



SUSANA MARTINEZ
Governor

JOHN A. SANCHEZ
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT



Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us

DAVE MARTIN
Secretary

BUTCH TONGATE
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

March 5, 2012

Thomas A. Ladd, Director
Environment and Safety Directorate
U.S. Army White Sands Missile Range
White Sands Missile Range,
New Mexico 88002-5000

**RE: NOTICE OF DISAPPROVAL
REVISED PHASE III RCRA FACILITY INVESTIGATION (RFI) REPORT
HELSTF SITES – SECOND REVISION (AUGUST 2010)
WHITE SANDS MISSILE RANGE, EPA ID# NM2750211235
HWB-WSMR-08-001**

Dear Mr. Ladd:

The New Mexico Environment Department (NMED) has completed its review of White Sands Missile Range's (Permittee) *Revised Phase III RCRA Facility Investigation (RFI) Report HELSTF Sites – Second Revision (August 2010)* (Report), dated August 2010. NMED hereby issues this Notice of Disapproval (NOD) with the following comments.

Comment 1

The Report is an investigation report; therefore, it must follow the general outline presented in Appendix 7, Section 7.3 (Investigation Report) of the 2009 RCRA Permit. Revise the Report to ensure it follows the basic outline provided in the Permit.

Comment 2

To aid in review of the Report include photos of the individual SWMUs at HELSTF.

Comment 3

Several references to figures in the Report refer to the wrong figures. For example, on page 42, there is a reference to pumping test results in Figure 4-10, the pumping test results are presented

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in Figure 4-11; Figure 4-10 shows the locations of the wells (a similar reference is made on page 43, where the figures are confused again). Ensure that all references to figures in the Report are accurate.

Comment 4

The Permittee must include additional details regarding the field activities for the Phase III investigation. The Report is an investigation report, not petition for corrective action complete determinations (the Permittee refers to NFA petitions throughout the Report, NMED considers NFA to be corrective action complete with or without controls). For example the revised Report must include specific details of the: deviations from the work plan, investigation sampling methods and procedures, depths of borings, depths of samples (and the rationale for collecting samples at specific depths), sample handling, investigation derived waste, field screening procedures, groundwater sampling methods and procedures, boring abandonment methods and procedures and any other relevant information regarding the Phase III field activities. Revise the Report to provide adequate descriptions of all aspects of the field work that was conducted during the investigation.

Comment 5

For all of the sites the Permittee believes are eligible for no further action (NFA), the Permittee must submit documentation demonstrating that the site meets corrective action complete criteria with a request for a permit modification. This request must be submitted separately from the Report. The documentation must include: a summary of the site history and use; a summary of site investigations and the results; a summary of monitoring results showing sufficient decreases in contaminant concentrations; a summary of any remedial actions and the verification of remedy completion (remedy completion report or remediation sampling verification reports including summary of any sampling that showed that the remediation is not complete); demonstration that residual site contamination does or does not exceed the target risk levels of 1×10^{-5} for carcinogens, a hazard index of 1.0 for human and ecological receptors and does not exceed established groundwater cleanup levels. The summaries must reference the corresponding documents (including page numbers, where appropriate) that have been submitted, reviewed, and approved by NMED for verification purposes. The decision to designate sites as corrective action complete with or without controls must be defensible. The Permittee does not provide adequate information for some of the SWMUs proposed for NFA in the Report; include as much detail as possible in the documentation. Revise the Report and submit a separate document to petition for corrective action complete determination that requests a permit modification for specific sites that meet the criteria listed above. The permit modification request must also comply with the public notice requirements in 40 CFR 270.42(c) incorporated by 20.4.900 NMAC.

Comment 6

The soil analytical results tables are disorganized. For example, in Table 6-7 (Summary of Soil Sample Analytical Results SWMUs 31 and 32) the soil borings are listed out of order and the

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table is difficult to follow. Group individual soil boring results together for all tables. Revise the tables as necessary.

Comment 7

Throughout the Report, the Permittee gives examples where, historically, a SWMU was recommended for NFA, but is not listed in either Table 4-2 (SWMUs and AOCs Corrective Action Complete With Controls) or Table 4-3 (SWMUs and AOCs Corrective Action Complete Without Controls) in the 2009 Permit. The Permit was negotiated and all of sites listed in Table 4-1 (Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) Requiring Corrective Action) were agreed to. Even if the SWMU had been considered for NFA in the past, the Permittee must provide documentation showing that the SWMU meets the criteria for corrective action complete. Revise the Report as necessary and provide separate documentation that includes adequate information to demonstrate the sites are eligible for corrective action complete status. See Comment 5.

Comment 8

The laboratory result tables (e.g. Table 6-2) contain a note stating, "[y]ellow highlight indicates that the reported result exceeds the published SSLs. If the result is preceded by "<", the constituent was not detected, but the reported sample quantitation limit exceeds the SSL." Additionally, the Permittee presents data from the 1990s and NMED cannot rely on these data to evaluate soil contamination levels at any of the SWMUs since operations have continued at HELSTF and laboratory methods have improved and detection limits have decreased over the last 20 years. The analytical methods used must have quantitation limits that are less than the SSLs. Permit Section 5.3 states, "[t]he detection limits for each method shall be less than applicable background, screening, and regulatory cleanup levels. The preferred method detection limits are a maximum of 20 percent of the cleanup, screening, or background levels. Analyses conducted with detection limits that are greater than applicable background, screening, and regulatory cleanup levels shall be considered data quality exceptions and the reasons for the elevated detection limits shall be reported to the NMED. These data cannot be used for statistical analyses." The same is true for groundwater results. The Permittee notes in Section 5.3.1 (Soil Data Screening), page 72, "[i]nstances where the detection limits exceed the NMED DAF standard were not construed to represent an exceedance of a regulatory standard for the purposes of delineation in soil because the analysis of COPCs in associated vadose zone and regional groundwater adequately addresses the consequences of any real exceedances of leachability standards. Instances where the detection limits exceed the NMED SSLs were considered in the risk assessments, as described in 5.4." The data may be used for comparison purposes, but cannot be used to demonstrate that sites meet cleanup levels for corrective action complete designations. Revise the Report as necessary.

