

LANL COMPLIANCE ORDER ON CONSENT

March 30, 2016

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I. JURISDICTION

Each Party enters into this Consent Order pursuant to the following authorities:

A. The New Mexico Environment Department (NMED) issues this Consent Order to the U.S. Department of Energy (DOE or Respondent) pursuant to Section 74-4-10 of New Mexico's Hazardous Waste Act (HWA). This Consent Order is also issued under Section 74-9-36(D) of New Mexico's Solid Waste Act (SWA) and 20.9.9.14 NMAC, for the limited purpose of addressing the corrective action activities, including requirements, concerning groundwater contaminants listed at 20.6.2.3103 New Mexico Administrative Code (NMAC), toxic pollutants listed at 20.6.2.7.WW NMAC, and Explosive Compounds as defined herein. Although DOE consents to SWA jurisdiction for enforcement of the corrective action activities, including requirements, of this Consent Order relating to groundwater contaminants listed at 20.6.2.3103 NMAC, toxic pollutants listed at 20.6.2.7.WW NMAC, and Explosive Compounds, DOE otherwise reserves any and all rights, claims, and defenses with respect to the applicability of the requirements of the SWA, including the defenses enumerated in Section 74-9-34.

B. DOE enters into this Consent Order pursuant to its authorities and responsibilities under the Atomic Energy Act of 1954 (AEA), as amended, 42 U.S.C. § 2011 *et seq.*

C. The requirements of this Consent Order do not apply to radionuclides, including, but not limited to, source, special nuclear, or byproduct material as defined in the AEA, or the radioactive portion of mixed waste. The requirements of this Consent Order do apply, however, to the hazardous waste component of mixed waste. As stated in Section 1006 of the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6905, nothing in this Consent Order shall be construed to require DOE to take any action pursuant to RCRA which is inconsistent with the requirements of the AEA, as amended. In the event DOE asserts that it cannot comply with any provisions of this Consent Order under RCRA based on an alleged inconsistency between the requirements of RCRA and the AEA, as amended, it shall provide the basis for the inconsistency assertion in writing. Notwithstanding the foregoing, DOE may voluntarily include in any plan, report or other document submitted pursuant to this Consent Order, including work plans, references to, or information concerning, radionuclides or the radioactive portion of mixed waste. The voluntary inclusion of such radionuclide information by DOE in any plan, report or other document shall not be enforceable by any entity, including the State, under this

Consent Order, because such information falls wholly outside the requirements of this Consent Order.

II. PURPOSE AND SCOPE OF CONSENT ORDER

A. This Consent Order supersedes the 2005 Compliance Order on Consent (2005 Consent Order) and settles any outstanding alleged violations under the 2005 Consent Order.

B. The general purposes of this Consent Order are to:

- 1) provide a framework for current and future actions to implement regulatory requirements;
- 2) establish an effective structure for accomplishing work on a priority basis through cleanup campaigns with achievable milestones and targets;
- 3) drive toward cost-effective work resulting in tangible, measurable environmental clean-up;
- 4) minimize the duplication of investigative and analytical work and documentation and ensure the quality of data management;
- 5) set a structure for the establishment of additional cleanup campaigns and milestones as new information becomes available and campaigns are completed;
- 6) facilitate cooperation, exchange of information, and participation of the Parties;
- 7) provide for effective public participation; and
- 8) define and clarify its relationship to other regulatory requirements.

C. Except as provided in Section VII (Relationship to Permits), the scope of this Consent Order fulfills the requirements for: (1) corrective actions for releases of hazardous waste or hazardous waste constituents under Sections 3004(u) and (v) and 3008(h) of RCRA, 42 U.S.C. §§ 6924(u) and (v) and 6928(h), Sections 74-4-4(A)(5)(h) and (i), 74-4-4.2(B), and 74-4-10(E) of the HWA, and their implementing regulations at 40 C.F.R. Part 264, subpart F (incorporated by 20.4.1.500 NMAC); (2) corrective actions for releases of groundwater contaminants listed at 20.6.2.3103 NMAC, toxic pollutants listed at 20.6.2.7.WW NMAC, and Explosive Compounds as defined herein, pursuant to section 74-9-36(D) of the SWA; (3) groundwater monitoring, groundwater characterization and groundwater corrective action

activities, including requirements, for regulated units under Subpart F and for miscellaneous units under Subpart X of 40 C.F.R. Part 264 and 20.4.1.500 NMAC (incorporating 40 C.F.R. Part 264); and (4) additional groundwater information required in Part B permit applications under 40 C.F.R. § 270.14(c) and (d)(3) and 40 C.F.R. § 270.23(b) (incorporated by 20.4.1.900 NMAC). The Parties agree that this Consent Order encompasses all scope included within the 2005 Consent Order, including that which has already been completed and that which has been identified subsequent to the effective date of the 2005 Consent Order.

D. Principles Governing Execution of the Scope/Furtherance of the Purpose:

- 1) To fulfill the above requirements, this Consent Order sets forth a process for characterizing the nature and extent of Contaminant releases, characterizing the risks to human health and the environment resulting from these releases, and mitigating unacceptable risks. This process includes the planning and implementation of corrective actions and the reporting of results.
- 2) The corrective action process reflected in this Consent Order replaces the process in the 2005 Consent Order using the following guiding principles:
 - a) Establishing an action-oriented approach to achieve mutually-agreed upon results that makes optimum use of available resources.
 - b) Performing work in a cost-effective and efficient way that provides full protection of human health and the environment.
 - c) Taking advantage of lessons learned both from previous work performed at the Facility and nationally.
 - d) Cooperatively engaging in effective planning of activities.
 - e) Employing a transparent annual planning process.
 - f) Following pertinent risk-informed guidance.
 - g) Conducting collaborative regular, periodic reviews of environmental remediation and clean-up practices.
 - h) Providing flexibility to conduct voluntary corrective actions.
 - i) Reducing the frequency of data collection and reporting where prior results indicate very low or no risk.
 - j) Reducing the volume of paperwork.

- k) Clarifying commitments and/or requirements for investigation and remediation of constituents not attributable to the Facility or not attributable to a SWMU or AOC covered by this Consent Order.

E. Exclusions from Scope:

- 1) This Consent Order imposes no requirements on any areas of concern (AOCs) and solid waste management units (SWMUs) previously investigated by DOE and reviewed and determined by EPA or NMED to require no further investigation or other action, except as provided for in Section VII.E.

III. DEFINITIONS

Unless otherwise expressly provided herein, the terms used in this Consent Order have the meanings set forth in the HWA, RCRA, and their implementing regulations.

A. “Administrative Record” means the administrative record supporting and otherwise relating to the requirements of this Consent Order, compiled as of the effective date of this Consent Order, which forms the basis for the terms of this Consent Order. The Administrative Record includes the full record relating to DOE’s current Hazardous Waste Facility Permit (permit No. NM0890010515), and those documents submitted in writing by NMED, DOE, or the public, as of the effective date of the Consent Order for inclusion in the Administrative Record. The Administrative Record is available for review at NMED’s Hazardous Waste Bureau.

B. “Area of Concern” or “AOC” means any area having a known or suspected release of hazardous waste or hazardous constituents that is not from a solid waste management unit and that the Secretary of NMED has determined may pose a current or potential threat to human health or the environment, pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 270.32 (b) (2)). An area of concern may include buildings, and structures at which releases of hazardous waste or constituents were not remediated, including one-time and accidental events.

C. “Area of Contamination” means a discrete area(s) with the potential for generally dispersed contamination located adjacent to or near a SWMU or AOC which may be requested to be part of a SWMU or AOC during corrective action activities.

D. “Atomic Energy Act” or “AEA” means the Atomic Energy Act of 1954, as amended, 42 U.S.C. §§ 2011, et seq.

E. “Consent Order” or “Order” means this Compliance Order on Consent.

F. “Contaminant” means any hazardous waste listed or identified as characteristic in 40 C.F.R. Part 261 (incorporated by 20.4.1.200 NMAC); any hazardous constituent listed in 40 C.F.R. Part 261, Appendix VIII (incorporated by 20.4.1.200 NMAC) and 40 C.F.R. Part 264, Appendix IX (incorporated by 20.4.1.500 NMAC); any groundwater contaminant listed in the WQCC regulations at 20.6.2.3103 NMAC; any toxic pollutant listed in the WQCC Regulations at 20.6.2.7.WW NMAC; and Explosive Compounds as defined herein. Contaminant does not include radionuclides or the radioactive portion of mixed waste.

G. “Corrective Measures Evaluation” or “CME” means a study or report identifying, developing, and evaluating potential corrective measures alternatives for removal, containment, and/or treatment of site-related contamination and recommending a preferred alternative for remediation of such contamination. A CME performed by DOE is equivalent to a Corrective Measures Study.

H. “Corrective Measures Implementation” or “CMI” means the design, construction, operation, maintenance, and monitoring of the remedy selected following preparation of a CME and Statement of Basis.

I. “Day” means a calendar day, unless specified as a business day. “Business day” means Monday through Friday, excluding all federal and New Mexico State holidays.

J. “Deferred” or “Deferred Site” means the SWMUs and AOCs for which full investigation and/or remediation is deferred until such time as the SWMU or AOC is taken out of service or otherwise becomes accessible (e.g., firing sites and active facilities). Deferred Sites include the SWMUs and AOCs where delayed investigation, due to active Facility operations, was proposed in NMED-approved investigation work plans and reports.

K. “Designated Agency Manager” or “DAM” means the position designated by each Party to serve as that Party’s representative responsible for coordinating the implementation of this Consent Order.

L. “DOE” means the United States Department of Energy, and any successor departments or agencies.

M. “EPA” means the United States Environmental Protection Agency, and any successor departments or agencies.

N. “Explosive Compounds” means the following chemicals: 2-Amino-4,6-Dinitrotoluene (2-Am-DNT); 4-Amino-2,6-Dinitrotoluene (4-Am-DNT); 2,4-Diamino-6-Nitrotoluene (2,4-DANT); 2,6-Diamino-4-Nitrotoluene (2,6-DANT); 3,5-Dinitroaniline (3,5-DNA); Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX); 2-Nitrotoluene (2-NT); 3-Nitrotoluene (3 NT); 4-Nitrotoluene (4-NT); Pentaerythritol tetranitrate (PETN); Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX or Cyclonite); Triaminotrinitrobenzene (TATB); Tris (o-cresyl) phosphate (TCP); Methyl-2,4,6-trinitrophenylnitramine (Tetryl); 2,4,6-Trinitrotoluene (TNT).

O. “Facility” means the Los Alamos National Laboratory site owned by the United States Department of Energy and located on the Pajarito Plateau in Los Alamos County in North Central New Mexico, comprised of approximately 36 square miles and located approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe.

