thank you for your comments. The Air Force carefully considered your inputs and made some changes to the work plan in response to them. For example, the screened intervals for all proposed monitoring wells must not extend beyond 30 feet below the groundwater table and must be completed with at least 5 feet of screened interval above the groundwater table.

While we did not accept all your comments, we appreciate your input. We will not submit a revised work plan for your review because the work plan has been finalized and is being implemented now. As a courtesy, the draft plan was submitted to NMED for review and an opportunity to comment, but not approval. Regulator approval of the RI Work Plan is not required under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 U.S.C. §§ 9601-9675), the Defense Environmental Restoration Program statute (DERP, 10 U.S.C. §§ 2700-2711), and the National Contingency Plan (NCP, 40 C.F.R. Part 300). CERCLA, DERP, and the NCP are the governing authorities for the Air Force's response to PFOS and PFOA contamination associated with releases of AFFF in the past at Cannon.

The Air Force values our partnership with NMED and hope to continue collaborating during our PFAS investigation in the best interest of the community and the environment. If you have any questions or concerns, please contact me at (575) 904-6744 or email Christopher.Gierke@us.af.mil.

Sincerely

A handwritten signature in black ink, appearing to read 'C. Gierke', with a long horizontal flourish extending to the right.

C.N. GIERKE, GS-13, AFCEC
Remedial Project Manager

Attachment:
Hazardous Waste Bureau letter, December 15, 2021

cc:
Hazardous Waste Bureau (Mr. Dave Cobrain)



MICHELLE LUJAN GRISHAM
GOVERNOR

JAMES C. KENNEY
CABINET SECRETARY

Certified Mail - Return Receipt Requested

December 15, 2021

Colonel Terence G. Taylor
Commander, 27th Special Operations Wing
100 Air Commando Way, Suite 100
Cannon Air Force Base
New Mexico 88103-5214

**RE: DISAPPROVAL
DRAFT AQUEOUS FILM-FORMING FOAM RELEASE AREAS PHASE I REMEDIAL
INVESTIGATION WORK PLAN
CANNON AIR FORCE BASE, NEW MEXICO
EPA ID #NM7572124454
HWB-CAFB-21-002**

Dear Colonel Taylor:

The New Mexico Environment Department (NMED) has received the Cannon Air Force Base (Permittee or CAFB) *Draft Aqueous Film-Forming Foam Release Areas Phase I Remedial Investigation Work Plan (Work Plan)*, dated June 21, 2021. NMED has reviewed the Work Plan and hereby issues this Disapproval with the following comments.

GENERAL COMMENT

1. Permittee Issuance of the Work Plan for NMED Review

NMED Comment: The cover letter for the Work Plan states, “[p]ursuant to the provisions of the Defense Environmental Restoration Program, the Air Force investigation and mitigation actions for PFOS/PFOA are guided under the Comprehensive Environmental Restoration Compensation and Liability Act (CERCLA).” As clarified in NMED’s August 17, 2021, *Draft Aqueous Film-Forming Foam Release Areas Phase I Remedial Investigations Work Plan May 2021* letter, NMED does not agree that investigation of per-and polyfluorinated alkyl substances (PFAS) proposed in the Work Plan are subject to review under CERCLA. The investigation is subject to regulation under the Resource Conservation and Recovery Act (RCRA) and the New Mexico Hazardous Waste Act (HWA); therefore, the investigation must be conducted in accordance with the requirements specified in the *Cannon Air Force Base*

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Resource Conservation and Recovery Act Hazardous Waste Permit (EPA ID # NM7572124454) (RCRA Permit) dated December 2018. As required by the RCRA Permit, NMED's review of the Work Plan is in accordance with RCRA Permit Section 1.17.1 and 20.4.2 New Mexico Administrative Code (NMAC). The Permittee must remove all references to CERCLA from the revised Work Plan as it is not applicable to corrective action at CAFB, a permitted RCRA hazardous waste facility. The Permittee must revise the Work Plan accordingly.

Failure to submit a revised Work Plan that addresses all NMED comments in this letter will likely result in rejection of the subsequent investigation report and any conclusions contained therein, as well as potentially subject the Permittee to future enforcement actions as outlined in RCRA Permit Section 1.7, Enforcement.