Comment 9

In Table ES-1 (White Sands Missile Range Response to New Mexico Environment Department Comments), as a response to NMED's Comment 17 (August 27, 2008 NOD) which pointed out

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that the EPA updated the toxicological review of chromium, the Permittee states, "[c]omment noted. An attempt to locate the updated toxicological review for chromium (April 2008) via an on-line internet search was undertaken. However, the referenced toxicological review was not located. ARCADIS requests NMED provide additional clarification regarding this information." Updated toxicological reviews regarding chromium are available from the EPA website, <http://www.epa.gov>. The EPA states on their website at <http://water.epa.gov/drink/info/chromium/index.cfm> that the "EPA began a rigorous and comprehensive review of chromium-6 health effects following the release of the toxicity studies by the National Toxicology Program in 2008. In September, 2010, EPA released a draft of the scientific assessment (Toxicological Review of Hexavalent Chromium) for public comment and external peer review. When this human health assessment is finalized in 2011, EPA will carefully review the conclusions and consider all relevant information to determine if a new standard needs to be set." Use the most current and accepted screening tools available for all instances of toxicological review, soil screening levels, and groundwater screening levels. Revise the Report as necessary.

Comment 10

In Table ES-2 (White Sands Missile Range Response to New Mexico Environment Department Comments), the Permittee's response to NMED's Comment 12 (March 11, 2010 NOD) which states, "[t]he transmissivity (T) calculated in 1993 was 2.41 to 3.48ft²/day. The Permittee states that this estimated T is not representative on a larger scale because it assumes an ideal infinite aquifer, and drawdown tests indicate there is limited hydraulic connectivity between wells at the site; therefore a lower T is more likely. The T calculated by the Permittee's pump tests in 2009 was — 25 ft²/day; much larger than the T from 1993. This contradicts the Permittee's statement that the 1993 test did not reflect conditions at the site. The Permittee must discuss this discrepancy in the revised Report." The Permittee states in their response that, "[t]he language used is not clear and creates confusion regarding the different transmissivity values calculated at the Site. The take away point is that in the context of the aquifer variability and heterogeneity inherent at the site, the two values are relatively the same and support the low connectivity observed at the Site." The calculated T values are not "relatively the same," although they do appear to show aquifer variability and heterogeneity at the site; however, additional information is needed. Additional groundwater investigation may be warranted in order to better define aquifer characteristics. It is not clear whether the Permittee is referring to vadose zone or aquifer characteristics in their response. Provide more information regarding the wells that were used to calculate the T values, provide the boring logs, and the calculations. Revise the Report accordingly.

Comment 11

In Table ES-2 (White Sands Missile Range Response to New Mexico Environment Department Comments), in response to NMED Comment 11 from the March 11, 2010 NOD, the Permittee comments, "[t]he report has been revised to reference detections of concentrations that have been considered as naturally occurring based upon reviews of professional publications conditions in

this region.” In Section 7 (Conclusions), page, 294, the Permittee states, “[n]atural geologic processes in the Tularosa Basin have resulted in the occurrence of soluble minerals that contain many inorganic constituents. Weathering of out-cropping rocks provides for the natural occurrence of metals (strontium, selenium, boron, fluoride, lithium, aluminum, barium, and vanadium) and other inorganic compounds (chloride, sulfate, and nitrate) for sediments accumulating in the basin. Scientific literature shows that simple dissolution of naturally occurring minerals causes many of these metals and inorganic compounds to exceed regulatory limits established for groundwater quality.” There is a difference between “naturally occurring” and “background.” Site-specific background concentrations must be established (a background study work plan must be submitted to NMED for review). The “naturally occurring” concentrations may be used for comparison only, but may not be used to determine whether or not a site meets the applicable cleanup levels. Additionally, constituents such as chloride and nitrate must be retained as COPCs because of waste water discharges from several of the SWMUs. Revise the Report as necessary.

Comment 12

The background soil study (Appendix F) was not based on a work plan approved by NMED. This was noted in NMED’s March 2010 notice of disapproval (NOD) and NMED also commented on the original background study in the August 2008 NOD. The Permittee’s responses were inadequate. The Permittee used samples collected during the Phase I and Phase II investigations as background samples in addition to soil samples obtained from possibly non-impacted soils northwest of HELSTF. In Section 4.4.2 (Soil Background), page 61, the Permittee states, “[t]he reference area was identified as an undisturbed area with the same soil type as found within the HELSTF area.” The Permittee collected 20 additional samples to supplement the six samples used for the first calculation; however, it does not seem that the additional samples were collected from undisturbed areas (according to Appendix F, Section 2.1.3 (Supplemental Reference Data), “[a] total of 20 soil samples were collected from ten borings advanced in four primary areas: the reference area; near SWMU 146 (Dry Pond); near SWMU 38-39 (Landfills); and near SWMU 144 (Laser Systems Test Center [LSTC] Wastewater Discharge). Background samples collected near SWMUs were collected in the vicinity of previously collected background samples”). Given that the locations of the samples used to determine background are in close proximity to the HELSTF, it is reasonable to assume that the soil type was similar; however, the close proximity also leads to a concern whether this area has been impacted by site activities. Some of the soil samples seem to have been collected north of HELSTF from an area where there is the potential for off-site contamination (see Section 6.26; Off-Site Source of TCE, 1,1,-DCE, and Chromium in the Regional Aquifer), which seems to indicate the area is disturbed. Provide justification for the selection of these areas as being representative of non-impacted soil. Describe how it was determined that the areas were undisturbed. In Section 5.4.2.1 (Constituent Characterization), page 77, the Permittee states, “[c]onstituents present at or below background levels were excluded from further evaluation in the risk assessment.” Risk must be re-evaluated without relying on the background study. The data from the current background study may be used for comparison, but cannot be used to