P. “Groundwater” means interstitial water which occurs in saturated earth material and which is capable of entering a well in sufficient amounts to be utilized as a water supply.

Q. “HWA” means the New Mexico Hazardous Waste Act, NMSA 1978, §§ 74-4-1 to -14.

R. “Hazard Index” or “HI” means the sum of more than one Hazard Quotient for multiple Contaminants and/or multiple exposure pathways. The HI is calculated separately for chronic, subchronic, and shorter-duration exposures.

S. “Hazard Quotient” or “HQ” means the ratio of a single substance exposure level over a specified time period (e.g., subchronic) to a reference dose for that substance derived from a similar exposure period.

T. “Hazardous constituent” or “hazardous waste constituent” means any constituent identified in 40 C.F.R. Part 261, Appendix VIII (incorporated by 20.4.1.200 NMAC), and any constituent identified in 40 C.F.R. Part 264, Appendix IX (incorporated by 20.4.1.500 NMAC).

U. “Hazardous Waste” means any solid waste or combination of solid wastes which because of its quantity, concentration, or physical, chemical, or infectious characteristics meets the description set forth in NMSA 1978, § 74-4-3(K), and is listed as a hazardous waste or

exhibits a hazardous waste characteristic under 40 C.F.R. Part 261 (incorporated by 20.4.1.200 NMAC).

V. “Hazardous Waste Regulations” means the New Mexico Hazardous Waste Management Regulations, 20.4.1 NMAC.

W. “Interim Measures” or “IM” means actions that can be implemented to reduce or prevent migration of site-related Contaminants which have or may result in an unacceptable human or environmental receptor risk while long-term corrective action activities are evaluated and implemented.

X. “Maximum Contaminant Level” or “MCL” means a maximum contaminant level adopted by EPA under the federal Safe Drinking Water Act, 42 U.S.C. §§ 300f to 300j-26, or by the Environmental Improvement Board under the Environmental Improvement Act, NMSA 1978, § 74-1-8(A)(2).

Y. “Milestone” means an enforceable deadline listed in Appendix B for the current fiscal year.

Z. “Mixed Waste” means waste that contains both hazardous waste subject to the HWA and RCRA, and source, special nuclear, or byproduct material subject to the AEA.

AA. “NMED” means the New Mexico Environment Department, and any successor departments or agencies.

BB. “Parties” means collectively NMED and DOE, and the term “Party” shall refer to either of these two entities.

CC. “Permit” means the RCRA Permit issued to DOE for the Facility to operate a hazardous waste treatment and storage facility, EPA ID No. NM0890010515, as it may be modified or amended.

DD. “RCRA” means the Federal Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 to 6992k, also known as the Solid Waste Disposal Act.

EE. “RCRA Facility Investigation” or RFI means the investigation(s) conducted to investigate releases or potential releases of site-related Contaminants from SMWUs and AOCs as needed to support the purposes of this Consent Order.

FF. “Respondent” means the United States Department of Energy.

GG. “SWA” means the New Mexico Solid Waste Act, NMSA 1978, §§ 74-9-1 to -42.

HH. “Solid Waste” means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (33 U.S.C. § 1342), or source, special nuclear, or byproduct material as defined by the AEA (42 U.S.C § 2014).

II. “Solid Waste Management Unit” or “SWMU” means any discernible unit at which solid waste has been placed at any time, and from which NMED determines there may be a risk of a release of hazardous waste or hazardous waste constituents, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at the Facility at which solid wastes have been routinely and systematically released; they do not include one-time spills. *See* 61 Fed. Reg. 19431, 19442-43 (May 1, 1996).

JJ. “State of New Mexico” or “State” means the State of New Mexico, including all of its departments, agencies, and instrumentalities.

KK. “Statement of Basis” means a document prepared by NMED based on a CME that describes the basis for NMED’s selection of a remedy.

LL. “Surface Impoundment” means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen material (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

MM. “Target” means a non-enforceable deadline listed in Appendix B for the next two fiscal years (i.e., FY+1 and FY+2).

NN. “Technical Area” or “TA” means an administrative unit of area established to encompass operations at the Facility.

OO. “Trench” means a long, narrow depression or excavation, natural or artificial, in the earth’s surface.

PP. “United States” means the United States of America, including all of its departments, agencies, and instrumentalities.

QQ. “WQCC” means the New Mexico Water Quality Control Commission, and any successor agencies, boards, or commissions.

RR. “Water Quality Control Commission (WQCC) Regulations” means the regulations at 20.6.2 NMAC promulgated by the New Mexico Water Quality Control Commission governing the quality of groundwater and surface water in New Mexico.

IV. FINDINGS OF FACT AND CONCLUSIONS OF LAW

A. FINDINGS OF FACT: For purposes of this Consent Order only, the following constitutes a summary of facts by NMED upon which this Consent Order is based.

1) The Parties

- a) The New Mexico Environment Department is the department within the executive branch of the New Mexico State government charged with administration and enforcement of the HWA, NMSA 1978, §§ 74-4-1 to -14; the Hazardous Waste Regulations, 20.4.1 NMAC, and the SWA, NMSA 1978, §§ 74-9-1 to -43.
- b) The Respondent is a department of the United States government, and is the owner and a co-operator of the Facility.

2) The Facility

- a) The Facility, as defined in Section III.O of this Consent Order, is the Los Alamos National Laboratory (LANL) site. The Facility currently comprises approximately 36 square miles (approximately 23,000 acres) and is located on the Pajarito Plateau in Los Alamos County in north central New Mexico, approximately 60 miles north-northeast of Albuquerque and 25 miles northwest of Santa Fe. At one point during its history, the Facility comprised up to roughly 41 square miles (26,337 acres). The Facility is surrounded by the Pueblo of San Ildefonso, Los Alamos County, Bandelier National Monument, Santa Fe National Forest, and Santa Fe County.

- b) The Pajarito Plateau is dissected by nineteen major surface drainages or canyons and their tributaries. The canyons run roughly west to east or southeast. From north to south, the most prominent canyons are Pueblo Canyon, Los Alamos Canyon, Sandia Canyon, Mortandad Canyon, Pajarito Canyon, Cañon de Valle and Water Canyon, Ancho Canyon, and Chaquehui Canyon. These canyons drain into the Rio Grande, which flows along part of the eastern border of the Facility.
 - c) Hydrogeologic investigations have identified four discrete hydrogeologic zones beneath the Pajarito Plateau on which the Facility is located: (1) canyon alluvial systems; (2) intermediate perched water in the volcanic rocks (Tschicoma Formation and the Tshirege Member of the Bandelier Tuff); (3) canyon-specific intermediate perched water within the Otowi Member of the Bandelier Tuff, Cerros del Rio basalt and sedimentary units of the Puye Formation; and (4) the regional aquifer.
- 3) Facility Operations
- a) The Facility began operations in 1943 when the United States Army Manhattan Engineer District was established for the development and assembly of an atomic bomb. Current and historical operations have included nuclear weapons design and testing; high explosives research, development, fabrication, and testing; chemical and material science research; electrical research and development; laser design and development; and photographic processing.
 - b) The Facility has been divided into numerous Technical Areas, or “TAs.” Many former TAs have ceased operations, have been combined with other TAs, or were cancelled before becoming operational.
 - c) For administration purposes, the Respondent has further categorized some of the areas within the TAs as “Material Disposal Areas” or “MDAs.” These include, for example, MDAs A, B, T, U, and V in TA-21; MDA C in TA-50; MDAs G, H, and L in TA-54.

- d) Water supply wells at the Facility, in Los Alamos County, and on San Ildefonso Pueblo property withdraw water from the regional aquifer beneath the Pajarito Plateau.
- 4) Waste Management
- a) As a result of the Facility operations, from approximately 1943 to the present, the Respondent has generated, treated, stored, disposed of, and otherwise handled solid wastes, including hazardous wastes, hazardous waste constituents, and mixed wastes at the Facility.
 - b) The Respondent has disposed of hazardous wastes, hazardous constituents and mixed waste at the Facility. In addition, certain groundwater contaminants listed at 20.6.2.3103 NMAC, certain toxic pollutants listed at 20.6.2.7.WW NMAC, and certain Explosive Compounds as defined herein, are present in the environment at the Facility. The Respondent has disposed of such wastes in septic systems, pits, surface impoundments, trenches, shafts, landfills, and waste piles at the Facility. The Respondent has also discharged industrial wastewater and other waste from outfalls into many of the canyon systems at the Facility.
- 5) Releases of Contaminants
- a) Waste management activities at the Facility have resulted in the release of hazardous wastes, hazardous waste constituents, mixed waste, certain groundwater contaminants listed at 20.6.2.3103 NMAC, certain toxic pollutants listed at 20.6.2.7.WW NMAC, and certain Explosive Compounds as defined herein.
 - b) Contaminants that have been released into, and detected in, soils and sediments at the Facility include, for example, explosives, such as RDX, HMX, TNT; volatile organic compounds and semi-volatile organic compounds; metals such as arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, molybdenum, silver, and zinc; and polychlorinated biphenyls (PCBs).

- c) Contaminants that have been released into, and detected in, groundwater beneath the Facility include, for example, explosives, such as RDX; volatile organic compounds such as trichloroethylene, dichloroethylene, and dichloroethane; metals such as molybdenum, manganese, beryllium, lead, cadmium, chromium, and mercury; perchlorate; other inorganic contaminants such as ammonia, nitrate, and fluoride; and other contaminants. Contaminants have been detected beneath the Facility in all four groundwater zones.
- 6) Regulatory History of the Facility
- a) On August 13, 1980, the Respondent submitted to the United States Environmental Protection Agency (EPA) a “Notification of Hazardous Waste Activity” for the Facility pursuant to Section 3010(a) of RCRA, 42 U.S.C. § 6930(a).
 - b) By letter dated November 19, 1980, the Respondent submitted to EPA a Part A RCRA permit application for the Facility. The Respondent also sent a copy of the Part A application to the Environmental Improvement Division of the New Mexico Department of Health and Environment, the predecessor to the Environment Department. The application covered hazardous waste treatment, storage, and disposal activities at TA-54, and included some 129 hazardous waste streams. The Respondent has revised the Part A permit application several times since it was first submitted, including, among other things, to notify the State that the Respondent would not seek a permit for hazardous waste disposal activities at the Facility. The Respondent’s most recent Part A permit revision was submitted to NMED in January 2016.
 - c) On January 25, 1985, the State of New Mexico received from EPA authorization to implement its hazardous waste program under the HWA in lieu of the Federal program. 50 Fed. Reg. 1515 (Jan. 11, 1985). Subsequent program revision applications were approved effective on April 10, 1990, July 25, 1990, December 4, 1992, August

23, 1994, December 21, 1994, July 10, 1995, January 2, 1996, March 10, 1997, June 13, 1998, October 1, 2003 and March 1, 2009. 40 C.F.R. § 272.1601.