Furthermore, any investigation conducted by the Permittee without NMED approval is performed at risk, and it is likely that NMED will require different or additional work beyond that conducted by the Permittee without an approved work plan. This may include repeating work that does not meet the technical standards described in the RCRA Permit, NMED's 2020 *General Reporting Guidelines for Corrective Action Documents*, as updated (NMED Reporting Guidelines), found at <https://www.env.nm.gov/hazardous-waste/guidance-documents/>, and NMED's 2019 *Risk Assessment Guidance for Site Investigations and Remediation* (RA Guidance), as updated.

SPECIFIC COMMENTS

2. Section 1, Introduction, Page 1-1

Permittee Statement: "The UFP-QAPP [Uniform Federal Policy-Quality Assurance Project Plan] describes and provides specifications for all Phase I RI [Remedial Investigation] activities described in this Phase I RI Work Plan."

NMED Comment: NMED does not review or approve QAPPs or Standard Operating Procedures (SOPs) included in QAPPs. NMED previously clarified this in the February 2, 2012, *Notice of Disapproval Site Investigation at Eight Sites* (NMED Comment Nos. 2 and 3) and other NMED response letters for CAFB document submittals. Additionally, RCRA Permit Section 6.2, Investigation Work Plan, requires that complete and comprehensive descriptions of all proposed investigation methods, procedures, and specifications, be described in the narrative of the Work Plan. RCRA Permit Parts 3 through 5 outline the technical requirements for corrective action investigations and evaluation of the collected data and information to be proposed in a work plan and that are applicable to the scope of work proposed in the Work Plan. For compliance with the RCRA Permit, the Permittee must format the Work Plan in accordance with RCRA Permit Section 6.2 and NMED's Reporting

Guidelines; all reference to a UFP-QAPP and any SOPs removed. The Permittee must revise the Work Plan accordingly.

3. Section 1.2, Project Scope, Page 1-2

Permittee Statement: "Preparation of a Phase I Report in general accordance with EPA guidance (EPA 1988) that summarizes information collected during the project."

NMED Comment: The RCRA Permit provides the applicable regulatory standard for the proposed PFAS investigation and reporting. Additionally, any applicable risk evaluation must comply with NMED's RA Guidance, as updated. The Permittee must revise the Work Plan to propose PFAS investigation, data evaluation, and reporting in accordance with the RCRA Permit and NMED guidelines.

4. Section 1.4, AFFF and PFAS, Page 1-3

NMED Comment: The Permittee must address the following comments:

- a. The Permittee stated, "[t]he Phase I RI [Remedial Investigation] focused on evaluating three PFAS compounds: perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS), which are collectively referred to as PFAS in this document." However, evaluation of only three PFAS compounds is insufficient to address potential contamination in environmental media at the Facility and the surrounding area from additional PFAS compounds. Evaluation of a wider range of PFAS compounds is essential to defining the nature and extent of contamination, understanding the fate and transport of contamination, and development of a more accurate conceptual site model that appropriately fits the work scope objective proposed by the Permittee in Section 1.1, Project Objective. NMED's RA Guidance Section 5.3, PFAS and Table 5-2, PFAS Analyte List, identify twenty-four of the most common PFAS contaminants of concern (COCs) and four PFAS replacement chemicals that must be evaluated during PFAS investigations. The Permittee must revise the Work Plan to propose analyses of investigation samples for the twenty-four PFAS COCs and replacement chemicals listed in NMED's RA Guidance.
- b. The Permittee stated, "EPA Regional screening Levels (RSLs) from May 2021 for tapwater or residential soil, which were obtained from the RSL calculator or summary tables set at a hazard quotient of 0.1 will be used to delineate PFOS, PFOA, and PFBS in groundwater, surface water, soil, and sediment." RCRA Permit Part 3, Corrective Action for Solid Waste Management Units and Areas of Concern, outlines the applicable cleanup and screening level criteria for groundwater (Section 3.3.1),

soil and sediment (Section 3.3.2.1), and surface water (Section 3.3.2.2) that must be used for data comparison. As required by RCRA Permit Section 3.3, Cleanup Levels, proposed screening and cleanup levels must meet the cumulative target risk level for carcinogens of 1E-05 and the additive target hazard quotient for non-carcinogens of 1.0. The Permittee must submit all proposed cleanup and screening levels to NMED for review and approval. Permittee-calculated screening levels proposed for use during an investigation must include supporting data and calculations. The Permittee must revise the Work Plan to propose comparison of all PFAS sample analysis data to cleanup and screening criteria that meet the specifications of the RCRA Permit and the RA Guidance.