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determine whether corrective action is complete or for the risk assessments. Submit a soil background study work plan for review by NMED, re-evaluate the risk assessments, and revise the Report as necessary.

Comment 13

In Section 4.3.5.2.1 (HELSTF Site Water Balance), page 38, the Permittee discusses vadose zone (perched aquifer) water levels and states, “[w]ater level trends were evaluated for 47 of 65 monitoring wells screened in the vadose zone of the HELSTF area and the data show water levels in most wells are stable or declining.” Some of the datasets are based on only two data points. A trend cannot be established with two data points. Rewrite this section to remove references to trends based on two data points and revise any conclusions drawn from these data.

Comment 14

The Permittee states in Section 5.3.2 (Vadose Zone Water and Regional Aquifer Data Screening), page 73 that, “[t]here are no potable water sources beneath the HELSTF and, therefore, the TPH standards in the NMED’s October 2006 TPH Screening Guidelines (NMED, 2006b) are not applicable.” NMED considers all groundwater to be a potential resource; therefore, the Permittee must use the TPH guidelines, *Risk Assessment Guidance for Site Investigations and Remediation* (February 2012), Volume I, Table 6-2. TPH Screening Guidelines for Potable Groundwater (GW-1), which is available online at http://www.nmenv.state.nm.us/HWB/documents/NMED_RA_Guidance_for_SI_and_Remediation_Feb_2011_.pdf. These guidelines supersede the *New Mexico Environment Department TPH Screening Guidelines* dated October 2006. Revise the Report as necessary and remove statements such as “[t]here are no applicable TPH regulatory standards that apply to the HELSTF” which appear throughout the Report.

Comment 15

In Section 5.4.2.1 (Constituent Characterization), page 77, the Permittee states, “[f]or shallow vadose zone water at the site, which is not currently used for potable water, nor will it be used in the future, concentrations detected in the shallow vadose zone water were compared to vapor intrusion screening levels (USEPA, 2002c).” All groundwater is considered a resource in New Mexico; therefore, it is inappropriate to use vapor intrusion screening levels. However, it is appropriate to conduct a vapor intrusion study to evaluate vapor migration for any buildings at HELSTF (see Comment 16 of NMED’s August 2008 NOD). The Permittee must use the groundwater standards for all groundwater. Revise the Report to compare detected concentrations in groundwater to the proper standards as outlined in Appendix 3 (Cleanup Levels), Section 3.1 (Groundwater Cleanup Levels) of the WSMR RCRA Permit (2009) and revise the risk assessment as well.

Comment 16

In Section 6 regarding SWMUs 23 and 24 (Hazardous Waste Tanks at HELSTF) it is not clear what the COPCs are for the SWMUs – are the COPCs based on the COPCs listed in Table 6-1

(Summary of COPC selection) or are they site-specific to SWMUs 23 and 24 (solvents, acids, detergents, reagents, etc). The COPCs for soil must be site-specific for all SWMUs. Revise the Report to discuss site-specific COPCs for each SWMU in the Report. In Section 6.2.5.4.3 (Soil Summary), page 99, the Permittee states, “[i]n summary, there were no COPCs detected in shallow soils in the vicinity of SWMUs 23 and 24.” Additionally, in Section, 6.2.4 Investigative History, page 97, the Permittee states, “[t]here have been no previous subsurface investigations conducted at SWMUs 23 and 24 and there are no wells or borings specifically associated with these SWMUs.” The Permittee based conclusions on samples obtained from a distance of 35 feet or more from both of the SWMUs. All soil sample chemical analyses must be site specific. The Permittee must submit a site-specific work plan to NMED that proposes additional investigation at the SWMUs. The Permittee must include collection of soil samples from the approximate location of where piping entered the tanks and where transfers from the tanks occurred. Revise the Report as necessary.

Comment 17

The Permittee states in Section 6.3.4 (Investigative History), SWMU 25 (Waste Accumulation Area), “[a]s part of the Phase III RFI, a soil boring (HLSF-SB-010) was drilled to a depth of 50 ft bgs in the vicinity of the reported chromate spill ... [t]he soil samples were analyzed for chromium, hexavalent chromium, zinc, TPH-gasoline range organics (GRO), TPH diesel range organics (DRO), VOCs, and TOC.” The soil samples were also analyzed for 1,1,1-TCA and other degreasing solvents (according to Table 6-3). The VOC results must be discussed, even though they were detected below standards, because they were mentioned as being used at the SWMU. The COPCs at each SWMU must be based on known releases and historical information about known or potential contaminants used at the SWMU. Revise the Report to discuss the constituents that are specific to the SWMU and summarize the results of the laboratory analysis.

