NEW MEXICO ENVIRONMENT DEPARTMENT

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Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6313
Phone (505) 476-6000 Fax (505) 476-6030
www.env.nm.gov

SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lt. Governor

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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 5, 2017

Colonel Douglas W. Gilpin
Commander, 27th Special Operations
Mission Support Group
110 E. Alison Avenue, Suite 1098
Cannon Air Force Base

RE: DISAPPROVAL
RCRA FACILITY INVESTIGATION AT SD012, SD017, AND SD020
CANNON AIR FORCE BASE, NEW MEXICO
EPA ID #NM7572124454
HWB-CAFB-16-010

Dear Colonel Gilpin:

The New Mexico Environment Department (NMED) has received the Cannon Air Force Base (Permittee) *RCRA Facility Investigation at SD012, SD017, and SD020* (Report), dated October 28, 2016. NMED has completed review of the Report and hereby issues this Disapproval. The Permittee must address the following comments.

GENERAL COMMENTS

1. Evaluation of COPCs for Cumulative Risk

NMED Comment: The Report states that the only constituent of potential concern (COPC) at sites SD012, SD017, and SD020 is arsenic. The Permittee's methodology for initial elimination of COPCs was based on a point-to-point comparison of site maximum chemical of concern (COC) concentrations to background or NMED's risk based SSLs. However, the point-to-point comparison has not accurately identified COPCs at these sites. Additionally, the Permittee has not assessed each site's cumulative risk for the complete list of site COPCs

in accordance with NMED's Risk Assessment Guidance for Site Investigations and Remediation (RA Guidance), which is required at each site. For the identification of COPCs, the RA Guidance clearly states that if an organic COC is detected at least once, and there is site history indicating the constituent could be present, or if there is insufficient site history to demonstrate that a chemical could not be present, then the COC must be retained as a COPC and evaluated in a risk assessment. For metals, if the site concentrations are determined to be above background levels either through comparison of the maximum concentrations to the established background reference value or a statistical evaluation, the constituent must be retained as a COPC. The Permittee's initial point-to-point comparison has resulted in most COC's being eliminated as COPCs and not carried forward through the risk assessment for each site. Therefore, the risk assessment must be revised in accordance with the following comments to support a final status determination for SD012, SD017, and SD020:

a. If the maximum detected concentration of an inorganic compound exceeds the established background reference value, and a statistical evaluation has not been completed for the COC, then the constituent must be retained as a COPC and be evaluated in the risk assessment.

b. For site SD012, arsenic, cadmium, chromium, lead, mercury, selenium, and zinc must be retained as COPCs through comparison of the established facility background reference value to the maximum reported concentration. In comparing the site maximums to the current March 2017 NMED SSLs, it is likely that SD012 will meet the residential target hazard of 1.0 for noncarcinogens, but may slightly exceed the target risk level of 1E-05 for carcinogens. The use of a 95% upper confidence level of the mean (95% UCL) as the exposure point concentration in lieu of the maximum detected concentration may resolve any risk exceedance issues. The Permittee must reevaluate all collected site concentration data for retention of COCs as COPCs and then perform the cumulative risk assessment for SD012 utilizing the RA Guidance.

c. For site SD017, alpha chlordane, gamma chlordane, 2,4-dichlorophenoxyacetic acid, 4,4-dichlrodipheneyldichloroethane, 4,4-dichlrodipheneyldichloroethylene, 4,4-dichlorodiphenyltrichloroethane, dieldrin, heptachlor epoxide, and toxaphene must be retained as COPCs. The Permittee must reevaluate all collected site concentration data for retention of COCs as COPCs and then perform the cumulative risk assessment for SD017 utilizing the RA Guidance.