- d) On November 8, 1989, NMED's predecessor agency issued a Hazardous Waste Facility Permit (Permit) to the Respondent to operate a hazardous waste treatment and storage facility at the Facility pursuant to Section 74-4-4.2 of the HWA. The Permit covered hazardous waste container storage areas at TA-16, TA-50, and TA-54, hazardous waste storage and treatment tanks at TA-54, and hazardous waste incinerators at TA-16 and TA-50. Two of the four treatment tanks at TA-54 were removed in accordance with an approved closure plan in 1996. NMED approved the closure report in 1997. The remaining two tanks were removed from the site in 2002. NMED approved the closure in 2007. The Respondent closed the incinerator at TA-16 in accordance with an approved closure plan, and NMED approved the Closure Certification Report in October 2001. The Respondent closed the incinerator at TA-50 in accordance with an approved closure plan, and NMED approved the Closure Certification Report in July 1998.
- e) In the late 1980's, the Respondent identified for EPA "Potential Release Sites," including solid waste management units (SWMUs) and "areas of concern" (AOCs), where hazardous wastes, hazardous constituents, solid wastes, or mixed wastes may have been disposed. Of those sites, EPA identified over 1200 as sites to be investigated and included on the Hazardous and Solid Waste Amendments (HSWA) portion (known as the "HSWA Module") of the Facility's RCRA permit.
- f) On March 8, 1990, EPA issued to the Respondent the HSWA portion of the Permit, effective on May 23, 1990, covering those requirements of RCRA added by the HSWA of 1984. The EPA portion of the permit required corrective action for continuing releases of hazardous

waste and hazardous waste constituents at and from the Facility pursuant to Section 3004(u) and (v) of RCRA, 42 U.S.C. § 6924(u) and (v).

- g) On July 25, 1990, the State of New Mexico received from EPA authorization to expand its hazardous waste program under the HWA in lieu of the federal program, including the authority to regulate the hazardous component of mixed waste. 55 Fed. Reg. 28397 (July 11, 1990).
- h) Effective January 2, 1996, the State of New Mexico received from EPA final authorization to implement its corrective action program under the HWA. See 60 Fed. Reg. 53,708 (Oct. 17, 1995); 61 Fed. Reg. 2450 (Jan. 26, 1996).
- i) Between 1995 and 1999, the Respondent submitted a Permit renewal application to NMED for permitted and interim status storage and treatment units at the Facility. The General Part B renewal application was initially submitted in August 1996; the TA-16 application for permitted and interim status units was initially submitted in June 1995; the TA-50 permit application for permitted and interim status units was initially submitted in January 1999; the TA-54 permit application for permitted and interim status units was initially submitted in January 1999; and the TA-55 permit application for interim status units was initially submitted in June 1996. Permit applications for interim status units at TA-3, TA-14, TA-36 and TA-39 were submitted to NMED in or before May 1999.
- j) The Permit, which was originally set to expire in November 1999, was administratively extended pursuant to 20.4.1.900 NMAC (incorporating 40 C.F.R. § 270.51). The renewed Permit became effective in December 2010.
- k) On June 21, 2011, the Las Conchas wildfire began burning in the Santa Fe National Forest. The fire burned over 150,000 acres and threatened the Facility and the town of Los Alamos. The proximity of

the fire to above-ground stored wastes in TA-54 prompted New Mexico Governor Susana Martinez to request that the Respondent prioritize removing non-cemented above-ground wastes. The Respondent agreed to realign waste management priorities.

- l) As a result of the agreed upon realignment of priorities, the Respondent and the State of New Mexico entered into a non-binding Framework Agreement in 2012 that realigned environmental priorities.
- m) In the course of negotiating the 2012 Framework Agreement, the Respondent acknowledged that meeting the milestones of the 2005 Consent Order was difficult, if not impossible, given past and anticipated funding shortfalls. As part of the 2012 Framework Agreement negotiations, the Parties agreed to discuss renegotiation of the 2005 Consent Order at a future date.
- n) In 2014, the Secretary of DOE directed that DOE's Office of Environmental Management assume oversight of the cleanup at the Facility, which will result in new and/or additional contractors implementing the work required by this Consent Order on behalf of the Respondent. As a consequence of this change, the contractor currently performing the work required by the 2005 Consent Order is no longer included as a Respondent to this Consent Order.

7) Procedural History of Consent Order

- a) On May 2, 2002, pursuant to Sections 74-4-10.1 and 74-4-13 of the HWA, NMED issued a Determination of an Imminent and Substantial Endangerment to Health or the Environment Concerning the Los Alamos National Laboratory (the Determination), to the Respondent and the Regents of the University of California (University), the Facility operator prior to 2006.
- b) On May 2, 2002, NMED also issued a draft order pursuant to Sections 74-4-10.1 and 74-4-13 of the HWA, called "In Re: Proceeding Under the New Mexico Hazardous Waste Act §§ 74-4-10.1 and 74-4-13" (Draft Order). The Draft Order proposed a series of investigation and

corrective action activities for the Respondent and the University to complete at the Facility.

- c) NMED provided notice and an opportunity to comment on the Draft Order. The comment period extended for 90 days and ended on July 31, 2002. During the public comment period, NMED held four public meetings to provide the public with information on the draft order. NMED received comments from 38 persons, including the Respondent, on the Draft Order.
- d) On June 3, 2002, the University filed a Complaint for Declaratory and Injunctive Relief and for Review of Agency Action in the United States District Court for the District of New Mexico (No. CIV 02-637 MV/DJS) challenging the Determination. On June 3, 2003, the University and the United States each filed a Notice of Appeal with the New Mexico Court of Appeals (Ct. App. Nos. 23,172 and 23,173), challenging the Determination.
- e) On October 9, 2002, the United States, on behalf of the Respondent, filed a Complaint in the United States District Court for the District of New Mexico (No. CIV 02-1273-LH/RHS), challenging the September 9, 2002 Installation Work Plan (IWP) Work Schedule issued by NMED. The IWP Work Schedule imposed requirements similar to those contained in the Draft Order.
- f) On November 26, 2002, NMED issued to the Respondent a Final Order called "Re: Proceeding Under the New Mexico Hazardous Waste Act §§ 74-4-10.1 and 74-4-13" (Final Order). The Final Order contained a set of investigation, monitoring, and corrective action activities and a schedule for implementation of those activities. NMED also responded, in writing, to each of the public comments it had received on the Draft Order. The Determination issued on May 2, 2002 was also withdrawn on November 26, 2002, and the findings and conclusions contained therein were incorporated into the Final Order.

- g) On December 18, 2002, the University dismissed its complaint in the United States District Court challenging the Determination because NMED had withdrawn that Determination.
- h) On December 24, 2002, the United States filed an Amended Complaint, challenging both the 2002 IWP Work Schedule and the Final Order. The United States also filed a Notice of Appeal in the New Mexico Court of Appeals (Ct. App. No. 23,693), challenging the Final Order.
- i) On December 26, 2002, the University filed a Complaint for Declaratory and Injunctive Relief and for Review of Agency Action in the United States District Court for the District of New Mexico (No. CIV 02-1631 LFG/WDS), challenging the Final Order. On December 26, 2002, the University also filed a Notice of Appeal with the New Mexico Court of Appeals (Ct. App. No. 23,698) challenging the Final Order.
- j) From December 2002 through December 2003 and from February through March 2004, the Parties engaged in settlement negotiations to resolve the issues raised by the United States' and the University's lawsuits. To facilitate the settlement discussions, the Parties agreed to stay the pending litigation during the settlement process.
- k) On April 25, 2003, NMED issued a Compliance Order HWB 03-02, alleging that the Department of Energy and the University failed to implement interim measures at the Airport Landfill, or SWMU 73-001(a), at the Facility. The Respondent answered the Compliance Order, denying NMED's allegations. That action was also stayed during negotiations of this Consent Order.
- l) On September 1, 2004, NMED released the proposed Consent Order resulting from the settlement negotiations for public review and comment. NMED placed a public notice of the availability of the proposed Consent Order in the local news outlets, and mailed copies of the notice to all interested parties. NMED provided the public with a

30-day period to comment on the proposed Consent Order. The comment period ended on October 1, 2004. NMED received comments from 18 persons on the proposed Consent Order. NMED responded, in writing, to each of those public comments on March 1, 2005.

- m) On March 1, 2005, NMED, the Respondent, and the University, entered into the 2005 Consent Order intended to address cleanup of the Facility. In addition, as the result of those settlement negotiations and the execution of the 2005 Consent Order, NMED agreed to withdraw the Determination, the Final Order, the Airport Landfill Order, and the 2002 IWP Work Schedule, and the United States and the University agreed to dismiss their lawsuits.
- n) The 2005 Consent Order was modified on five occasions between issuance on March 1, 2005 and issuance of this Consent Order. The following draft modifications were issued for public comment prior to incorporation into the Consent Order. On March 1, 2006 and February 23, 2007, the Consent Order schedule was modified. On June 18, 2008, Section IV.A.3.g was added to address notification procedures for certain types of detections of contaminants in groundwater. A modification to address the grouping of wells for the purpose of periodic monitoring and the frequency of submittal of the General Facility Information was completed on April 20, 2012. A modification requiring the maintenance of a publicly accessible database (Section III.Z) was completed on October 26, 2012.

B. CONCLUSIONS OF LAW: For purposes of this Consent Order only, the following constitutes the conclusions of law by NMED upon which this Consent Order is based.

- 1) Respondent is a “person” within the meaning of Section 74-4-3(M) of the HWA, and the Hazardous Waste Regulations at 20.4.1.100 NMAC (incorporating 40 C.F.R. § 260.10), and Section 74-9-3(I) of the SWA.