Comment 18

In Section 6.3.5.5 (Soil Summary), regarding SWMU 25 (Waste Accumulation Pad), the Permittee discusses the results of analysis of a soil sample obtained from boring HLSF-SB-10 at 20-22 feet below ground surface (bgs) where naphthalene exceeds DAF 20 standards. The Permittee states, “[t]his naphthalene exceedance is isolated and has been delineated. In addition, naphthalene has not been detected in water from nearby Vadose Zone Well DRW-08.” However, groundwater flows in a southeasterly direction at HELSTF and well DRW-08 is not located downgradient of the site or the sample location. Additionally, more than one soil boring and sample must be used to adequately evaluate site contamination; a single boring is insufficient to delineate both the vertical and horizontal extent of contamination. Submit a work plan to propose to conduct additional soil and groundwater investigation at the SWMU. Revise the Report as necessary.

Comment 19

The Permittee states in Section 6.3.8 (Conclusions and Recommendations) regarding SWMU 25 (Waste Accumulation Pad), that, “[t]here were no COPC exceedances of the SSLs for residential soil at SWMU 25. Only one naphthalene occurrence exceeded the DAF 20. This exceedance has been delineated and is likely associated with the release from SWMU 154.” Expand on the discussion regarding naphthalene originating from SWMU 154 (Systemic Diesel Spill) or cross reference to the section where it is discussed in the Report. Without supporting information, these conclusions seem subjective. Revise the Report accordingly.

Comment 20

The risk assessments (both the Human Health and Ecological) for SWMU 25 (Waste Accumulation Pad) are based on the results of one soil boring installed at the far-east side of the SWMU. This is insufficient data with which to perform a risk assessment or make decisions regarding further actions. Propose to conduct additional soil sampling at the SWMU or demonstrate that corrective action is complete in another manner. For all risk assessments based on too little data or on data collected from other SWMUs, the Permittee must re-evaluate the risk assessments and revise the Report as necessary.

Comment 21

In Section 6.4.4 (Investigative History), regarding SWMU 26 (Vapor Recovery Unit), the Permittee states, “[n]o Phase III activities were proposed for the SWMU. There has been no history of release associated with this SWMU. As indicated in the Phase III RFI work plan, additional sampling at this location would not likely confirm or refute a release from this location because the unit overlies areas impacted by releases from SWMUs 142 and 154.” The Permittee uses borings 40 feet away from the SWMU to characterize the nature and extent of contamination and then states in Section 6.4.8 (Conclusions and Recommendations), that, “[t]here were no detected COPCs in soils in the vicinity of SWMU 26, which is indicative that a release to the surface has not occurred in this area. Based on knowledge of historical operations and management practices for liquid wastes generated from the unit, along with results of soil analyses for sampling locations in the vicinity of the unit, SWMU 26 is eligible for NFA and should be removed from the RCRA process.” Data collected from 40 feet away from the SWMU cannot be used to determine whether or not surface releases have occurred. The Permittee cannot use soil data from other SWMUs to characterize the contamination at SWMU 26 (or any other SWMU at HELSTF). Site-specific samples must be collected at the locations of the tank, where the lines entered the tank, where the piping entered the Chemical Waste Tanks (SWMUs 31 and 32) and where the wastewater was transferred from the tank to drums during the operational life of the unit in addition to sampling inside the building where transfers occurred. Revise the Report to state the need for further investigation and submit a work plan proposing the additional work.

Comment 22

In Section 6.5.5.4 (Soil Summary), SMWU 27 (Sanitary Treatment Impounds), the Permittee

states, “[s]elenium, chloride, fluoride, and sulfate have been detected in downgradient regional wells at concentrations exceeding regulatory standards. As discussed previously, the detections of chloride, sulfate, and selenium concentrations in the vadose zone and Regional Aquifer are attributed to naturally occurring conditions.” The Permittee must conduct a proper groundwater background study (approved by NMED) for HELSTF in order to establish background values. The sewage lagoons contained sanitary sewer waste; therefore, chloride must remain a COPC for the SWMU regardless of naturally occurring values. Revise the Report as necessary.

Comment 23

In Section 6.6.4 (Investigative History), regarding SWMUs 31 and 32 (Chemical Waste Tanks), the Permittee states, “[t]hree soil borings (HLSF-SB-29, HLSF-SB-30, and HLSF-SB-31) were advanced to 50 ft bgs beneath the former units. Samples were collected at the surface and every 10 feet to the total depth of the boring. Soil samples were analyzed for hexavalent chromium, light RCRA metals, total zinc, alcohols, VOCs, TPH-DRO, TPH-GRO, TOC, and general geochemical parameters.” Define “light RCRA metals.” In Section 6.6.2 (Operational History), page 125, the Permittee states, “SWMU 31 also received other wastes that were transported by truck and dumped directly into the tank, including chromate wastes, Low Power Chemical Laser (LPCL) scrubbing water, Chemistry Lab wastes and potassium hydroxide wastes. SWMU 32 was never used according to facility records and reports.” The Permittee must sample where the transfers from truck to tank took place. Also, the tanks secondary containment leaked, so there is the potential for soil contamination, samples must be collected around the tanks. It is not clear from the description of the unit if the tanks were dismantled or if they are still present at the site, if they are no longer at the location, it is not clear why the Permittee did not collect samples from locations that would have been directly under the tanks. Revise the Report to discuss whether or not the tanks are still in place. The Permittee must sample at the locations where piping entered the tanks and where transfers from trucks occurred. Submit a work plan to propose additional soil sampling. Revise the Report to include additional information about the tanks.