d. For SD020, total petroleum hydrocarbons (TPH), acetone, 2-butanone, ethylbenzene, methylene chloride, toluene, xylene (total), 2-methylnaphtahlene, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, aluminum, barium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, selenium, sodium, and zinc must be retained as COPCs. If cumulative risk exceeds the target risk and hazard factor, the calculation of a 95% UCL for COPCs identified as risk drivers may be necessary to demonstrate the COPCs do not significantly contribute to site risk. The Permittee must reevaluate all collected site concentration

data for retention of COCs as COPCs and then perform the cumulative risk assessment for SD020 utilizing the RA Guidance.

e. The SD020 maximum detected TPH concentration exceeds the NMED SSL for petroleum hydrocarbons. Provide a table that summarizes historical TPH detections at SD020 and a figure depicting the spatial distribution of the historical TPH detections at SD020. In addition, the Permittee must evaluate any detections of underlying constituents (e.g., benzene, toluene, ethylbenzene, and xylene) associated with TPH impacts at the site in the revised Report. Additional discussion of TPH detections must be included in the revised Report.

2. Appendix E, Human Health Risk Assessment, Total Chromium Soil Screening Level

NMED Comment: The total chromium data were compared to the trivalent chromium SSL for SD012, SD017, and SD020. The trivalent chromium SSLs may only be applied if speciation of chromium is conducted. Therefore, site concentrations of chromium must be compared to the NMED SSLs for total chromium. Revise all report tables to reflect the use of the total chromium SSLs. The total chromium SSLs must also be applied to the calculations of cumulative risk for each site.

3. Ecological Risk Assessment for SD012

NMED Comment: The 1990 *Final Remedial Investigation* report, which included an ecological screening of SD012, concluded selenium was present at concentrations considered toxic to wildlife, but was within the range of background concentrations; therefore, an ecological risk assessment was not completed for the site. However, the Permittee must complete an ecological risk assessment that considers all applicable COPCs to support a final status determination for SD012. The following information must be included in the ecological risk assessment:

a. Arsenic, cadmium, chromium, lead, mercury, selenium, and zinc maximum concentrations are above established facility background concentrations and must be retained as COPCs for evaluation of ecological risk. Unless additional analyses are conducted to demonstrate that these metals are not statistically different from background, they must be retained as COPCs for the ecological screening assessment.

b. Table 2-5 of the Report lists a 2009 NMED ecological screening level (ESL) for arsenic (18.0 milligrams per kilogram (mg/kg)). A more current ESL is available and should have been utilized for evaluation of arsenic. The current NMED Tier 1 ESL for the deer mouse ecological receptor for arsenic is 9.45 mg/kg. Given the size of SD012, the deer mouse, horned lark, and plants must be evaluated as ecological receptors for the site.

c. Cumulative risk for each ecological receptor must include all relevant COPCs. The Permittee must not use a point-to-point comparisons for the evaluation of COC concentrations for determining ecological risk. A cumulative risk for each ecological receptor must be calculated. If the cumulative risk evaluation indicates risk for a receptor exceeds the ecological hazard quotient, then the calculation of a 95% UCL and use of Tier 2 methods would then be applicable options in further evaluating ecological risk for the site.

4. Ecological Risk Assessment for SD017

NMED Comment: Given the size of SD017 (less than 10 square feet) the overall impact to ecological populations would be minimal as the area of the site is less than 10% of the home range for either the deer mouse or the horned lark. Therefore, further ecological risk evaluation is not required for SD017.

5. Ecological Risk Assessment for SD020

NMED Comment: The results of prior ecological risk assessment which included site SD020 did not evaluate the effects of volatile organic compounds (VOCs) and semivolatile organic compounds as listed in Table 2.9, Comparison of Maximum Surface Soil Concentrations to NMED SSLs Northeast Stormwater Drainage Area (SD020) of the Report. Additional justification is required to demonstrate that there is no significant ecological risk at SD020. Reevaluate ecological risk at site SD020.

6. Evaluation of Vapor Intrusion Issues for SD020

NMED Comment: Several volatile organic compounds (VOCs) were detected during soil sampling activities at SD020. In accordance with the RA Guidance, detection of VOCs renders the vapor intrusion pathway as potentially complete, and an evaluation of the vapor intrusion pathway is required. However, since VOCs were minimally detected at the site, there does not appear to be a continual source of VOCs, and the concentrations decrease with depth, only a qualitative discussion of potential vapor intrusion issues is required in the Report. Revise the report accordingly.