5. Section 2.6.6, Wastewater Treatment Plant [WWTP] Sampling, Pages 2-11 and 2-12

Permittee Statement: “In August 2019, EA Engineering Science and Technology Inc. (EA) collected samples from the influent and effluent of the WWTP [Wastewater Treatment Plant] for analysis of 18 PFAS compounds. One sample was collected from the WWTP influent and effluent and one duplicate sample was collected from the WWTP effluent. The discussion in this section will focus on PFAS compounds of interest to this RI (PFOS, PFOA, and PFBS).”

NMED Comment: This section must discuss the results of the August 2019 WWTP sampling event that addressed eighteen PFAS compounds in its entirety. Consideration of the complete results of the prior sampling event at the CAFB WWTP is essential to proposing an investigation to characterize all contamination at the Facility’s potential source areas. Revise the Work Plan to address all contaminants identified during the WWTP sampling. In addition, the Permittee must submit all WWTP sampling event data, or a respective report with the supporting data, to NMED as a separate document. Upon receipt, NMED will include the submittal in the Facility administrative record. The Permittee must revise the Work Plan accordingly.

6. Section 3.5.1.2, AOI [Area of Interest]-Specific Fate and Transport, Page 3-9

Permittee Statement: “Impacted surface water and sediment might present a concern for PFAS leaching to groundwater at North Playa Lake, due to the potential downward movement in areas absent of caliche.”

NMED Comment: The Permittee’s statement that the presence of caliche in the subsurface would limit the potential downward migration of COCs in the subsurface is insufficient to determine whether a soil-to-groundwater pathway exists. A soil-to-groundwater pathway evaluation in accordance with RA Guidance, Section 4.9, Summary of the Migration to Groundwater Pathway and SL-SSLs [soil leachate based-soil screening levels], is required to evaluate site conditions more appropriately at identified AOIs addressed in Section 3.5. The

evaluation may include the development of site-specific risk-based screening levels for COCs for NMED approval and must include multiple lines of evidence to support an incomplete pathway. Appropriate lines of evidence may include, but are not limited to, any combination of information, such as, history of contamination source removal actions, vertical delineation of contamination in the subsurface, depth to groundwater information, physical and chemical characteristics of the COCs, a lack of liquids that would facilitate the downward migration of COCs in the subsurface, and applicable site-specific geology and hydrology. Due to confirmed groundwater impacts by PFAS COCs at CAFB and surrounding areas, the Permittee must revise the Work Plan to propose a rigorous evaluation of the soil-to-groundwater pathway at all AOIs. The Permittee must base the evaluation on data and information collected during the proposed investigation for the potential identification of contamination source areas requiring further investigation and evaluation.

7. Section 4.3, Standard Operating Procedures, Pages 4-1 and 4-2

NMED Comment: Generalized reference to SOPs in the UFP-QAPP is not appropriate as a description of proposed field and data collection methods and procedures. All investigation methods and procedures proposed for use at AOIs must meet the requirements outlined in RCRA Permit Parts 3 through 5 and must be proposed in the body of the Work Plan as outlined in RCRA Permit Part 6.2.8, Investigation Methods and the NMED Reporting Guidelines. The Permittee must revise the Work Plan narrative to describe all proposed methods and procedures specific to investigations at all AOIs in detail, and references to SOPs must be removed.

8. Section 4.4, Field Documentation, Page 4-2

NMED Comment: The Permittee must describe all field documentation procedures referenced as included in UFP-QAPP in detail in Section 4.4 as applicable to the proposed project work at AOIs, as required by RCRA Permit Section 6.2.8 and the NMED Reporting Guidelines. RCRA Permit Part 4 outlines the required field data collection requirements. The Permittee may include all field forms proposed for use for field work documentation in an appendix of the revised Work Plan. The Permittee must revise the Work Plan accordingly.

9. Section 4.7.2, Reporting, Page 4-4

Permittee Statement: "After events 1 [on-and off- base surface soil investigations and off-base groundwater sampling] and 2 [subsurface investigation], the data will need to be analyzed to propose off base monitoring well and lysimeter locations. Therefore, a revised Phase I Work Plan memorandum will be prepared after event 1 and event 2, as described in the graphic below. Revisions will not be made to the UFP-QAPP. It is anticipated that EPA will approve the proposed locations within two weeks of the submittal of the memorandum."