Comment 24

In Section 6.7.5 (Nature and Extent of Contamination in Soil), page 134, regarding SWMUs 33 and 34 (Fluorspar Tanks), the Permittee states, “[i]n order to investigate the extent of soil impacts at SWMUs 33 and 34, 12 soil samples from four soil borings advanced as part of the Phase I RFI activities were evaluated. All soil samples were collected from the upper 2 feet and were analyzed for pH and fluoride. None of the fluoride detections exceeded the SSL for residential soil, and pH values were 7.5 to 8.1.” The Permittee must test the soil for additional constituents, rather than focusing solely on pH and fluoride and relying on data from 1988 which may not be reliable. Additionally, in Section 6.7.2 (Operational History), the Permittee states, “[t]he Fluorspar Tanks were constructed in 1984 and received their last deposit of fluorspar sludge in the spring of 2009.” Additional investigation must be conducted, since the tanks were used for over 20 years after the initial investigation. Also, the human and ecological risk assessments appear to rely on data from the Phase I RFI (1988) and focus on pH and fluoride; a risk assessment must be conducted using more current data and an expanded list of constituents.

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Submit a work plan proposing to conduct additional soil sampling. Revise the Report as necessary.

Comment 25

In Section 6.9.8 (Conclusions and Recommendations) regarding SWMU 37 (Waste Oil Accumulation Area at Building 26121), the Permittee states, “[t]here are no reported releases from this unit. Waste oil is accumulated in drums inside of the building within a containment structure. There is no visual evidence that any of the drums have leaked or that any release has occurred. There are no floor drains to septic systems or wastewater treatment lagoons in the Waste Oil Accumulation Area. The potential of release to the environment is minimal. Therefore, this unit is eligible for inclusion in an NFA petition.” Provide a more detailed description of the unit – identify the loading/unloading area for the waste oil drums and whether there are storm drains in the loading area. In Section 6.9.2 (Operational History), the Permittee states, “[t]here was no reported storage of waste oil outside of the building (Reynolds, pers. comm., 2009a).” However, it seems the drum storage area is separate from the building, Section 6.9.1 (Unit Description), states, “[t]he drums were stored on a concrete pad that was covered by a roof.” The Permittee must discuss the pad including any evidence of staining and any drains located on the pad. Revise the Report to include additional information about the waste oil accumulation area and provide an accurate description of the SWMU.

Comment 26

In Section 6.10.3 Regulatory History (SWMUs 38 and 39 Landfills), the Permittee states, “[t]he 1988 RFA Report indicated that there was no history of releases discovered at SWMUs 38 and 39.” However, in the previous section, the Permittee states, “[t]he 1988 RFA Report prepared by A.T. Kearney indicates that excavated soil from the June 12, 1986, release of chromated water at Test Cell 1 was deposited in the construction landfill. A release report from August 23, 1988, indicates that a spill of LPCL oil into the soil near the LPCL Pump House was excavated and deposited in the landfill (Gallegos, 1988). It was estimated that the excavated soil contained 50 gallons of this nonhazardous substance.” These are not releases directly to the landfills; however, the statements show that the landfills received hazardous waste or hazardous constituents. Revise the Report to provide the accurate descriptions of the SWMUs.

Comment 27

Section 6.10 (SWMUs 38 and 39 – HELSTF Landfills), discusses the construction landfills at HELSTF. The discussion of SWMUs 38 and 39 (Landfills) does not provide adequate information regarding the SWMUs. Revise the Report to discuss the dimensions of the landfills, the composition of the landfill covers, and the dates of use.

Comment 28

In Section 6.10.3 (Regulatory History), regarding SWMUs 38 and 39 (Landfills), the Permittee states, “[a]lthough the Phase I and Phase II RFI reports indicated that there were no documented releases from SWMUs 38 and 39, the USEPA and NMED issued NOD letters in 1995 and 1996,

respectively, requiring further action. The USEPA requested that WSMR identify and abate the source of contamination in the vadose zone. NMED requested that WSMR upgrade the cap that was in place and augment the groundwater monitoring to determine the source of contamination, to investigate possible communication between the vadose zone and Regional Aquifer, and to verify the existence of heptachlor in the regional groundwater." It is not clear if the source of contamination was discovered (or the type of contamination originally detected) and abated as required by the EPA or whether or not the cap was upgraded. Revise the Report to indicate whether or not the requirements from the EPA and NMED were completed and include references to the documents (including page or section numbers). Additionally, NMED requested information regarding heptachlor in the groundwater. A Permittee response is not in NMED's records (heptachlor continues to be detected and the reported sample quantitation limit exceeds the screening level for the data which are in Table 6-22 (Vadose Zone) and Table 6-22 (Regional Aquifer)). Submit information regarding the presence of heptachlor. The Permittee has submitted a closure plan for these SWMUs. Revise the Report to provide the required data.

Comment 29

SWMU 141 (Equipment Storage Area). The Permittee relies on data collected in 1990 and 1991 to draw conclusions; however, these data cannot be used to show the SWMU meets the cleanup levels required by the Permit because operations at the SWMU continued after the investigation was conducted. Additionally, the Permittee also relies on data collected during the investigations of SWMUs 143 and 148; the Permittee must use site-specific data to draw conclusions. Revise the Report and submit a work plan to propose additional investigation at SWMU 141.

Comment 30

In Section 6.13.8 (Conclusions and Recommendations), page 185, regarding SWMU 143 (HELSTF Storage Yard Chromium Spill Area), the Permittee states, "[b]ased upon the results of the HHRA, SLERA, and BERA, no restrictions need to be applied to current or potential future land use at SWMU 143. SWMU 143 soils are recommended for closure." The Permittee also states that the soils at SWMU 144 (Laser System Test Center (LSTC) Wastewater Discharge Pond) are also recommended for closure (Section 6.14.8 (Conclusions and Recommendations), page 195). Soils cannot be "closed" and the Permittee must continue to monitor groundwater; the Permittee may petition for corrective action complete with controls for these SWMUs, if they meet the applicable criteria. Revise the Report to remove references to soil closure.