SPECIFIC COMMENTS

7. Table 2-6, Comparison of Maximum Surface Soil Concentrations to NMED SSLs Old Entomology Rinse Area (SD017), Pg. 1-1

NMED Comment: There is a discrepancy associated with the surface soils maximum concentration of alpha Chlordane. The maximum concentration for surface soil is 1.00 mg/kg (sample location B6-0). Revise the table to reflect the correct sample concentration information.

8. Table 2-7, Comparison of Maximum Surface and Subsurface Soil Concentrations to NMED SSLs Old Entomology Rinse Area (SD017), Pg. 1-1

NMED Comment: The following discrepancies were noted with the table:

a. There is a discrepancy with the noted frequency detections for alpha Chlordane. Review of historical data indicates there were twelve detections for forty-three applicable samples collected with a maximum concentration of 1.00 mg/kg (at sample location B6-0). Revise the table as necessary to correct the sample data information.

b. The "not applicable to subsurface soils at this site" note from table Note No. 3 does not apply to SSLs for Residential Soils. The residential receptor sample concentration evaluation interval for site risk in soils is from 0 to 10 feet below ground surface, which includes any relevant surface and subsurface soil concentration data within that interval. Remove the note or provide clarification.

9. Section 3.5.3, Comparison of Arsenic Concentrations to Background Levels, Pg. 3-5

Permittee's Statement: "Step 2: Compare the range of detected site concentrations to the range of detected background concentrations. If the site range was within the range of detected background concentrations, then the site concentrations were considered to be background and no additional action was required."

NMED Comment: The NMED RA Guidance does not allow for comparison of site data to the range of background. As noted in Section 2.8.3.2 of the RA Guidance, if the maximum site concentration is greater than the background reference value, a two-sample hypothesis test should be used to compare the data distributions. Under certain circumstances, comparison to the range may be applicable. NMED will allow the comparison to the background dataset range for the identification of COPCs, if nature and extent has been defined and sufficient samples are not available to conduct a statistical analysis. The comparison must be coupled with multiple lines of evidence to include the number of detections versus the total number of samples, history of the site, and sample locations. If there is site history to suspect the constituent to be present from site activities, then it would be possible that the constituent could be present from historical activities at low levels (i.e., in the high range of background). In these cases, the constituent must be carried forward as a COPC and retained in the risk assessment. For sites SD012, SD017, and SD020, arsenic was the only identified COPC. Data were compared to the revised background reference value followed by a statistical evaluation to eliminate arsenic from further evaluation in the risk assessment. Since arsenic was not eliminated using the Permittee's "Step 2" process outlined in Section 3.5.3 of the Report, the site attribution analyses for arsenic is acceptable. However, the Permittee's "Step 2" statement must be removed from the Report to better conform with the RA Guidance for COPC retention and evaluation.

10. Section 5.6, Site Conceptual Exposure Model, Pg. 5-5

NMED Comment: This section (5.6) appears to present a revised exposure model based on the results of risk screening. However, the risk screening provided in the Report do not adequately address all COPCs nor do they evaluate cumulative risk for sites SD012, SD017, and SD020. Reevaluate risk at each site in accordance with the RA Guidance. The site conceptual exposure models can then be modified after reevaluation of site risk has been adequately addressed for each site.

The Permittee must submit a revised Report 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 were addressed. The Permittee must also submit an electronic redline-strikeout version of the revised Report showing were all changes have been made to the Report. The revised Report must be submitted on or before **October 31, 2017.**

If you have any questions regarding this letter, please contact Gabriel Acevedo at (505) 476-6043.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
B. Wear, NMED HWB
G. Acevedo, NMED HWB
A. Lafuente, CAFB
R. Lancaster, CAFB
S. Kottkamp, CAFB
S. Palmer, CAFB

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