- 2) Los Alamos National Laboratory is a “facility” within the meaning of the Hazardous Waste Regulations at 20.4.1.100 NMAC (incorporating 40 C.F.R. § 260.10).
- 3) Respondent is an “owner” and an “operator” of the Facility within the meaning of the Hazardous Waste Regulations at 20.4.1.100 NMAC (incorporating 40 C.F.R. § 260.10).
- 4) Respondent has engaged in the “storage,” “treatment,” and “disposal” of “hazardous waste” at the Facility, and is currently engaged in the “storage” and “treatment” of “hazardous waste” at the Facility, within the meaning of Section 74-4-3(P), (T), (E), and (K) of the HWA, and the Hazardous Waste Regulations at 20.4.1.100 NMAC (incorporating 40 C.F.R. § 260.10).
- 5) NMED has determined that hazardous wastes and hazardous waste constituents have been “release[d]” from the Facility into the environment within the meaning of Section 74-4-10(E) of the HWA.
- 6) Pursuant to Section 74-4-10(A) of the HWA, NMED has determined that the Respondent may have violated 20.4.1.900 NMAC, incorporating by reference 40 C.F.R. § 270.33, Schedule of Compliance.
- 7) Groundwater contaminants listed at 20.6.2.3103 NMAC, toxic pollutants listed at 20.6.2.7.WW NMAC, and Explosive Compounds as defined herein are regulated under the SWA through 20.9.9 NMAC.
- 8) NMED has determined that there is or has been a release of groundwater contaminants listed at 20.6.2.3103 NMAC, toxic pollutants listed at 20.6.2.7.WW NMAC, and Explosive Compounds as defined herein into the environment requiring corrective action pursuant to Section 74-9-36(D) of the SWA and 20.9.9.14 NMAC.

V. PARTIES

A. The Parties to this Consent Order are NMED and DOE, as defined in Section III.BB (Definitions).

B. The terms of this Consent Order shall apply to and be binding upon NMED and DOE, their respective agents and employees, and their successors and assigns. DOE may employ contractors for implementation of the work required by this Consent Order. DOE shall require all contractors, subcontractors, laboratories and consultants retained to perform work pursuant to this Consent Order to comply with and abide by the terms of this Consent Order. DOE shall hold the contractor(s) accountable through provisions in its contract(s) for the contractor's performance (e.g., missed milestones) that results in NMED's issuance of stipulated penalties under this Consent Order. Currently, Los Alamos National Security, LLC (LANS) is the operating contractor for the Facility pursuant to a contract with DOE, and is a co-operator of the Facility. Currently, DOE is in the process of selecting a contractor for the Environmental Management portion of the cleanup work at LANL. Upon selection of a contractor, this Consent Order shall be modified to include the contractor as a signatory.

VI. WORK ALREADY COMPLETED / SUBMITTED

A. This Consent Order shall be construed to avoid duplication of work already performed or completed as determined by NMED pursuant to its current HWA authority or by EPA pursuant to its RCRA authority prior to delegation of the RCRA program to the State. Accordingly, all such work that has been completed prior to the effective date of this Consent Order, that fulfills the substantive requirements of this Consent Order, and that has been approved by NMED or EPA, in writing, shall be deemed to comply with this Consent Order.

B. With respect to work already performed and for which documentation has been submitted by DOE to NMED pursuant to the 2005 Consent Order and for which NMED has not completed action as of the effective date of this Consent Order, NMED will proceed with timely review of such documentation. Such reviews shall be conducted in accordance with Section XXIII (Preparation / Review / Comment on Documents).

VII. RELATIONSHIP TO PERMITS

A. NMED has determined that all corrective action for releases of hazardous waste or hazardous constituents at the Facility, required by Sections 3004(u) and (v) and 3008(h) of

RCRA, 42 U.S.C. §§ 6924(u) and (v) and 6928(h), and Sections 74-4-4(A)(5)(h) and (i) and 74-4-4.2(B) of the HWA, shall be conducted solely under this Consent Order and not under the current or any future Hazardous Waste Facility Permit ("Permit"), with the exception of the following five items which will be addressed in the Permit and not in this Consent Order:

- 1) New releases and newly discovered releases of hazardous waste or hazardous constituents from hazardous waste management units at the Facility.
- 2) The closure and post-closure care requirements of 20.4.1.500 NMAC (incorporating 40 C.F.R. Part 264, Subpart G), as they apply to hazardous waste management units at the Facility.
- 3) Implementation of the controls, including long-term monitoring, for any SWMUs or AOCs listed in the Permit in Attachment K (Listing of SWMUs and AOCs), Table K-2 (Corrective Action Complete with Controls).
- 4) Any corrective action conducted to address releases of hazardous waste or hazardous constituents that occur or are discovered after the date on which this Consent Order terminates pursuant to Section XXXVII (Termination) of this Consent Order.
- 5) Newly created SWMUs or AOCs from non-permitted operations.

B. Consistent with Subsection A above, the requirements of this Consent Order shall not terminate upon renewal of the Permit issued to DOE. The renewed Permit, and any future modifications, renewals, or reissuance of the Permit, will not include any corrective action activities, or any other requirement that is duplicative of this Consent Order. The Parties agree that Subsection A above is consistent with the intent of the Permit and, further, that any renewed Permit shall include the five excepted items described in Subsection A above.

C. The Parties enter into this Consent Order based on their understanding that this Consent Order shall be the only enforceable instrument for corrective action relating to the Facility, except for those items listed in Subsection A.1)-5) above, which shall be subject only to the Permit. For the purposes of any enforcement action taken by the State or any third party, other than the items listed in Subsection A.1)-5) above, NMED has determined that compliance with the terms of this Consent Order constitutes compliance with the requirements for corrective action under RCRA and the HWA and their implementing regulations, including Sections 3004(u) and (v) and 3008(h) of RCRA, 42 U.S.C. §§ 6924(u) and (v) and 6928(h), 40

C.F.R. Part 264, Subpart F, Sections 74-4-4.2(B) and 74-4-4(A)(5)(h) and (i) of the HWA and section 20.4.1.500 NMAC (incorporating 40 C.F.R. Part 264, Subpart F). Upon the effective date of this Consent Order, the sole mechanism for enforcing corrective action activities relating to the Facility, except as provided in Subsection A.1)-5) above, shall be this Consent Order. The State will not take any action to enforce the corrective action requirements of the existing Permit, except as to those items listed in Subsection A above. This Consent Order is an “enforceable document” pursuant to the requirements of 40 CFR § 264.101.

D. Consistent with Sections A through C of this Section, the Parties agree that the status of SWMUs and AOCs will be tracked under this Consent Order until Termination of this Consent Order. The Permit will not be updated while this Consent Order is in effect with information about the status of SWMUs and AOCs currently listed in the Consent Order except for SWMUs and/or AOCs for which DOE has been granted a permit modification.

E. Consistent with Section XXI (Certification of Completion), NMED’s determination that corrective action is complete for a SWMU or AOC placed on either the corrective action complete with controls list or the corrective action complete without controls list will be subject to the State’s reservation of rights for new information. During the duration of this Consent Order, if NMED seeks to require additional work at any SWMU or AOC contained on either of the two lists for corrective action complete, NMED will initiate a permit modification to remove the SWMU or AOC from such list.

F. Upon Termination of this Consent Order pursuant to Section XXXVII, any SWMUs and/or AOCs where corrective action is not complete will be addressed under the Permit in accordance with the regulations at 20.4.1.900 NMAC (incorporating 40 C.F.R. § 270.42), 20.4.1.901 NMAC, and 20.4.1.902 NMAC, including, but not limited to, opportunities for public participation, including public notice and comment, administrative hearings, and judicial appeals.

G. The Parties agree that the rights, procedures and other protections set forth at 20.4.1.900 NMAC (incorporating 40 C.F.R. § 270.42), 20.4.1.901 NMAC, and 20.4.1.902 NMAC, including, but not limited to, opportunities for public participation, including public notice and comment, administrative hearings, and judicial appeals, do not apply to modification of the Consent Order itself.

H. This Consent Order shall establish no requirements for releases of Contaminants from SWMUs or AOCs to storm water runoff that:

- 1) Are permitted under DOE's National Pollutant Discharge Elimination System (NPDES) Individual Permit for storm water discharges from SWMUs and AOCs (Individual Permit) (NM0030759 or as reissued); or
- 2) Are from SWMUs or AOCs that DOE determined did not require coverage under the Individual Permit (i.e., SWMUs and AOCs that were not exposed to storm water, did not contain significant industrial materials, and/or did not potentially impact surface water); or
- 3) Are from SWMUs or AOCs formerly permitted under the Individual Permit that were deleted from the Individual Permit.

I. For SWMUs or AOCs that are permitted under the Individual Permit, DOE may identify and implement corrective action activities pursuant to this Consent Order that address requirements of both this Consent Order and the Individual Permit. NMED's review and approval of such corrective actions shall be limited to those elements of the corrective action that specifically address requirements of this Consent Order.

VIII. CAMPAIGN APPROACH

A. To carry out the purposes set forth in Section II (Purpose and Scope) above, the Parties agree to use a structure called the "campaign approach." As described more fully below, corrective action activities required by this Consent Order will be organized into campaigns, generally based upon a risk-based approach to grouping, prioritizing, and accomplishing corrective action activities at SWMUs and AOCs. A campaign may consist of one or more projects; campaigns and projects consist of one or more tasks and deliverables. Campaigns, projects, tasks, and deliverables may be subject to two types of deadlines: milestones, which are enforceable; or targets, which are not enforceable.

B. PROCESS FOR ESTABLISHING CAMPAIGNS

- 1) NMED shall maintain a list of the SWMUs and AOCs subject to this Consent Order in Appendix A (SWMUs and AOCs Subject to Corrective Action). The list in Appendix A shall be updated if new SWMUs and AOCs are added

through the process in Section X (Newly Discovered Releases). Appendix A shall also identify the status of corrective action activities at each SWMU and AOC, as defined in Subsection B.2 of this Section. The information in Appendix A will be updated annually during the annual planning process defined in Subsection C of this Section.

- 2) Appendix A shall identify the status of corrective action activities under this Consent Order for each SWMU and AOC in accordance with Subsection C. Because each SWMU or AOC may not proceed through each status category, the categories below will be used as appropriate for the status of corrective action activities:
 - a) Pre-Investigation
 - b) RFI or Field Work in Progress (includes Interim Measures, Accelerated Corrective Action)
 - c) RFI or Field Work Reports submitted to NMED
 - d) CME in Progress
 - e) CME submitted to NMED
 - f) CMI in Progress
 - g) CMI Reports submitted to NMED
 - h) Request for Certificate of Completion submitted to NMED
 - i) Certificate of Completion with controls or without controls issued
 - j) Deferred – Full investigation and/or remediation of the SWMU or AOC is deferred until such time as the SWMU or AOC is taken out of service or otherwise becomes accessible (e.g., firing sites and active facilities).
- 3) To facilitate prioritization and completion of the corrective action activities of this Consent Order, DOE shall organize corrective action activities into campaigns as described above. Each campaign may address corrective action activities for one or more SWMUs or AOCs and may be organized geographically or as needed to facilitate execution of work. The Parties intend campaigns to capture the full range of corrective action activities needed to certify completion of corrective actions in accordance with Section XXI

(Certification of Completion). However, it may be appropriate for one or more campaigns to be implemented in phases through multiple projects (e.g., interim measures). The list of SWMUs and AOCs in Appendix A shall identify the campaign(s) to which each SWMU and AOC is assigned.