Colonel Taylor
December 15, 2021
Page 6

NMED Comment: The investigation is subject to regulation under the RCRA Permit; therefore, the Permittee must submit the proposed Work Plan memorandum, as an addendum to the Work Plan to NMED for review and approval. As required by RCRA Permit Section 1.17, Submissions to the NMED, the addendum must be provided as two hard copies and two electronic copies. Once received, NMED will review the addendum to the Work Plan in accordance with RCRA Permit Section 1.17.1. The Permittee must revise the Work Plan to reflect these requirements for submittal and NMED review of the proposed Work Plan addendum.

10. Section 4.8, Analytical and Data Reporting, Pages 4-4 and 4-5

NMED Comment: The Permittee must address the following comments:

- a. The Permittee stated, “[s]ampling as described in the sections below (Sections 4.9, 4.10, 4.11, 4.12, and 4.13) will be analyzed for PFAS on standard turnaround time (10 business days) by liquid chromatography and tandem mass spectrometry [LC/MS/MS] utilizing isotope dilution compliant with DoD [Department of Defense] Quality Systems Manual 5.3. In addition, the composite soil samples collected (Section 4.11) will be analyzed for physiochemical parameters (pH, particle size distribution, TOC [total organic carbon], and cation exchange capacity), in accordance with the methods specified in the UFP-QAPP (Appendix A).”

General reference to analysis methods and quality control sampling in the UFP-QAPP is not appropriate. The Permittee must revise this section discussion to provide specifics for sampling and analysis methods to be used for PFAS analysis of soil, groundwater, surface water, sediment, and pore water and the physiochemical parameters with appropriate reference to any supporting Work Plan tables and figures as required by RCRA Permit Section 6.2.8 and the NMED Reporting Guidelines.

- b. As of July 30, 2021, the United States Environmental Protection Agency (EPA) has published final versions of SW-846 Methods 3512 and 8327 for laboratory preparation and analysis of PFAS in non-potable waters. The methods are applicable to samples for groundwater, surface water, and wastewater for use during investigation and cleanup of PFAS contamination. EPA Method 8327 is the determinative method for PFAS sample analysis with LC/MS/MS. The EPA validated methods are the required sample preparation and analysis methods for PFAS analysis of groundwater, surface water, and wastewater, and the Permittee must propose them for use in the revised Work Plan. The Permittee must revise the Work Plan accordingly.

- c. The Permittee stated, “[t]he quality control (QC) samples for each type of sampling will be analyzed as outlined in the UFP-QAPP (Appendix A) and in accordance with the required frequencies.”

The Permittee must describe QC samples proposed for all sample media in detail in the body of the revised Work Plan pursuant to RCRA Permit Section 6.2.8 and the NMED Reporting Guidelines. The Permittee must revise the Work Plan accordingly.

- d. The Permittee stated, “[l]aboratory analytical data will be validated in accordance with the UFP-QAPP, and a data usability assessment will be included in the Phase I RI Report.”

Reference to laboratory data validation procedures included in the UFP-QAPP is inappropriate. The Permittee must describe all proposed laboratory data validation procedures in detail in the revised Work Plan pursuant to RCRA Permit Section 6.2.8 and the NMED Reporting Guidelines. Proposed data validation and reporting must comply with NMED’s data quality assurance and control procedures and standards specified in RCRA Permit Section 4.5, Chemical Analyses. The Permittee must revise the Work Plan to provide a detailed discussion of the proposed project data validation and reporting procedures that must comply with the requirements of the RCRA Permit.

11. Section 4.9, Groundwater Monitoring Well Installations, Page 4-5

Permittee Statement: “The monitoring wells will be constructed and developed per the approved Work Plan and UFP-QAPP (Appendix A) and in accordance with state, county, and CAFB requirements.”

