

APPENDIX 4-F ACTION LEVELS AND CLEANUP LEVELS

I. ACTION LEVELS OVERVIEW

For hazardous waste and/or hazardous constituents, action levels are media-specific (soil, groundwater, surface water, air, etc) concentrations protective of human health based on conservative assumptions. The Permittee shall propose action levels for all hazardous wastes and/or hazardous constituents identified in the RFI Report(s) or for those hazardous wastes and/or hazardous constituents, which NMED has reason to believe, may have been released from a SWMU/AOC at the Facility, using the procedures specified in this Appendix.

If the Department determines that detected concentrations at a site are not protective of human health and the environment, then the Secretary may request further investigation or corrective measures.

The Permittee shall use the guidance provided in NMED's publication "*Technical Background Document for Development of Soil Screening Levels*" [hereafter **NMED (2000)**]. These cleanup levels may be the generic levels presented in NMED (2000) or the Permittee may use site-specific data to develop cleanup levels as provided for in NMED (2000).

I.1 Action levels based on the background concentrations of the constituent(s)

For hazardous waste or constituents that are naturally occurring and are detected in ground water, air, surface water, sediments, or soils, action levels shall be the higher of the naturally occurring background concentrations and the risk-based target levels for unrestricted (residential) land use provided in the NMED (2000) Table A-1 (*NMED Soil Screening Levels*). It should be noted that during the life/term of this permit [specified in Permit Condition I.E.1 of this Permit Part 1, pursuant to 20.4.1.900 NMAC, incorporating 40 CFR §270.50(a)], the action levels will be revised if NMED modifies Table A-1.

II CLEANUP LEVELS OVERVIEW

Cleanup levels are concentrations based on excess lifetime cancer risk levels that are consistent with EPA's National Contingency Plan (*55 FR 8666 et seq.*). EPA recommends a range of 10^{-4} to 10^{-6} as being "acceptable". In general, NMED has selected a target risk of 10^{-5} for establishing cleanup levels for hazardous waste and/or hazardous constituents. NMED has established cleanup levels, methods of calculating cleanup goals, and reporting requirements at SWMUs/AOCs where corrective action is required in response to a release of hazardous waste and/or hazardous constituents to the environment. NMED has selected a target hazard index of one (1.0) for noncarcinogenic hazardous waste or constituents. In developing soil target levels at sites involving two or more noncarcinogenic hazardous waste and/or hazardous constituents the Permittee shall follow the most current edition of NMED's Guidance.

III GROUND WATER

III.1 Ground Water Cleanup Levels

The New Mexico Water Quality Control Commission (WQCC) has established ground water standards for contaminants (20.6.2.3103 NMAC). NMED has established ground water cleanup levels for hazardous waste and/or hazardous constituents that incorporate both the WQCC and EPA's National Primary Drinking Water Standards Maximum Contaminant Levels (MCLs). If both the WQCC ground water standard and an MCL have been established for an individual hazardous waste and/or constituents, then the lower of the two levels will be the cleanup level for that hazardous waste and/or constituents.

III.1.1 Ground Water Radionuclide Reporting Levels.

NMED has not established ground water cleanup standards for radionuclides in environmental media; however, the Permittee shall determine if ground water has been affected by radiological contamination. The Permittee shall determine the nature and extent of radionuclide contamination and implement ground water monitoring at sites where radiological contamination is suspected or has been detected. EPA has published both current and final drinking water MCLs for radionuclides. These generic screening levels are specified in Table 2.3 of EPA's "Screening Guidance for Radionuclides: Technical Background Document", Final Rule (65 FR 76707, December 2000). The Permittee shall report all radionuclide concentrations in ground water exceeding background and/or either of the EPA screening levels listed in Table 2.3 to NMED. The Permittee also shall submit the results of all investigations and testing for the presence of radionuclides to the NMED.

III.1.2 Ground water Perchlorate Cleanup Levels

EPA has established a provisional reference dose for perchlorate in drinking water. At the time that this permit was issued, the drinking water cleanup level range for perchlorate established by EPA is 4 micrograms per liter ($\mu\text{g/L}$) to 18 $\mu\text{g/L}$. NMED has adopted the EPA provisional drinking water reference dose as an interim ground water cleanup level. NMED may adopt the EPA drinking water guideline for perchlorate as a ground water cleanup level when EPA publishes the new drinking water standard. The NMED drinking water cleanup level for perchlorate may be updated if EPA revises the reference dose for perchlorate in the future or publishes a drinking water standard.

IV. SURFACE WATER

IV.1 Surface Water Cleanup Levels

The Permittee shall comply with the surface water quality standards outlined in the Clean Water Act (33 U.S.C. 1251 *et seq.*), the New Mexico Water Quality Control Commission Regulations (20.6.1 NMAC), and the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC).

IV.1.1 Surface Water Radionuclide Reporting Levels

NMED has not established surface water cleanup standards for radionuclides in environmental media; however, the Permittee shall determine if surface water has been affected by radiological contamination. The Permittee shall determine the nature and extent of radionuclide contamination and implement surface water monitoring at sites where radiological contamination is suspected or has been detected. EPA has published both current and proposed drinking water MCLs for radionuclides. These generic screening levels are specified in Table 2.3 of EPA's "*Screening Guidance for Radionuclides: Technical Background Document*" (October 2000, OSWER 9355.4-16). The Permittee shall report all radionuclide concentrations in surface water exceeding background and/or either of the EPA screening levels listed in Table 2.3 (of above named document) to NMED. The Permittee shall submit the results of all investigations and testing for the presence of radionuclides to NMED.