- 4) Appendix B (Milestones and Targets) shall list milestones for campaigns, projects, tasks, and/or deliverables for the current fiscal year, as well as targets for the next two years (FY+1, FY+2) for campaigns, projects, tasks, and/or deliverables planned for the next two fiscal years, which substantially contribute to completion of the campaigns. Milestones scheduled for the current fiscal year are enforceable and subject to Stipulated Penalties under Section XXXV (Stipulated Penalties); targets are not enforceable and not subject to stipulated penalties.
 - a) The Parties agree to identify in Appendix B between 10 and 20 milestones for each current fiscal year and between 10 and 20 targets for each of the next two years (FY+1, FY+2).
 - b) For milestones that do not require submission of deliverables to NMED, the Parties agree to define validation mechanisms for such milestones, i.e., proof that DOE has completed such milestones, as part of the annual planning process pursuant to Subsection C below. Validation mechanisms shall include, after DOE meets the date for the milestone listed in Appendix B, written certification by NMED of milestone validation within a specified timeframe after DOE meets that date.
 - c) The Parties agree that DOE's project plans and tools will be used to identify proposed milestones and targets. These project plans and tools will also be used to evaluate changes to milestones and targets. The Parties further agree to identify and utilize a list of other submittals that are associated with the milestones listed in Appendix B and facilitate implementation of the campaigns by enabling the Parties to allocate resources. Such other submittals will not be listed as milestones or targets in Appendix B.

- 5) Campaigns shall be listed and described in Appendix C (Campaigns). The Parties agree that the ordering of campaigns in Appendix C reflects a sequence that implements corrective action activities based upon various factors, for example, risk, resources, and geography. The organization and sequence of campaigns in Appendix C are subject to change.

C. ANNUAL PLANNING PROCESS

- 1) The annual planning process is the process the Parties will use to update Appendix A, Appendix B, and Appendix C, as appropriate.
- 2) Prior to the end of the first quarter of each federal fiscal year, DOE will provide a revision of Appendix A to NMED indicating proposed changes (e.g., redline). This revision will provide an update of the status of SWMUs and AOCs and add new SWMUs and AOCs, if appropriate, based on the previous federal fiscal year's corrective action activities. NMED shall review DOE's proposed revision and, if the revision is acceptable to NMED, the revision shall be incorporated into this Consent Order as Appendix A. Should the proposed revision not be acceptable to NMED, the Parties agree that the DAMs will meet within ten (10) business days to resolve NMED's concerns.
- 3) DOE shall update the milestones and targets in Appendix B on an annual basis, accounting for such factors as, for example, actual work progress, changed conditions, and changes in anticipated funding levels. This is called the annual planning process. For purposes of the annual planning process, milestones to be listed in the current fiscal year's Appendix B shall be based on the FY+1 targets listed in the previous fiscal year's Appendix B.
 - a) To the extent possible, DOE will provide to NMED a forecast indicating potential, proposed changes to Appendix B (e.g., redline) by the end of July of each year. In order to facilitate this initial identification of potential, proposed changes to Appendix B, DOE shall review the existing FY+1 targets in Appendix B and identify in the forecast any foreseeable impacts (e.g., new information, Congressional appropriation marks, estimates for continuing

resolutions) that could affect the FY+1 targets to enable the Parties to account for those foreseeable impacts before the Parties establish milestones for the next fiscal year. At either Party's request, the DAMs will meet to discuss the forecast.

- b) Within fifteen (15) business days of DOE's receipt of its first fiscal year appropriation (whether this is the full appropriation or an appropriation via continuing resolution), the DAMs shall meet to discuss the appropriation and any necessary revisions to the forecast, e.g., because DOE did not receive adequate appropriations from Congress to carry out proposed milestones listed in the forecast. Within thirty (30) business days after DOE receives this appropriation, DOE will provide a revision of Appendix B to NMED indicating proposed changes (e.g., redline) to the milestones and targets for which DOE determines it has received adequate appropriations to be carried out. Within fifteen (15) business days of NMED's receipt of this revision, NMED shall review DOE's proposed revision and, if the revision is acceptable to NMED, the revision shall be incorporated into this Consent Order as Appendix B. Should the proposed revision of Appendix B not be acceptable to NMED, the Parties agree that the DAMs will meet within ten (10) business days to resolve NMED's concerns.
- c) If DOE receives an adjustment to its appropriated levels (e.g., from continuing resolution to full year appropriation) or if the Parties agree that current milestones should be revised based on consideration of new information (e.g., sampling or monitoring results), either Party may request a meeting of the DAMs within fifteen (15) business days to discuss proposed revisions to the milestones, if any. Within fifteen (15) business days after this meeting, DOE shall submit another proposed revision of Appendix B to NMED. Within fifteen (15) business days of NMED's receipt of this revision, NMED shall review DOE's proposed revision and, if the revision is acceptable to

NMED, the revision shall be incorporated into this Consent Order as Appendix B. Should the proposed revision of Appendix B not be acceptable to NMED, the Parties agree that the DAMs will meet within ten (10) business days to resolve NMED's concerns.

- 4) Prior to the end of the first quarter of the federal fiscal year, DOE may provide, as appropriate, a revision of Appendix C to NMED indicating proposed changes (e.g., redline) to descriptions, organization, and sequence of campaigns. NMED shall review DOE's proposed revision and, if the revision is acceptable to NMED, the revision shall be incorporated into this Order as Appendix C. Should the proposed revision of Appendix C not be acceptable to NMED, the Parties agree that the DAMs will meet within ten (10) business days to resolve NMED's concerns.

IX. CLEANUP OBJECTIVES AND CLEANUP LEVELS

A. Corrective actions shall be conducted under this Consent Order so that contamination due to releases from SWMUs and AOCs does not result in unacceptable risk to human health and ecological receptors.

B. For human health, NMED has established target risk levels of 10^{-5} lifetime excess cancer risk for carcinogenic Contaminants and a hazard index (HI) of 1 for non-carcinogenic Contaminants. NMED's target risk levels for protection of human health are based on lifetime excess cancer risk levels and non-cancer hazard index levels that are consistent with the EPA's National Oil and Hazardous Substance Pollution Contingency Plan, 40 C.F.R. § 300.430(e)(2)(i)(A)(2). As stated in NMED's *Risk Assessment Guidance for Site Investigations and Remediation* (2015 or updates, as appropriate), these target risk and hazard index levels are used to determine whether site-related contamination poses an unacceptable risk to human health and requires corrective action or whether implemented corrective actions sufficiently protect human health and the environment. In the event that NMED updates its *Risk Assessment Guidance for Site Investigations and Remediation*, the Parties will meet to discuss any changes in updated guidance that may impact corrective action activities.

C. The corrective action process employs both screening levels and cleanup levels. Screening levels are Contaminant concentrations that indicate the potential for unacceptable risk. If Contaminants are present at concentrations above screening levels, it does not necessarily indicate that cleanup is required, but it does indicate that additional risk evaluation is needed to determine the potential need for cleanup. Cleanup levels are the Contaminant concentrations that indicate when cleanup objectives are met. The need for cleanup is triggered by potential unacceptable risk and not by exceedance of screening levels. DOE shall define the use of screening levels and cleanup levels at a site through the Data Quality Objectives developed during Facility Investigation (Section XIII) and media cleanup objectives developed during Corrective Measures Evaluation (Section XVI).

D. NMED has developed soil screening levels (SSLs) based on target risk levels of 10^{-5} lifetime excess cancer risk for carcinogenic Contaminants and for non-carcinogenic Contaminants a target HI of 1. These SSLs are listed in NMED's *Risk Assessment Guidance for Site Investigations and Remediation* (2015 or updates, as appropriate). NMED's SSLs are used to indicate the potential for site-related contamination to be present in soils at levels that could result in human health risk above NMED cleanup goals. NMED's SSLs are based on conservative exposure assumptions for several exposure scenarios (e.g., residential, industrial, and construction worker). NMED also reviews and accepts DOE's recreational SSLs. Based on reasonable and foreseeable future land use, DOE shall use NMED's *Risk Assessment Guidance for Site Investigations and Remediation* (2015 or updates, as appropriate) to determine whether or not a site meets acceptable risk.

E. DOE may use NMED's SSLs as soil cleanup levels to demonstrate that additional corrective action is not needed. If NMED has not developed SSLs for a particular Contaminant, DOE may use SSLs for that Contaminant developed by EPA. Alternatively, instead of using SSLs as cleanup levels, DOE may calculate site-specific risk-based soil cleanup levels based on site-specific exposure parameters in accordance with EPA's *Risk Assessment Guidance for Superfund (RAGS), Volume I, Part A* (1989 or as updated). NMED must approve site-specific cleanup levels proposed by DOE.

F. NMED has developed tap water screening levels for drinking water based on the target risk levels of 10^{-5} lifetime excess cancer risk for carcinogenic Contaminants and non-carcinogenic HI of 1. These screening levels are listed in NMED's *Risk Assessment Guidance*

for *Site Investigations and Remediation* (2015 or updates, as appropriate). NMED's tap water screening levels are used to indicate the potential for site contamination present in drinking water to result in human health risk above NMED cleanup objectives. NMED's tap water screening levels shall be used as groundwater screening levels for protection of human health if groundwater is a current or reasonably foreseeable source of drinking water. If NMED has not developed tap water screening levels for a particular Contaminant, DOE may use tap water screening levels for that Contaminant developed by the EPA adjusted to 10^{-5} cancer risk for carcinogens.

G. Groundwater cleanup levels shall be established in accordance with EPA's *Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action* (2004 or as updated). Consistent with EPA's Handbook, groundwater cleanup levels shall be based on the maximum beneficial use of the groundwater to ensure protection of human health. For protection of human health and the environment, groundwater cleanup levels shall be based on existing standards (e.g., drinking water standards) when they are available and when using them is protective of current and reasonably expected exposures. Applicable standards for use as cleanup standards for protection of human health are the WQCC groundwater standards, including alternative abatement standards (20.6.2.4103 NMAC), and the drinking water maximum contaminant levels (MCLs) adopted by EPA under the federal Safe Drinking Water Act (42 U.S.C. §§ 300f to 300j-26) or the New Mexico Environmental Improvement Board (20.7.10 NMAC). If both a WQCC standard and an MCL have been established for an individual substance, then the lower of the two levels will be considered the cleanup level for that substance. If no WQCC groundwater standard or MCL has been established for a Contaminant for which toxicological information is published, DOE shall use a target risk level of 10^{-5} lifetime excess cancer risk for carcinogenic Contaminants and/or non-carcinogenic HI of 1 as the basis for developing a cleanup level for the Contaminant.