NMED Comment: The following comments must be addressed as follows:

- a. Reference to the UFP-QAPP is not appropriate and must be removed from the Work Plan. The Permittee must revise the Work Plan to describe in detail all proposed project specific groundwater monitoring and monitoring well installation methods and procedures. This is a requirement of RCRA Permit Section 6.2.8 and the NMED Reporting Guidelines.
- b. The scope of work proposed in the Work Plan Section (4.9) is subject to the groundwater monitoring and well installation requirements of RCRA Permit Sections 4.3, Groundwater and Monitoring, and RCRA Permit Part 5, Monitoring Well Construction Requirements. The Permittee must propose a scope of work that meets the RCRA Permit requirements. This Permittee must propose the work scope in the body of the Work Plan. Failure to meet RCRA Permit requirements for

groundwater monitoring and well installation will likely result in the rejection of any groundwater sample data and, if the Permittee identifies significant issues with groundwater monitoring wells, the directive to abandon and replace the monitoring wells. The Permittee must review and revise the Work Plan to ensure technical compliance with the RCRA Permit for groundwater monitoring and monitoring well installation.

12. Section 4.9.2, Drilling and Soil Sample Collection, Page 4-5 and 4-6

Permittee Statement: “During sonic drilling, soil samples will be collected directly from the soil core in accordance with the SOP for Soil Sampling and Analysis of PFAS, in Attachment 1 of the UFP-QAPP (Appendix A).”

NMED Comment: The Permittee must address the following comments:

- a. The Permittee must revise this section discussion to describe in detail the methods and procedures for sample collection and drilling as required by RCRA Permit Section 6.2.8 and the NMED Reporting Guidelines. All proposed drilling and sampling activities must comply with the requirements outlined in RCRA Permit Sections 4.2.3 through 4.2.6. The Permittee must revise the Work Plan accordingly.
- b. The Permittee must propose monitoring wells for locations in areas identified as PFAS contamination source areas based on site history and soil sampling and, therefore, must include the collection of soil samples at regular intervals to the groundwater table. To allow for vertical delineation of contamination at identified source areas on-and off-base, the Permittee must revise the sampling plan for proposed new monitoring wells (Table 4-4) to propose the collection of at least ten soil samples at regular intervals for laboratory analysis from each boring location, in accordance with that proposed for MW-PW001. The Permittee must propose sample intervals and soil samples collected in accordance with RCRA Permit Section 4.2.3.3. The Permittee must revise the Work Plan accordingly.

13. Section 4.9.3, Monitoring Well Construction, Page 4-6

Permittee Statement: “The wells will be constructed with 4-inch diameter PVC [polyvinyl chloride] Schedule 80 casing with either a 40-foot or 50-foot screen.”

NMED Comment: To minimize the potential for sample COC concentration dilution, the screened intervals for all proposed monitoring wells must not extend beyond 30 feet below the groundwater table and must be completed with at least 5 feet of screened interval above the groundwater table. Additionally, to ensure the Permittee collects representative groundwater samples from each monitoring well, the Permittee must complete all

proposed monitoring wells with stainless steel well screen to limit the potential for cross-contamination of groundwater samples for PFAS analysis. Proposed well construction and methods must meet the requirements of RCRA Permit Section 5.2, Well Construction/Completion Methods. The Permittee must revise the Work Plan accordingly.

14. Section 4.9.4, Monitoring Well Development, Page 4-7

Permittee Statement: "Development will then proceed using a submersible pump until water quality parameters stabilize according to the criteria in the SOP (Attachment 1 of the UFP-QAPP)."

NMED Comment: SOPs are not acceptable to describe the proposed procedures. The section discussion must include details regarding water quality parameters that will be measured during development of monitoring wells (e.g., pH, conductivity, temperature, and turbidity), the frequency of data collection, and the applicable stabilization criteria. The Permittee must also describe proposed well development procedures in their entirety in the section discussion and must comply with the requirements of RCRA Permit Section 5.2.5, Groundwater Well Development. The Permittee must revise the Work Plan accordingly.

15. Section 4.10, Groundwater Sampling, Pages 4-7 and 4-8

NMED Comment: The Permittee must address following comments regarding groundwater sample collection in the revised Work Plan:

- a. The Permittee must revise this section to discuss the details of on-and off-base sampling of monitoring, irrigation, and domestic wells during the proposed investigation. Providing references in the Work Plan to figures and tables is insufficient to propose the scope of work for groundwater sampling. The Permittee must revise this section to describe the information provided on Tables 4-2 and 4-3 with appropriate reference to the tables and any supporting figures (e.g., Figures 4-1 through 4-4). The section must discuss in detail the monitoring, irrigation, and domestic wells proposed for sampling, details regarding the general location and rationale for sampling each well, procedures for the collection of water level data, the frequency of proposed sampling for each sample type, and all quality assurance data and information to be collected at each location as required by RCRA Permit Section 6.2.9, Monitoring and Sampling Program and the NMED Reporting Guidelines. The Permittee must conduct all proposed groundwater sampling and data collection in accordance with RCRA Permit Section 4.3, Groundwater and Monitoring. The Permittee must describe any proposed sampling methods and procedures specific to sampling groundwater for PFAS COCs in detail. If described elsewhere in the Work Plan, the Permittee must provide appropriate references. The Permittee must revise the Work Plan accordingly.

