UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 9
75 Hawthorne Street
San Francisco, CA 94105-3901

September 22, 2016

Mr. Paul Schiff
Chief, Environmental Restoration
AFCEC/CZO-West
120 N. Rosamond Blvd. (Suite A)
Edwards AFB, CA 93524-8400

RE: U.S. EPA Concurrence with Second Five-Year Review Report for NASA Armstrong Flight Research Center, OU6, Edwards Air Force Base, California, August 2016

Dear Mr. Schiff:

The U.S. Environmental Protection Agency has reviewed the 15 August, 2016 final draft of the Second Five-Year Review (FYR) Report for the National Aeronautics and Space Administration Armstrong Flight Research Center, Operable Unit 6, Edwards Air Force Base, California.

EPA appreciates that NASA and the Air Force have documented and addressed, to the extent possible, the Agency's concerns and the issues identified by State of California agencies, specifically in the Response to Comments and Interview sections. EPA concurs with the short-term protectiveness statement for NASA Armstrong Flight Research Center, OU6. EPA notes that the conditions at OU6 are insufficient for us to determine that the Site has achieved long-term protectiveness, including control and remediation of the groundwater contaminant plumes. EPA makes the following protectiveness determination:

The remedy at NASA Armstrong Flight Research Center, OU6, Edwards Air Force Base protects human health and the environment in the short term because indoor air and groundwater monitoring data indicate no current exposure to site contamination. For the remedy to be protective in the long term, 1) existing Land Use Controls must continue to be implemented along with monitoring and control of exposure pathways that could result in unacceptable risks, until such time it is demonstrated that there no longer is a risk to human health from unlimited use and unrestricted exposure scenarios; and 2) the groundwater remedial action must be fully implemented, thoroughly evaluated and optimized as necessary to demonstrate progress toward meeting remedial action objectives.

The remedy is protective of human health and the environment for the Site's industrial land use with respect to on-site workers in the short term. The remedy is protective of human health because exposure pathways that could result in unacceptable risk to onsite workers have been investigated and are being controlled by the implementation of on-site institutional controls. The

annual Land Use Control inspections and reports must continue in order to conclude that the remedy remains protective. As recommended in the FYR Report, annual LUC reports should identify and evaluate changes in site conditions (e.g., new construction, excavation or building use) that might affect the vapor intrusion pathway in occupied buildings downgradient and potentially result in exposure of site workers to plume contaminants.

EPA particularly emphasizes two long-term protectiveness issues with the groundwater remedy as identified in the FYR Report:

1. Inadequate plume delineation at the leading edge should be fully addressed through installation of additional groundwater monitoring wells on Rogers Dry Lake. The monitoring wells should be sampled annually to assess concentration trends, to evaluate whether the plume is expanding, shrinking, or stable, to monitor cleanup progress, and to possibly provide locations for in situ chemical oxidation injection should leading edge treatment be required. [Milestone Date: 12/30/2017]

2. The In Situ Chemical Oxidation remedial action should be resumed and optimized. ISCO treatment and monitoring should continue in the areas with the highest VOC concentrations and the use of stronger oxidants should be considered to treat recalcitrant VOC contaminants. The results of monitoring the optimized groundwater remedial action should be used to analyze and evaluate remedy effectiveness to achieve RAOs. [Milestone Date: 06/30/2018]

Additional EPA concerns are discussed in the attachment to this letter on which we will follow up with you separately.

Should you have any questions on this correspondence, please feel free to contact me at (415) 972-3144, or Kevin Mayer at (415) 972-3176.

Sincerely,

Angeles Herrera
Assistant Director, Superfund Division
Federal Facilities and Site Cleanup Branch

Attachment

cc: Alonzo Poach (RWQCB), electronic copy only
Bruce Lewis (DTSC), electronic copy only
Ai Duong (EAFB), electronic copy only
Tom Merendini (EAFB), electronic copy only
Craig Nathe (EAFB), electronic copy only

Attachment to EPA's Concurrence with Second Five-Year Review Report for NASA Armstrong Flight Research Center, OU6, Edwards Air Force Base [September 21, 2016]

Additional EPA Comments on Issues Identified in the FYR Report

Although the focus of the FYR Report is the remedy for the OU6 groundwater plume, all potential risks within the full administrative boundary of the NASA facility must be identified in the OU 6 FYR Report. As explained in the FYR Report, a second plume of groundwater contamination originating from Site 25 outside the facility boundary has migrated into the NASA administrative boundary. At our request, the Report includes figures depicting the two plumes in relationship to the NASA facility boundary. Indoor air was recently sampled in occupied buildings above the highest contaminant concentrations in the currently known groundwater plumes originating within both OU6 and Site 25. In accordance with vapor intrusion guidance, sampling events were conducted during both cold weather and warm weather to account for seasonal variability. The current results associated with either plume did not identify any completed exposure pathways for human or ecological receptors.

The FYR Report also describes the Edwards base-wide approach to prioritizing occupied buildings for indoor air sampling and vapor intrusion pathway assessment. EPA does not endorse this approach for assurance of protectiveness in the long-term. Discussion of this issue will continue separately from the FYR Report for OU6.

These concerns exemplify the limitations of Edwards Air Force Base's practice of separately preparing and submitting FYR Reports for each Operable Unit based on schedules determined by the date of each individual Record of Decision. EPA recommends consolidating all FYRs for a single integrated base-wide evaluation. This will facilitate clear communication about potential risks regardless of administrative boundaries with all parties and community members.