H. Surface water screening levels shall be used to evaluate the potential for unacceptable risk due to release of site-related Contaminants to surface waters other than from permitted discharges. Release of Contaminants from SWMUs and AOCs to storm water runoff is regulated by DOE's National Pollutant Discharge Elimination System (NPDES) Individual Permit (NM0030759) (Individual Permit). Discharge of site-related Contaminants from SWMUs and AOCs to surface waters may also be permitted under the NPDES Multi-Sector

General Permit, the NPDES Construction General Permit, or DOE's NPDES Industrial and Sanitary Permit. This Consent Order shall not establish screening levels or cleanup levels for Contaminants in storm water. Applicable New Mexico Water Quality Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC) shall be used as screening levels for surface water.

I. If investigation results indicate human health risk in excess of cleanup objectives due to release of site-related Contaminants to surface water, other than from permitted discharges, DOE may develop site-specific surface water cleanup levels. Cleanup levels for protection of human health for surface water shall be developed in accordance with EPA's *Risk Assessment Guidance for Superfund (RAGS), Volume I, Part A* (1989 or as updated).

J. Screening for ecological risk shall be conducted using the Facility's Ecological Screening Levels (LANL ESLs) which are included in LANL's *Screening Level Ecological Risk Assessment Methods* (2012 or as updated). In the absence of ESLs, DOE may use NMED's Ecological Screening Levels (NMED ESLs) included in NMED's *Risk Assessment Guidance for Site Investigations and Remediation* (2015 or updates, as appropriate). If the LANL ESLs database or NMED's ESLs do not contain a screening value for the receptor or Contaminant, DOE shall derive a screening level using the methodology in the Facility's *Screening Level Ecological Risk Assessment Methods* (2012 or as updated). In the event that either Party updates its ecological screening levels, the Parties will meet to discuss any changes that may impact corrective action activities.

K. If investigation results indicate the need to conduct corrective actions to mitigate unacceptable ecological risk due to release of site-related Contaminants, DOE may develop site specific ecological cleanup levels. LANL ESLs or NMED ESLs may be used as ecological cleanup levels. Alternatively, DOE may develop site-specific ecological cleanup levels in accordance with NMED's *Risk Assessment Guidance for Site Investigations and Remediation* (2015 or updates, as appropriate). In the event that NMED updates its *Risk Assessment Guidance for Site Investigations and Remediation*, the Parties will meet to discuss any changes in updated guidance that may impact corrective action activities.

L. If attainment of the established cleanup objectives is demonstrated to be technically infeasible, DOE may perform risk-based evaluation to establish alternative cleanup objectives for specific media at individual SWMUs or AOCs. The risk-based

evaluation should be conducted in accordance with NMED's Risk Assessment Guidance for Site Investigations and Remediation (2015 or updates, as appropriate). For groundwater, pursuant to 20.9.9.16 NMAC, DOE may propose to demonstrate technical infeasibility or an alternative abatement standard of a groundwater cleanup objective of the groundwater quality standards found in 20.6.2 NMAC, utilizing the applicable requirements and procedures found in 20.6.2.4103.E and 4103.F NMAC. In the event that NMED updates its *Risk Assessment Guidance for Site Investigations and Remediation*, the Parties will meet to discuss any changes in updated guidance that may impact corrective action activities.

M. For all other instances in which DOE seeks to vary from a cleanup objective identified above, DOE shall submit a demonstration to NMED that achievement of the cleanup objective is impracticable. In making such demonstration, DOE may consider such things as technical difficulty or physical impracticability of the project, the effectiveness of proposed solutions, the cost of the project, hazards to workers or to the public, and any other basis that may support a finding of impracticability at a particular SWMU(s) and/or AOC(s). DOE may also refer to all applicable guidance concerning impracticability, including, for example, the criteria set forth in EPA's Interim Final Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration (September 1993) and EPA's Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action (April 2004 or as updated). In addition to demonstrating the basis for their impracticability request, DOE's written submission shall propose the action to be taken by DOE if NMED approves the impracticability demonstration. Such action shall include, but is not limited to, completion of a site-specific risk assessment and identification of alternative clean-up goals or levels.

N. NMED will review DOE's written submission concerning impracticability and determine whether the demonstration is approvable. NMED may consider such things as technical or physical feasibility of the project, the effectiveness of proposed solutions, the cost of the project, hazards to workers or to the public, and any other basis that may support or refute a finding of impracticability at a particular SWMU(s) and/or AOC(s).

O. If NMED approves DOE's impracticability demonstration, it will notify DOE in writing, and such notice will describe the specific action to be taken by DOE.

X. NEWLY DISCOVERED RELEASES

A. Newly discovered SWMUs and AOCs subject to this Consent Order shall be added to Appendix A of this Consent Order using the process described in this Section X as appropriate to support the purposes of this Consent Order described in Section II (Purpose and Scope).

B. DOE shall notify NMED within 15 days upon DOE's discovery of a potential SWMU or AOC that DOE determines is subject to this Consent Order, consistent with Section VII.A (Relationship to Permits).

C. For any newly discovered potential SWMU or AOC for which DOE provides notification to NMED that such SWMU or AOC is subject to this Consent Order pursuant to Subsection B above, DOE shall develop and implement a preliminary screening plan (including sampling and investigation activities and schedule for those activities) for such newly discovered potential SWMU or AOC, and provide NMED with the results of the preliminary screening.

- 1) If the results of the preliminary screening show that hazardous constituents are found at concentrations above residential screening levels, then such newly discovered SWMU or AOC shall be added to Appendix A of this Consent Order in accordance with Section VIII (Campaign Approach), unless DOE removes the hazardous constituents to levels that would require no long-term controls. Depending on the nature of the newly discovered SWMU or AOC, it may be appropriate for DOE to update Appendices B and/or C.
- 2) If the results of the preliminary screening show that hazardous constituents are not found at levels in excess of residential screening levels, then DOE will notify NMED that no further action related to this Consent Order will be taken.
- 3) If DOE proposes that the newly discovered potential SWMU or AOC not be added to Appendix A, NMED shall review the results and determine whether or not the site should be added to Appendix A.

XI. DEFERRED SITES

A. Corrective action activities set forth in this Consent Order shall be deferred for SWMUs and AOCs whose status is identified in Appendix A as “Deferred.”

B. Table IV-2 of the 2005 Consent Order identified SWMUs and AOCs located within testing hazard zones of active firing sites for which investigation activities were deferred. SWMUs and AOCs listed on Table IV-2 of the 2005 Consent Order for which deferred investigation was proposed in NMED-approved investigation work plans and reports are identified with the status “Deferred” in Appendix A of this Consent Order in accordance with Section VIII (Campaign Approach).

- 1) The testing hazard zones associated with Deferred Sites are identified on a map entitled “Los Alamos National Laboratory Firing Sites” prepared by DOE and dated October 2003. The map, as it may be revised from time to time, is incorporated herein by reference.
- 2) DOE may revise the geographic scope and location of the designated testing hazard zones if necessary to support DOE’s operations. If that occurs, or if any other changed circumstances or other information becomes available such that the map does not accurately depict the testing hazard zones, DOE shall revise the map and submit to NMED the revised map with explanatory information, that explains and justifies the revision, within sixty (60) days after DOE finalizes its revised map. The revised version of the map shall be incorporated herein by reference and substituted for the earlier version.
- 3) While this Consent Order is in effect, the deferral of corrective action activities may continue until such time as the firing site that has been used to delineate the relevant testing hazard zone is closed, or it is inactive and DOE has determined that it is not reasonably likely to be reactivated. The decision about the use of a firing site shall be based entirely on operation of the firing range, and such decision will be solely within DOE’s discretion. At such time as the firing site is closed, or it is inactive and DOE has determined it is not reasonably likely to be reactivated, if this occurs while this Consent Order is in effect, DOE shall incorporate investigation of formerly “Deferred” SWMUs

and AOCs within the former testing hazard zone into campaigns according to the campaign approach process presented in Section VIII (Campaign Approach). DOE shall also update the status of formerly “Deferred” SMWUs and AOCs in Appendix A in accordance with Section VIII (Campaign Approach). DOE shall then submit to NMED for approval RFI work plan(s) for these formerly “Deferred” SWMUs and AOCs in accordance with the requirements of Section XIII (Facility Investigation).

C. Investigation work plans and investigation reports prepared and approved under the 2005 Consent Order proposed delaying investigation at some SWMUs and AOCs associated with active Facility operations that are now identified as “Deferred” in Appendix A of this Consent Order. Accordingly, all corrective action activities set forth in this Consent Order shall be deferred for all SWMUs and AOCs whose status is identified in Appendix A as “Deferred.” While this Consent Order is in effect, this deferral of corrective action activities may continue until such time as the active Facility operations comprising the basis for the deferral are no longer ongoing. At such time as DOE determines that these active Facility operations cease, if this occurs while this Consent Order is still in effect, DOE shall incorporate investigation of these formerly “Deferred” SWMUs and AOCs into campaigns according to the campaign approach process presented in Section VIII (Campaign Approach). DOE shall also update the status of these formerly “Deferred” SMWUs and AOCs in Appendix A in accordance with Section VIII (Campaign Approach). DOE shall then submit to NMED for approval RFI work plans for these formerly “Deferred” SWMUs and AOCs in accordance with the requirements of Section XIII (Facility Investigation).

D. DOE may propose partial investigation and partial remediation, if appropriate, if portions of the SWMUs and AOCs identified as “Deferred” in Appendix A become accessible. DOE shall, at its discretion, determine when a unit is accessible or partially accessible.

E. Determinations by DOE about the availability of Deferred Sites made pursuant to this Section shall not be subject to dispute resolution under Section XXV of this Consent Order.

F. Upon Termination of this Consent Order pursuant to Section XXXVII, any “Deferred” SWMUs and/or AOCs will be addressed under the Permit.

XII. GROUNDWATER MONITORING

A. In accordance with the 2005 Consent Order, DOE has monitored and continues to monitor groundwater at and around the Facility, including base flow, alluvial groundwater, intermediate-perched groundwater, and regional aquifer groundwater, in accordance with NMED-approved annual updates to the Interim Facility-Wide Groundwater Monitoring Plan (IFGMP), and monitoring results have been reported in periodic monitoring reports submitted to NMED. DOE shall implement the monitoring requirements of NMED-approved IFGMP in effect on the effective date of this Consent Order and prepare and submit periodic monitoring reports required by that plan.