- b. The Permittee stated in Section 4.10.3, “[a]s part of the QC process, field QC samples will also be collected in accordance with UFP-QAPP (Appendix A).”

The Permittee must provide details regarding collection of QC samples in the body of the Work Plan and discuss in detail as required by RCRA Permit Section 6.2.8 and the NMED Reporting Guidelines. All proposed QC samples must meet the sample collection specifications outlined in RCRA Permit Section 4.3.5, Groundwater Sample Types. The Permittee must discuss any project specific QC sampling in detail in the section. The Permittee must revise the Work Plan accordingly.

16. Section 4.11, Potential Source Area Sampling, Pages 4-8 to 4-10

NMED Comment: Based on NMED’s review of Section 4.11, referenced Table 4-4, and Figures 4-1 through 4-8, the Permittee must address the following comments:

- a. The discussion does not adequately address all sampling listed on Table 4-4, Summary of Proposed Surface and Subsurface Soil Sampling Locations. As an example, supporting Section 4.11.2, Soil Sample Collection, addresses sixteen proposed borings at the North Playa Lake and Whispering Winds Golf Course, but it fails to address the additional proposed soil sampling for on-base surface soils at forty locations and for off-base surface soil samples at six locations also listed on Table 4-4. To address this issue, the Permittee must revise the discussion to describe all on- and off-base soil sampling, all methods and procedures to be used, and the sampling program for each AOI proposed separately, with appropriate references to Table 4-4 and any supporting figures, as required by RCRA Permit Sections 6.2.8 and 6.2.9 and the NMED Reporting Guidelines.
- b. In Section 4.11.2, Soil Sample Collection, the Permittee stated, “[s]oil samples will be collected from hand augers and/or stainless-steel split-spoon samplers during hollow-stem auger (HAS) drilling, in accordance with the SOP for Soil Sampling and Analysis of PFAS (Attachment 1 of the UFP-QAPP in Appendix A)”.

The Permittee must remove reference to the QAPP and SOP and must describe all sampling methods and procedures in detail in the section text. The proposed methods and procedures for soil sampling must conform to the requirements of RCRA Permit Section 4.2.3.3, Soil Sampling. The Permittee must revise the Work Plan accordingly.
- c. In Section 4.11.2, the Permittee stated, “[a]s part of the QC process, QC samples will also be collected in accordance with UFP-QAPP (Appendix A)”

The Permittee must describe the QC process and samples to be collected in the appropriate sections of the Work Plan for soil samples. The Permittee must propose QC samples in accordance with the requirements of RCRA Permit Section 4.2.6, Soil Sample Types. The Permittee must revise the Work Plan to conform to the requirements of the RCRA Permit for QC sample collection.