IV.1.2 Surface Water Perchlorate Cleanup Levels

EPA has established a provisional reference dose for perchlorate in drinking water. At the time that this permit was issued, the drinking water cleanup level range for perchlorate established by EPA was 4 micrograms per liter ($\mu\text{g/L}$) to 18 $\mu\text{g/L}$. NMED has adopted the EPA provisional drinking water reference dose as an interim ground water cleanup level. NMED may adopt the EPA drinking water standard for perchlorate as a surface water cleanup level when the EPA publishes the new drinking water standard. The NMED drinking water cleanup level for perchlorate may be updated if EPA revises the reference dose for perchlorate in future.

V SOILS

V.1 Soil Cleanup Levels

NMED has established soil cleanup levels for 133 elements and compounds. In general, the cleanup levels are based on a target total risk of 10^{-5} for carcinogenic substances and a target hazard index of one (1.0) for all noncarcinogenic chemicals. The target soil cleanup levels for selected substances are listed in NMED's "*Technical Background Document for Development of Soil Screening Levels*" (December 18, 2000, NMED SSLs). NMED also uses the most recent version of the EPA Region VI "*Human Health Medium Specific Screening Level*" (HHMSSL) for residential soil as the target cleanup level for compounds designated as "n" (noncarcinogen effects), "max", and "sat", or ten times the EPA Region VI HHMSSL for compounds designated "c" (carcinogen effects) if an NMED soil cleanup level has not been established for hazardous waste and/or hazardous constituents. The Permittee shall use NMED's SSLs, as modified, as cleanup levels. For hazardous waste and/or hazardous constituents that NMED has not specified a cleanup level, the Permittee shall use either (1) cleanup levels equivalent to the screening levels in EPA Region VI's HHMSSLs for non-carcinogens and 10x the concentration for carcinogens, or (2) use cleanup levels developed using the same process, assumptions, and default values that were used to develop screening levels in NMED Guidance "*Assessing Human Health Risks*

Posed by Chemicals: Screening Level Risk Assessment" (March 2000). For hazardous waste and/or hazardous constituents that have not been listed in either NMED's SSLs or EPA Region VI's HHMSSLs, the Permittee shall propose soil cleanup levels from other sources. NMED may then either approve or deny the Permittee's proposed cleanup levels.

V.1.1 Soil Polychlorinated Biphenyls Cleanup Levels

NMED has established soil cleanup levels for polychlorinated biphenyls (PCBs). Soil cleanup levels for PCBs are discussed in the NMED Position Paper "Risk-based Remediation of Polychlorinated Biphenyls at RCRA Corrective Action Sites". The default soil cleanup level for PCBs is 1 milligram per kilogram (mg/kg).

V.1.2 Soil Perchlorate Cleanup Levels

At the time that this permit was issued, a soil cleanup level for perchlorate has not been established by NMED. NMED will determine a soil cleanup level for perchlorate based on the reference dose when EPA establishes one. The soil cleanup level for perchlorate will be updated if EPA revises the reference dose for perchlorate in the future.

V.1.3 Soil Radionuclide Reporting Levels

NMED has not established soil cleanup levels for radionuclides in environmental media; the Permittee shall determine if soil has been affected by radiological contamination. The Permittee shall determine the nature and extent of radioactive contamination in soil or other solid-phase media and implement monitoring programs at sites where radiological contamination is suspected or has been detected. EPA has developed screening levels for radionuclides in soil that correspond to a 10^{-6} excess risk for their standard residential scenario. These generic screening levels appear in Appendix A of EPA's "*Soil Screening Guidance for Radionuclides: Technical Background Document*" (October 2000, OSWER 9355.4-16). The Permittee shall report all radionuclide concentrations in soil exceeding background and/or the EPA screening levels to NMED. The Permittee also shall submit the results of all investigations and testing for the presence of radionuclides to NMED.

VI ECOLOGICAL EVALUATION

Ecological risk for all affected media at each site shall be evaluated in a manner consistent with the NMED Hazardous Waste Bureau (HWB) "*Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-Level Ecological Risk Assessment*" (March 2000) and the NMED HWB "*Guidance for Assessing Ecological Risks Posed by Radionuclides: Screening-Level Ecological Risk Assessment*" (April 2000).

VII RISK-BASED VARIANCE FROM CLEANUP STANDARDS OR LEVELS

The Permittee may perform a risk-based evaluation to establish alternative cleanup levels for specific media at individual SWMUs/AOCs. The Permittee's risk-based evaluation must be conducted in accordance with the NMED HWB Guidance "*Assessing Human Health Risks*

Posed by Chemicals: Screening Level Risk Assessment" (March 2000) and using the equations in the NMED HWB "*Technical Background Document for Development of Soil Screening Levels: Cleanup Levels for Ecological Risk* (December 2000)". The risk-based evaluation shall be developed in accordance with the NMED HWB "*Guidance for Assessing Ecological Risks Posed by Chemicals: Screening-level Ecological Risk Assessment"* (March 2000). For performing a risk-based evaluation to establish alternative cleanup levels, the Permittee shall use the NMED guidance documents (March 2000 and December 2000), any modifications of these documents made by NMED, or any new risk assessment guidance as directed by NMED.