B. Each year, DOE shall prepare a revised IFGMP for each upcoming monitoring year (October 1 through September 30), including monitoring locations, frequencies, analytical suites, and related activities, as well as a schedule for performing monitoring activities and submitting periodic monitoring reports. As appropriate, proposed updates may include adding, deleting, or revising monitoring groups. The revised IFGMP shall specify collection of monitoring data that is necessary and sufficient to support corrective action activities. Analytical methods shall be capable of detecting Contaminants at or below screening levels or, with approval of NMED, other reporting levels, as appropriate. The revised IFGMP shall be submitted to NMED by June 30 of each year for review and approval in accordance with Section XXIII (Preparation / Review / Comment on Documents) of this Consent Order by September 30 of each year.

C. DOE shall implement the approved IFGMP. DOE shall review analytical data from groundwater monitoring in accordance with the requirements of Section XXVI (Quality Assurance / Data Management / Data Review) of this Consent Order and provide the notifications required by that Section.

D. As DOE completes corrective action activities at SWMUs or AOCs, DOE may propose changes to monitoring groups to reflect near-term groundwater monitoring activities.

E. Upon completion of corrective action activities at a SWMU or AOC or for contaminated groundwater and the requisite monitoring period, DOE may include long-term groundwater monitoring requirements in a permit modification request. DOE will then remove

groundwater monitoring requirements for that SWMU or AOC from the next revision of the IFGMP.

F. Upon Termination of this Consent Order, any groundwater monitoring requirements remaining in the most recent NMED-approved IFGMP may be implemented through the Facility's Hazardous Waste Permit. Upon Termination of this Consent Order, DOE may include groundwater monitoring requirements in a permit modification request made pursuant to Section VII (Relationship to Permits).

XIII. FACILITY INVESTIGATION

A. RCRA Facility Investigations (RFI/s) shall be conducted, where necessary, to investigate releases or potential releases of site-related Contaminants from SMWUs and AOCs or releases of legacy Contaminants to groundwater as appropriate to support the purposes of this Consent Order described in Section II (Purpose and Scope). Consistent with the U.S. Environmental Protection Agency's (EPA's) *Results-Based Approaches and Tailored Oversight Guidance* (2003), investigation efforts shall be focused on the overall goal to accomplish environmental cleanup and reduce risk. To support this goal, investigation planning shall include early identification of SWMUs and AOCs not posing an unacceptable risk to human health and the environment, as well as early identification of potential remedies for those SWMUs and AOCs that potentially do pose a risk based upon current and reasonably foreseeable future land use. RFIs shall focus on collection of those data necessary and sufficient to support decisions on corrective action activities, and RFIs shall follow EPA's Data Quality Objectives (DQO) process, set forth in EPA's *Guidance on Systematic Planning Using the Data Quality Objectives Process* (February 2006 or as updated). DOE shall provide notification to NMED of corrective action field activities a minimum of 15 days prior to commencing the activity.

B. The Parties agree that the term "investigation" was used under the 2005 Consent Order to mean RFI and may continue to be used in this way (e.g., investigation work plans and reports are equivalent to RFI work plans and reports).

C. Each RFI shall be performed pursuant to an RFI work plan approved by NMED in accordance with Section XXIII (Preparation / Review / Comment on Documents) of this

Consent Order. Each RFI work plan shall detail the objectives, approach, and work scope of the proposed investigation. Each RFI work plan shall also include a provision that allows DOE to perform extra work (e.g., step out sampling to determine nature and extent of contamination) based on data obtained during implementation of the RFI work plan, without further approval from NMED.

D. If, during investigation, DOE determines that changes to approach or work scope detailed in the work plan are needed to meet the investigation objectives, DOE shall notify NMED in writing. If changes to approach or work scope detailed in the work plan needed to complete the investigation would cause DOE to miss a milestone, e.g., for submittal of an RFI report, in the current fiscal year, DOE shall request an extension in accordance with Section XXVIII (Extensions).

E. For those SMWUs and AOCs addressed in investigation work plans prepared and approved by NMED under the 2005 Consent Order but not yet implemented, DOE may perform the RFIs in accordance with those investigation work plans, or in accordance with an RFI work plan prepared under this Section.

F. Following completion of all or portions of the work scope specified in the approved RFI work plan, DOE shall review the investigation results to determine whether the objectives of the investigation have been met.

G. DOE shall document the results of investigations performed in RFI reports. RFI reports shall identify the corrective action activities for the SWMU(s) and/or AOC(s) that is/are the subject of the RFI and whether performance of a CME is necessary and appropriate. RFI reports shall be submitted to NMED for review and approval in accordance with Section XXIII (Preparation / Review / Comments on Documents).

H. During preparation of the RFI report, DOE shall evaluate investigation results to determine whether to take interim measures in accordance with Section XV (Interim Measures/Emergency Interim Measures).

I. As appropriate, NMED's approval of RFI Report(s) may provide explicit validation for whether corrective action activities are complete at particular SWMU(s) or AOC(s), including validation of recommended controls, as appropriate.

J. Consistent with Section XXIII (Preparation / Review / Comments on Documents), the Parties agree to confer, and meet as appropriate, on the technical approach and/or results to be presented in RFI work plans and reports.

XIV. AREAS OF CONTAMINATION

A. Using the procedure in Subsection B, DOE may propose to designate portions of land with SWMUs and/or AOCs that are currently undergoing corrective action, into a single Area of Contamination. Consolidation or in situ treatment of wastes within the Area of Contamination will not trigger RCRA requirements such as land disposal restrictions or minimum technology requirements.

B. Should DOE choose to request an Area of Contamination designation, DOE shall request, in writing, NMED's approval of an Area of Contamination determination in advance of implementation of any work within the Area of Contamination. The request must include: 1) a description of the activities to be conducted within the Area of Contamination; 2) a map depicting the boundary of the Area of Contamination; and 3) a description of additional confirmatory sampling to be performed if the area within the Area of Contamination, but outside the original SWMU/AOC boundary, becomes contaminated.

C. NMED shall review the Area of Contamination determination request and provide a written response to DOE in which it approves, disapproves, or requests additional information.

XV. INTERIM MEASURES/EMERGENCY INTERIM MEASURES

A. Interim measures may be used as appropriate to reduce or prevent migration of site-related Contaminants which have or may result in an unacceptable human or environmental receptor risk while long-term corrective action remedies are evaluated and implemented. NMED and DOE may identify the need for interim measures during development or review of RFI work plans and reports, during performance of RFIs, or through review of new information related to potential releases of Contaminants from SWMU(s) or AOC(s).

B. If NMED identifies the need for interim measures, NMED shall notify DOE in writing. Alternatively, if DOE identifies the need for interim measures, DOE shall notify

NMED in writing. The written notifications shall identify the SWMU(s) or AOC(s) where NMED or DOE, as applicable, identifies the need for interim measures and the objectives of such interim measures, including the specific Contaminants, media, and receptors to be addressed. Upon receipt of such notifications, the DAMs shall meet to discuss the need for interim measures, the scope of the interim measures, and a schedule for submitting an Interim Measures Work Plan.

C. DOE shall prepare an Interim Measures Work Plan, which shall include estimated implementation schedules for completion of the interim measures, and submit to NMED for review and approval in accordance with Section XXIII (Preparation / Review / Comment on Documents) of this Consent Order.

D. Following completion of interim measures, DOE shall submit to NMED an Interim Measures Report. The Interim Measures Report shall summarize the results of the interim measures and include the results of all field screening, monitoring, sampling, analysis, and other data generated as part of the interim measures implementation. NMED will review and approve the Interim Measures Report in accordance with Section XXIII (Preparation / Review / Comment on Documents) of this Consent Order.

E. DOE may determine, during implementation of corrective action activities at SWMU(s) and/or AOC(s), that emergency interim measures are necessary to address an immediate threat of harm to human health or the environment. DOE shall notify NMED within three business days of discovery of the facts giving rise to the immediate threat, and shall propose emergency interim measures to address the immediate threat. NMED will respond to such proposal within three business days of receipt of the proposal. If NMED approves the emergency interim measures in writing, DOE may implement the proposed emergency interim measures without submitting an Interim Measures Work Plan. If circumstances arise resulting in an immediate threat to human health or the environment such that initiation of emergency interim measures are necessary prior to obtaining written approval from NMED, DOE shall notify NMED within one business day of taking the emergency interim measure. The notification, which can be made by email, shall contain a description of the emergency situation, the types and quantities of Contaminants involved, the emergency interim measures taken, and contact information for the emergency coordinator who handled the situation. The notification shall also include a written statement (email is acceptable) justifying the need to

take the emergency action without prior written approval from NMED. Upon completion of emergency interim measures, an Interim Measures Report shall be prepared by DOE and submitted to NMED for review and approval in accordance with Section XXIII (Preparation / Review / Comment on Documents) of this Consent Order. This Interim Measures Report shall be submitted within 90 days of completing the emergency interim measures or by an alternative date agreed to by the DAMs.

F. If implementation of an Emergency Interim Measure will impact DOE's compliance with milestones listed in the current fiscal year's Appendix B, DOE may implement the Emergency Interim Measure without first revising Appendix B. NMED and DOE shall meet as soon as practicable after implementation of the Emergency Interim Measure to revise Appendix B to incorporate the Emergency Interim Measure and adjust or remove any milestone in the current fiscal year's Appendix B that has been impacted by implementation of the Emergency Interim Measure.

XVI. CORRECTIVE MEASURES EVALUATION

A. Corrective Measures Evaluations (CME/s) shall be conducted as appropriate to support the purposes of this Consent Order described in Section II (Purpose and Scope). DOE shall perform a CME when, based on the relevant RFI report, NMED notifies DOE that a CME is required. The Parties agree that a Corrective Measures Evaluation (CME/s) performed by DOE is equivalent to a Corrective Measures Study (CMS/s).

B. CMEs will be performed to identify, develop, and evaluate potential corrective measures alternatives for removal, containment, and/or treatment of site-related contamination. CME(s) will focus on remedies based on consideration of site conditions and the extent, nature, and complexity of releases and contamination. DOE shall use a graded approach, i.e., evaluate alternatives using the criteria in the Subsection below, in identifying corrective measures alternatives. Based on application of the criteria in the Subsection below, a CME may detail why some alternatives are excluded from further evaluation in the CME.

C. DOE shall conduct CME(s) that include evaluation of corrective measures alternatives using the following threshold and balancing criteria. Any corrective measure alternative proposed in the CME Report must meet the threshold criteria, which are evaluation

standards derived from EPA's RCRA Corrective Action Plan, OSWER Directive 9902.3-2A (May 1994). DOE shall use the balancing criteria, which are other factors derived from that guidance, to evaluate alternatives meeting the threshold criteria.