Comment 31

In Section 5.3.1 (Soil Data Screening), page 72, the Permittee states, "[d]ata were also screened against the DAF values established by NMED. The DAF is defined as the potential for reduction in concentration that is expressed in the ratio of original soil concentration to the receptor point of concentration. For sites where a release to groundwater occurred, the data were compared to DAF 1 values. For sites where no release to groundwater occurred and the potential source area was greater than 0.5 acres, the soil data were compared to DAF 10 values. For sites where no release to groundwater occurred and the potential source area was less than 0.5 acres, the soil

data were compared to DAF 20 values. A summary table describing DAF determination for each SWMU is provided as Table 5-3." In Table 5-3 the Permittee uses releases to groundwater as a factor to determine which DAF level to use. However, hazardous constituents have been detected in the regional aquifer; therefore, soil contamination is in contact with the groundwater. Because of the complicated nature of the hydrogeology at HELSTF, the Permittee must assume that if a release occurred, then contamination likely reached groundwater and must therefore adjust the DAF values. Additionally, the saturated portion of the vadose zone is subject to groundwater standards; therefore, if there are constituents in the vadose zone water, the Permittee must use DAF 1. Use DAF 1 for all comparisons where there have been releases of contaminants to the subsurface. Revise the Report text and tables to reflect DAF 1 criteria, where appropriate. Reassess the SWMUs for releases, revise the table to reflect that releases have occurred, and adjust the DAF levels to 1, where required.

Comment 32

The Permittee describes several SWMUs at HELSTF as having no known releases to groundwater. While, technically, this is true, the SWMUs did have releases to the vadose zone and saturated zones have been identified within the vadose zone. For example at SWMU 145 (Test Cell Lagoons), the description of the SWMU, Section 6.15.1 (Unit Description), page 195, states, "[t]he unit was constructed with a single six-mil Hypalon® liner with no secondary containment." In Section 6.15.2 (Operational History), page 195, the Permittee states, "[d]uring 1989, a one-time discharge of 30,000 gallons of sodium fluoride wastewater was released into the lined lagoon. The wastewater level in the lagoon dropped 2 feet over a 2- to 3-day time frame, indicating that the integrity of the liner was compromised." In Table 5-3 (Dilution Attenuation Factor Determination Summary Table), the Permittee assumes there has been no release to groundwater and gives the SWMU a DAF 20 designation; however, the vadose zone water was compromised Section 6.15.4 (Investigative History) states, "the vertical extent of contamination was limited to the vadose water zone." therefore there should be a DAF 1 designation given for this SWMU. Another example is SWMU 146 (STP Dry Pond), Section 6.16.1 (Unit Description), page 203, states, "[t]his unit consists of an unlined surface impoundment with dimensions of 120 feet by 120 feet by 7 feet deep." Section 6.16.2 (Operational History), page 203, describes the effluent release as, "[t]his discharge from Building 26115 [NMED note: *non-sewage wastewater from Test Cell 2 Mechanical Building*] caused the gypsum that comprises the subsoil to dissolve to approximately 7.5 ft bgs. The effluent readily flowed into the cavity formed by the discharge." However, in Table 5-3 the SWMU is listed as having no known releases to groundwater and assigned a DAF of 20. Revise the DAF levels (See Comment 31) and revise the Report to accurately discuss SWMUs where releases to the vadose zone occurred.

Comment 33

In Section 4.8 (Groundwater), the Permittee states that "groundwater is sampled semiannually at three SWMUs at the HELSTF" and "[g]roundwater is also sampled on an annual basis at SWMU 27." However, the latest groundwater monitoring report NMED received summarizes data from

2006. More current data is presented in Table 6-22 and 6-23 of the Report, this data must be submitted in a groundwater report. When referencing work plans or reports the Permittee must ensure that the referenced documents are listed in the references section. Provide a groundwater report list containing the submittal dates. Additionally, there does not seem to be an adequate understanding of the communication between the vadose groundwater zones and the regional aquifer, nor the fate and transport of contaminants in the vadose zone groundwater; additional groundwater monitoring is necessary.

Comment 34

Data for SWMUs must be site specific. The Permittee uses data from other SWMUs to describe soil and groundwater conditions at other SWMUs. For example, in Section 6.17.4 (Investigation History), page 216, regarding SWMU 147 (Decontamination Pad and Underground Holding Tank) the Permittee states, "[t]here were no Phase III RFI activities proposed for SWMU 147 other than additional investigation of sump use and operational history. No additional information related to the unit's operational history was discovered during the Phase III RFI activities. Soil borings and associated data collected during the Phase III RFI conducted at nearby SWMU 142 (HELSTF Cleaning Facility Sump) and SWMU 154 (HELSTF Systemic Diesel Spill) were be used to evaluate any potential releases associated with SWMU 147." It is inappropriate to use data from other SWMUs, especially since the boring locations were nowhere near the subject SWMU and the Permittee overlooks the results of sampling conducted at the sump when discussing potential contamination. Regarding the sump sampling, the Permittee states, "[t]he contents of the sump (385 gallons of liquid and 825 pounds of solids) were removed on January 29, 1996, and disposed of offsite by incineration. On January 31, 1996, after the contents were removed, three soil borings were drilled through the floor of the sump and soil samples were collected from the upper 6 inches of soil underlying the sump. Soil samples were analyzed for TPH (DRO and GRO), VOCs, SVOCs, PCBs, and TCLP RCRA 8 metals. VOCs, SVOCs, TPH, and PCBs were not detected; however, the Phase II RFI Report stated the detection limits for VOCs were elevated." The results from the sump samples are not included in the Report. Mark the location of the borings that were drilled at the sump on Figure 6.17-1, if the locations are known, and include the analytical data in Table 6-17. Include a more thorough discussion of the site-specific results. In general, use site specific data for all of the SWMUs. If site specific data is not available, submit a work plan to NMED proposing to conduct sampling at the SWMUs and AOCs that have not yet been investigated.