- d.** Figure 4-6 indicates advancement of only two soil borings (SB02001 and SB02002) to 30 feet bgs at Former Fire Training Area No. 3 (Solid Waste Management Unit (SWMU) 107). Based on historical investigations previously conducted at SWMU 107, the soil borings are not located in areas of identified contamination associated with use of the site as a fire training area (e.g., hydrocarbon, solvents, and metals), and likely, where AFFF has also been used. The Permittee must complete the appropriate level of due diligence and propose additional boring locations where it identified characteristic fire training area contamination. The Permittee must propose soil sample collection to 50-ft bgs for PFAS analysis and collect samples pursuant to the requirements of RCRA Permit Section 4.2.3.3. The Permittee must revise the Work Plan accordingly
- e.** Based on historical site investigation information for Former Fire Training Area No. 4 (SWMU 109), soil boring SB03003 does not appear to be located at the actual location of the former vehicle chassis fire training pit where AFFF would have been directly applied. The Permittee must complete the due diligence to accurately locate the vehicle chassis fire training pit and propose the advancement of an additional boring to 50 feet bgs for PFAS contamination delineation at that location. The Permittee must propose soil sampling and collect samples pursuant to the requirements of RCRA Permit Section 4.2.3.3. The Permittee must revise the Work Plan accordingly.
- f.** The Work Plan proposes sampling at locations along the periphery of the mapped Active Fire Training Area (RCRA Area of Concern JJJ) and at down gradient locations from the wastewater evaporation pond. Based on elevated concentrations of PFAS reported at locations near the evaporation pond, the advancement of at least three additional borings to 30 feet bgs, within the fire training area boundary mapped on Figure 4-6 at locations surrounding the aircraft mockup and wastewater collection pit, appear warranted for complete site characterization. The Permittee must propose soil sampling and collect samples pursuant to the requirements of RCRA Permit Section 4.2.3.3. The Permittee must revise the Work Plan accordingly.
- g.** The Permittee must vertically and horizontally delineate all encountered PFAS contamination in surface and subsurface soil and groundwater at all AOIs. If the Permittee has not delineated the encountered PFAS contamination, the Permittee must advance additional borings and collect soil samples for PFAS analysis until the

contamination has been completely delineated as required by RCRA Permit Sections 4.2.3.1 and 4.2.3.3. The Permittee must revise the Work to address this comment.

17. Section 4.12.2, Surface Water and Sediment Sample Collection, Page 4-10

Permittee Statement: “A surface water sample and sediment sample will be collected at each of the twelve locations following procedures in the *Surface Water Sampling and Analysis of PFAS and Sediment Sampling and Analysis of PFAS* SOPs in the UFP-QAPP (Attachment 1 of Appendix A).”

NMED Comment: Reference to the QAPP and SOPs is inappropriate for description of the proposed surface water and sediment sampling and must be removed from the section discussion. The Permittee must discuss the proposed sampling program, methods, procedures, and QC sampling for surface water and sediment sampling in detail with appropriate references to other supporting Work Plan sections, tables, and figures. The Permittee must ensure that the proposed sampling program methods and procedures meet the requirements of RCRA Permit Parts 3 and 4. The Permittee must revise the Work Plan accordingly.

18. Section 4.13.5, Pore Water Sample Collection, Page 4-13

NMED Comment: The Permittee must revise this section to discuss in detail the proposed QC sampling plan and procedures. Reference to the UFP-QAPP is inappropriate.

19. Section 4.14, Reporting, Page 4-14

NMED Comment: The Permittee must address the following comments:

- a. As clarified by NMED Comment No. 1, General Comment, of this letter, PFAS and the proposed PFAS investigation are regulated under the RCRA Permit; therefore, the investigation report must conform to the requirements of Permit Section 6.3, Investigation Report and the NMED Reporting Guidelines. The Permittee must report all information and data collected during the investigation in the format required by the RCRA Permit. The Permittee must revise the Work Plan to include this requirement.
- b. The Permittee stated, “[r]ecommendations will be included for any additional data collection that may be needed to conduct the risk assessment component of the CERCLA process.” Risk assessment pursuant to CERCLA does not apply to this investigation. The Permittee must conduct proposed risk assessment in accordance with NMED’s RA Guidance. Remove all references to CERCLA from the revised Work Plan and revise the Work Plan accordingly.

- c. Propose work plan addendum and investigation report submittal schedules for NMED approval based on the anticipated field investigation schedule as required by RCRA Permit Section 6.2.10, Schedule and the NMED Reporting Guidelines. The Permittee must revise the Work Plan accordingly.

20. Table 2-1, Existing On-Base Monitoring Well Construction Information

NMED Comment: NMED noted discrepancies in monitoring well casing diameter, top of casing/measuring point elevations, top and bottom of well screening depth, well screen lengths, and bottom of well data presented on the table when compared with data and information previously documented in NMED-approved CAFB biennial periodic monitoring reports. Revise Table 2-1 to include accurate well completion data and information.

21. Table 4-1, Proposed Remedial Investigation Scope of Sequencing

NMED Comment: The Permittee must revise Table 4-1 to include the proposed sampling for Active Fire Training Area (AFFF Area 11) for sampling Events 1 and 2. The Permittee must revise the table for accuracy.