Comment 35

In Section 6.19.2 (Operational History), regarding the septic systems, page 230, the Permittee states, "SWMU 149 is currently active and has been operated since the 1960s. SWMUs 151 and 152 are currently active and have been operated since the 1980s. The potential contaminants associated with SWMUs 149, 151, and 152 include those constituents associated with sewage. According to WSMR personnel, these systems once served approximately 100 people, but now only serve approximately 30 people. Although the Phase I RFI report stated that SWMU 149 may have received industrial wastewater from the maintenance building, WSMR personnel

indicated that floor drains are not permitted to discharge to septic systems (Reynolds, pers. comm., 2009a)." Even if floor drains are not permitted to discharge to septic systems, this does not mean that floor drains were not used for the disposal of wastes. Once the unit is no longer in use, any investigation must include sampling of the floor drains; constituents found in domestic and industrial waste water must be included in the laboratory testing. No revision is necessary.

Comment 36

The Permittee states in Section 6.22.3 (Regulatory History) for AOC N (Process Spills at the HELSTF) and Section 6.23.3 (Regulatory History) for AOC Q (Lab Drains) that the AOCs are "listed on the facility's current RCRA permit as an AOC with corrective action complete without controls. Therefore, the AOC is eligible for NFA and removal from the permit." AOC N and AOC Q are listed in Table 4-3 (SWMU and AOCs Corrective Action Complete Without Controls) of the WSMR RCRA Permit (2009); the Permittee does not have to do any more work at these AOCs unless the AOCs are in use or a release occurs after the receipt of the corrective action complete without controls designation. There is no need to include AOCs that are already on the corrective action complete list in the permit other than to mention that they are part of HELSTF and have attained corrective action complete status.

Comment 37

In Section 6.3.3 (Regulatory History), the Permittee states, "[h]owever, SWMU 25 is listed on the current RCRA permit as a Hazardous Waste Tank at HELSTF that requires corrective action. It is believed that the unit description on the current permit for SWMU 25 is erroneous, as it has always been referred to as a waste accumulation area and there are no records indicating that this SWMU was a hazardous waste tank." The designation of SWMU 25 as a Hazardous Waste Tank at HELSTF in Table 4-1 of the RCRA Permit can be modified, the Permittee must submit a Class I permit modification request or include a request with the corrective action complete permit modification request to change the designation of the SWMU.

Comment 38

The Permittee notes in Section 6.5.2 (Operational History) regarding SWMU 27 that "[a]lthough the liners were in place in all four lagoons, grass, bushes, and small trees were observed growing through the liners on the berms and in the pond areas. The berms were intact around all of the ponds." Obviously, if there were grass, bushes and small trees growing through the liners on the berms, the berms were compromised. Revise the Report to include an accurate description of the SWMU and liner.

Comment 39

In Section 6.9.2 (Operational History), regarding SWMU 37 (Waste Oil Accumulation Area at Building 26121), the Permittee states, "[i]nformation obtained during a recent interview with WSMR personnel indicated that Building 26121 is still in use as the Heavy Equipment Maintenance Building and that all waste oil generated during maintenance activities is stored inside the building within a secondary containment structure." The description of the unit in

Section 6.9.1 (Unit Description) describes the waste oil accumulation area as a concrete pad with a roof; this implies that it is separate from the building. Discuss when the waste oil accumulation area was moved from the pad to inside Building 26121 and whether the original pad is still intact and if it was constructed with secondary containment. Explain how oil was transferred from vehicles to barrels and whether drains (storm or waste) were present. The Permittee states in Section 6.9.8 (Conclusions and Recommendations) that, “[t]he potential of release to the environment is minimal. Therefore, this unit is eligible for inclusion in an NFA petition.” Since the SWMU is still in use, there remains potential for release; therefore, SWMU 37 may be eligible only for corrective action complete with controls. However, the Permittee must investigate for potential contamination after the unit is no longer in use. Revise the Report to include more information regarding the waste oil accumulation area(s).

Comment 40

In Section 6.11.1 (Unit Description) regarding SWMU 141 (Equipment Storage Area), the Permittee states, “[c]urrently, the area is used for surface storage of various equipment and materials to support the HELSTF operations.” In the regulatory history section, the Permittee states, “On January 12, 1995, the USEPA issued a Statement of Basis/Final Decision and Response to Comments Summary, approving the NFA request (Harris, 1995). NMED accepted the NFA on August 6, 1999, and the unit was removed from the WSMR, 1998 Annual Unit Audit Fee Assessment. However, SWMU 141 is listed in the facility’s current (December 2009) RCRA permit as a SWMU requiring corrective action.” The SWMU is currently in use and corrective action may be required once it is no longer used as a storage area. Additionally, the Permittee had ample opportunity to comment on the inclusion of SWMU 141 prior to issuance of the current RCRA Permit. The Permittee must petition to have the SWMU considered for correction action complete status and provide documentation to NMED demonstrating that correction action is complete.

Comment 41

In Section 6.19.3 (Regulatory History), regarding SWMUs 149, 151, and 152 – Septic Systems, the Permittee states, “[i]n a correspondence dated March 23, 2000, WSMR represented their case for NFA status of these three SWMUs. NMED agreed with the March 23, 2000, request and reversed their position. NMED moved SWMUs 149, 151, and 152 to Table A.2 (No Action Required) of the RCRA Permit (Dinwiddie, 2000). The units have remained listed in Table A.2 of the Annual Unit Audits, indicating that NFA is required. However, when the RCRA permit was renewed in December 2009, these SWMUs were listed as SWMUs requiring corrective action (NMED, 2009).” The Permittee had ample time to comment on the current RCRA Permit and the listing of these SWMUs as requiring corrective action. The Permittee must petition for a permit modification to change the status of the SWMUs. These SWMUs are also currently in use and corrective action may be required after waste water discharges to the septic systems cease. Revise the Report to include only information relevant to the Phase III RFI.

Comment 42

The tables summarizing the soil laboratory data results contain numbers with a large number of significant digits. For example, Table 6-10 (Summary of Soil Sample Analytical Results SWMUs 38 and 39) has results with up to nine digits. Revise all of the soil sample tables to show a reasonable number of significant digits for the results. Additionally, the tables appear to list the wrong dates of collection for some of the samples (e.g. Table 6-10 has the Phase II RFI soil samples SB-01 through SB-08 listed as obtained in the 1990s). Ensure that the correct dates are included for all of the summary data tables. Also, some of the cells in the tables are cut off; ensure that the cells are large enough to show all of the headings and data.

Comment 43

In Section 6.25.9 (Conclusions for Vadose Zone Water and Regional Groundwater Evaluations), the Permittee states, “[t]he potential for the transport of COPCs to the Regional Aquifer is limited by the net groundwater flux from the vadose zone downward to the Regional Aquifer 9xsurface that is currently estimated to occur at 2.1 gpm and is likely dispersed over numerous points of contact. As a result, the net contribution of COPCs to the Regional Aquifer from the HELSTF SWMUs is believed to be too small to create COPC concentrations in the Regional Aquifer that exceed either published or risk based standards.” Because the connection between vadose zone groundwater and the regional groundwater is not well understood the estimated flux is highly speculative. The Permittee must assume that COPCs will reach the regional groundwater and that there is a potential for the COPCs to exceed standards. Revise the Report and discuss all unknowns or uncertainties related to the groundwater data.

Comment 44

In Section 6.25.9 (Conclusions for Vadose Zone Water and Regional Groundwater Evaluations), page 288, the Permittee states, “[t]he COPCs that do exceed published standards in the Regional Aquifer, namely TCE, 1,1-DCE, and chromium, were primarily released upgradient of the HELSTF at an as-yet uncharacterized off-site separate source. While there do appear to be minor contributions of the same COPCs by vadose zone water affected by the HELSTF SWMUs, these are contributing at levels that would not cause exceedances of standards independent of commingling with the plume from the off-site source.” The Permittee must discuss the off-site source in more detail; discuss any investigations that were conducted to find the off-site source and justify the assertion that, historically, these contaminants were not released at HELSTF in volumes that would not result in groundwater concentrations greater than their respective cleanup levels. The Technical Paper (Appendix I) seems to point to a definitive off-site source rather than a possible source from the HELSTF vadose zone migrating upgradient. If the off-site source cannot be found, the Permittee must address it as part of HELSTF groundwater monitoring. Based on the Permittee’s statement above, further investigation is warranted. Revise the Report to discuss the potential off-site source in more detail.

Comment 45

In Section 7 (Conclusions), page 293-294, the Permittee states, “[t]he lack of lateral continuity in

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vadose zone water results in multidirectional transport under highly anisotropic conditions and commingling of dissolved contaminants in such a way that specific source identification is often difficult, and in some cases undetermined.” The Permittee must show that a best effort was made to find the sources of contamination. If specific sources cannot be identified, the Permittee must approach the groundwater as a single system with multiple contaminant sources rather than SWMU-specific source. Additional groundwater investigation is necessary.

Comment 46

In Section 7 (Conclusions), page 294, the Permittee states, “[n]atural geologic processes in the Tularosa Basin have resulted in the occurrence of soluble minerals that contain many inorganic constituents.” Anthropogenic introduction of water and waste water increased the solubility of rocks beneath HELSTF; the observed concentrations of inorganic constituents must be compared to a soil background study. Propose to conduct a soil background study at HELSTF.

The Permittee must address all comments in this NOD and submit a revised Report. The revised Report must focus solely on the site histories and the results of the field investigations. The revised Report must be submitted to NMED no later than **May 31, 2012**. The revised Report must be accompanied with a response letter that details where all revisions have been made, cross-referencing NMED's numbered comments. In addition, an electronic version of the revised Report must be submitted identifying where all changes were made to the Report in red-line strike-out format.

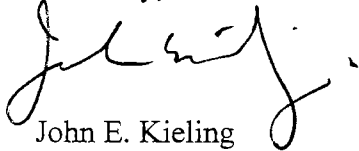
Additionally, the Permittee must submit a work plan proposing additional soil investigations at several of the SWMUs as directed by Comments 16, 18, 21, 23, 24, 29, and 34 and submit a soil background study work plan if the Permittee wishes to make comparisons to soil background for corrective action complete determinations. The Work Plan must be submitted on or before July 2, 2012.

The Permittee's Permit modification request for corrective action complete determinations must be submitted as a separate document from the revised RFI Report.

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If you have any questions regarding this letter, please call Kristen Van Horn of my staff at (505) 476-6046.

Sincerely,



John E. Kieling
Acting Chief
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
B. Avalos, WSMR
J. Gallegos, WSMR

File: WSMR 2012 and Reading
WSMR-08-001