22. Appendix A: Uniform Federal Policy Quality Assurance Project Plan

NMED Comment: NMED does not review or approve QAPPs or any included SOPs. The Permittee must remove the UFP-QAPP included as Appendix A from the Work Plan and document and discuss all methods and procedures for sampling, data quality assurance and objectives, and other pertinent supporting project information in detail in the appropriate sections of the Work Plan as required by RCRA Permit Sections 6.2.7 through 6.2.13 and the NMED Reporting Guidelines. The Permittee must revise the Work Plan accordingly.

23. Appendix B: Generalized Stratigraphic Column of the Southern High Plains Aquifer Beneath Cannon Air Force Base (Figure 2 AECOM 2020)

NMED Comment: The Permittee must remove Appendix B from the Work Plan and submit the cited 2020 *Technical Memorandum, Cannon Air Force Base Site Conceptual Model* (Technical Memorandum) as a separate document that will be included in the Facility administrative record. The Permittee must also remove reference to the generalized stratigraphic column from the proposed sampling plan (e.g., Section 4.11.2) as it does not appear to be an accurate representation of site conditions at CAFB and the surrounding area. The Permittee may only list the Technical Memorandum in Section 5, References; and it must be appropriately cited in the Work Plan, as deemed necessary for generalized descriptions of site stratigraphy. The Permittee must revise the Work Plan accordingly and provide the memorandum as a separate document.

24. Appendix C: Top of the Dockum Group (Figure 2 AECOM 2020)

NMED Comment: The Permittee must remove the Appendix C figure from the Work Plan and submit the Technical Memorandum separately. The permittee must base characterization of subsurface stratigraphy and geology at CAFB on data collected during the proposed investigation or during other, similar project work at CAFB. Investigation conclusions based on data and information that has not been previously submitted to NMED or approved by NMED may result in invalidation of the Permittee's conclusions and any supporting information and requirement to conduct addition investigation. The Permittee must remove the Appendix C from the Work Plan and submit the Technical Memorandum as a separate document.

25. Appendix D: USGS [United Sates Geological Survey] Potentiometric Surface Maps Summer 2013 and Winter 2015 (USGS 2016)

NMED Comment: The Permittee must remove Appendix D USGS Potentiometric Surface Maps document from the Work Plan and submit the document as a separate document to be included in the Facility administrative record. The document may only be listed in Section 5, References, and must be appropriately cited in the Work Plan, as deemed necessary for generalized descriptions of site conditions. Revise the Work Plan accordingly and provide the document as a separate submittal.

26. Appendix F: Investigation Derived Waste Management Plan [IDWMP]

NMED Comment: The Permittee must address the following comments:

- a. Provide additional information regarding the proposed activated granulated carbon treatment of IDW contaminated with PFAS and the treatment system to be used. The IDWMP must be revised accordingly.
- b. Fire Training Areas Nos. 3 and 4 (AFFF Areas 2 and 3) are sites where hydrocarbon, solvent, and metals contamination has been previously identified; therefore, the Permittee must revise the IDWMP to also propose sampling for gasoline and diesel range organics, volatile organic compounds, and metals for solid and liquid IDW generated during field activities at AFFF Areas 2 and 3 in addition to proposed PFAS analysis. The Permittee must revise the IDWMP accordingly.
- c. Proposed on-site disposal of IDW solids and liquids must meet the most conservative screening criteria outlined in RCRA Permit Section 3.3, Cleanup Levels, as applicable to the waste media. These standards also apply to PFAS during IDW characterization. However, the Permittee must dispose of all solid and liquid IDW contaminated with

Colonel Taylor
December 15, 2021
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PFAS off-site at an appropriate disposal facility. The Permittee must revise the IDWMP accordingly.

The Permittee must submit a revised Work Plan (2 hard copies and 2 electronic copies) that addresses all comments contained in this Disapproval. In addition, the Permittee must include a response letter that cross-references where NMED's numbered comments are addressed. The Permittee must also submit an electronic redline-strikeout version of the revised Work Plan showing where all changes were made to the Work Plan. The revised Work Plan must be submitted no later than **May 2, 2022**.

If you have any questions regarding this letter, please contact Gabriel Acevedo at (505) 690-5760.

Sincerely,

Rick Shean

Digitally signed by Rick
Shean
Date: 2021.12.15
10:39:14 -07'00'

Rick Shean, Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
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File: CAFB 2021 and Reading