1) Threshold Criteria

- a) Be protective of human health and the environment.
- b) Attain media cleanup objectives.
- c) Control the source(s) of releases.
- d) Comply with applicable standards for management of wastes.

2) Balancing Criteria

- a) Long-term reliability and effectiveness (including sustainability, long-term stewardship considerations, and long-term environmental impacts).
- b) Reduction of toxicity, mobility or volume of waste and contaminated media.
- c) Short-term effectiveness (including near-term environmental impacts).
- d) Implementability.
- e) Cost.

D. The balancing criteria shall be evaluated in accordance with the following:

- 1) Long-term Reliability and Effectiveness: The remedy shall be evaluated for long-term reliability and effectiveness, including the consideration of the magnitude of risks that will remain after implementation of the remedy; the extent of long-term monitoring, or other management that will be required after implementation of the remedy; the uncertainties associated with leaving contaminants in place; DOE's long-term stewardship of the site, environmental impacts; sustainability; and the potential for failure of the remedy. Other criteria being equal, DOE shall give preference to a remedy that reduces risks with minimal long-term management, and that has proven effective under similar conditions.
- 2) Reduction of Toxicity, Mobility or Volume: The remedy shall be evaluated for its reduction in the toxicity, mobility, and volume of contaminants. Other criteria being equal, DOE shall give preference to a remedy that uses treatment to more completely and permanently reduce the toxicity, mobility, and volume of contaminants.

- 3) Short-Term Effectiveness: The remedy shall be evaluated for its short-term effectiveness, including the consideration of the short-term reduction in existing risks that the remedy would achieve; the time needed to achieve that reduction; the near-term environmental impacts; and the short-term risks that might be posed to the community, workers, and the environment during implementation of the remedy. Other criteria being equal, DOE shall give preference to a remedy that quickly reduces short-term risks as well as near-term environmental impacts, without creating significant additional risks.
- 4) Implementability: The remedy shall be evaluated for its implementability or the difficulty of implementing the remedy, including the consideration of installation and construction difficulties; operation and maintenance difficulties; difficulties with cleanup technology; permitting and approvals; and the availability of necessary equipment, services, expertise, and storage and disposal capacity. Other criteria being equal, DOE shall give preference to a remedy that can be implemented quickly and easily, and poses fewer and lesser difficulties.
- 5) Cost: The remedy shall be evaluated for its cost, including a consideration of both capital costs, and operation and maintenance costs. Capital costs shall include, without limitation, construction and installation costs; equipment costs; land development costs; and indirect costs including engineering costs, legal fees, permitting fees, startup and shakedown costs, and contingency allowances. Operation and maintenance costs shall include, without limitation, operating labor and materials costs; maintenance labor and materials costs; replacement costs; utilities; monitoring and reporting costs; administrative costs; indirect costs; and contingency allowances. All costs shall be calculated based on their net present value. Other criteria being equal, DOE shall give preference to a remedy that is less costly, but does not sacrifice protection of human health and the environment.

E. DOE shall document the results of a CME and recommend a preferred alternative for remediation in a CME Report. CME Reports shall be submitted to NMED, and NMED shall review and issue a Statement of Basis in accordance with Section XVII (Statement of Basis/Selection of Remedies) of this Consent Order.

F. The Parties agree that CMEs performed under the 2005 Consent Order may be used to satisfy the requirements of this Section.

G. Consistent with Section XXIII (Preparation / Review / Comments on Documents), the Parties agree to confer, and meet as appropriate, on the content of CMEs.

XVII. STATEMENT OF BASIS / SELECTION OF REMEDIES

A. Statements of Basis shall be prepared, and remedies selected, as appropriate to support the purposes of this Consent Order described in Section II (Purpose and Scope). NMED shall be responsible for preparation of the Statement of Basis and selection of a remedy for which a CME Report is prepared by DOE in accordance with Section XVI (Corrective Measures Evaluation) of this Consent Order. NMED shall select the remedy based on the information presented in the relevant CME Report, data from previous RFI Reports, and information provided during the public comment period and/or during the public hearing process, as applicable consistent with the regulations at 20.4.1.900 NMAC (incorporating 40 C.F.R. § 270.42), 20.4.1.901 NMAC, and 20.4.1.902 NMAC. The remedy that NMED selects must meet the threshold criteria set forth in Section XVI.C.1), and NMED must consider Section XVI.C.2)'s balancing criteria, as analyzed by DOE in the relevant CME Report, as part of its remedy selection. NMED may choose, consistent with EPA's RCRA Corrective Action Plan, OSWER Directive 9902.3-2A (May 1994), a different remedy from that recommended by DOE in the CME Report.

B. NMED's Statement of Basis shall describe the basis for NMED's selection of a remedy. 20.1.4 NMAC NMED shall issue the Statement of Basis for public comment, and it shall be sufficiently detailed for the public and DOE to understand and comment on NMED's recommended decision on the remedy, and the studies and conclusions leading up to the decision on the remedy. The public comment period will extend for at least sixty (60) days from the date of the public notice of the Statement of Basis. NMED will provide an opportunity for a public hearing on the remedy, at which all interested persons will be given a reasonable chance to submit data, views or arguments orally or in writing and to examine witnesses testifying at the hearing. The comment period will automatically be extended to the close of the public hearing. The public hearing will follow the hearing requirements under section 20.4.1.901.F NMAC. NMED will select a final remedy and issue a response to public comments to all commenters within ninety (90) days, or other appropriate time, after the end of the public comment period. In selecting a remedy,

NMED will follow the public participation requirements applicable to remedy selection under sections 20.4.1.900 NMAC incorporating 40 C.F.R. § 270.41, 20.4.1.901 NMAC, 20.4.1.902 NMAC, and 20.1.4 NMAC.

C. NMED's decision selecting the remedy shall follow the requirements under section 20.4.1.901.G NMAC, Secretary's Decision.

XVIII. CORRECTIVE MEASURES IMPLEMENTATION

A. Corrective measures, i.e., remedies selected in accordance with Section XVII (Statement of Basis/Selection of Remedies), shall be implemented as appropriate to support the purposes of this Consent Order described in Section II (Purpose and Scope). Corrective Measures Implementation (CMI) means the design, construction, operation, maintenance, and monitoring of the remedy selected following preparation of a CME pursuant to Section XVI and Statement of Basis pursuant to Section XVII. DOE agrees to prepare CMI Plan(s), implement corrective measures, and prepare CMI Report(s).

B. Each CMI Plan shall include plans for the design, construction, operation, maintenance, and monitoring for the remedy selected by NMED under Section XVII (Statement of Basis/Selection of Remedy). Each CMI Plan shall be prepared and submitted to NMED for review and approval in accordance with Section XXIII (Preparation / Review / Comment on Documents) of this Consent Order.

C. Each CMI Report shall document implementation and completion of the remedy in accordance with its NMED-approved CMI Plan. Each CMI Report shall include a recommendation of "Certificate of Completion with controls" or "Certificate of Completion without controls" for corrective action activities completed under this Consent Order. CMI Reports shall be prepared and submitted to NMED for review and approval in accordance with Section XXIII (Preparation / Review / Comment on Documents) of this Consent Order.

D. NMED's approval of CMI Report(s) shall provide explicit validation for whether corrective action activities are complete at particular SWMU(s) or AOC(s), including validation of recommended controls, as appropriate.

XIX. ACCELERATED CORRECTIVE ACTION AND PRESUMPTIVE REMEDIES

A. The Parties agree that flexibility in implementing corrective actions is needed to most efficiently achieve the purposes of this Consent Order described in Section II (Purpose and Scope). Accelerated corrective action activities may be implemented to address risks to human health and/or the environment, reduce corrective action costs, and/or achieve cleanup ahead of deadlines otherwise proposed, e.g., Appendix B. Such accelerated activities are distinct from Emergency Interim Measures, as described in Section XV (Interim Measures/Emergency Interim Measures) and shall not be subject to milestones or associated with targets in the current fiscal year's Appendix B, pursuant to Section VIII (Campaign Approach). The Parties agree that DOE may implement accelerated corrective actions (1) involving contaminated groundwater or (2) taking longer than 180 days, notwithstanding the provisions of 20.4.2.7.A and B NMAC.

B. If an NMED-approved work plan already addresses corrective action activities that DOE endeavors to accelerate, DOE may accelerate such corrective action activities included within such NMED-approved work plan without prior written approval from NMED, provided that such accelerated activities shall not detract from milestones in the current fiscal year's Appendix B.

C. If an NMED-approved work plan does not address corrective action activities that DOE endeavors to accelerate, DOE may develop and submit work plan(s), and subsequently accelerate corrective action activities that are addressed by such work plan(s) without prior written approval from NMED, provided that such accelerated activities do not detract from milestones in the current fiscal year's Appendix B.

D. Upon completion of any accelerated activities pursuant to Subsections B and C, DOE shall provide report(s) that document(s) the results of the accelerated activities, as appropriate, and NMED shall review such report(s) pursuant to Section XXIII (Preparation / Review / Comment on Documents).

E. Presumptive Remedies. The Parties agree that implementation of presumptive remedies is appropriate and desirable for SWMUs and AOCs for which DOE determines that there is a clear, conservative remedy for which DOE believes that there will be no need to

prepare a CME under Section XVI. DOE's determination will be based upon its past experience with remediation and with NMED.

- 1) If DOE determines that the scope of the presumptive remedy is the most bounding alternative that would otherwise be evaluated under a CME, DOE will prepare a Remedy Implementation Plan and submit to NMED for approval consistent with Section XXIII (Preparation / Review / Comment on Documents). Upon approval, DOE will implement the Remedy Implementation Plan. The results of the implementation will be documented in a Remedy Completion Report, which DOE will submit to NMED for approval consistent with Section XXIII (Preparation / Review / Comment on Documents).
- 2) If DOE determines that the scope of the presumptive remedy is limited enough to accomplish during the RFI (e.g., removal of small volumes of soil contaminated above soil screening levels), DOE may accelerate corrective action activities by performing the presumptive remedy during the RFI without prior notification to NMED or NMED approval. If so, DOE shall report the results of such presumptive remedy either in the relevant RFI Report pursuant to Section XIII (Facility Investigation) or in a Remedy Completion Report, which DOE will submit to NMED for approval consistent with Section XXIII (Preparation / Review / Comment on Documents).
- 3) NMED's approval of Remedy Completion Report(s) shall provide explicit validation for whether corrective action activities are complete at particular SWMU(s) or AOC(s), including validation of recommended controls, as appropriate.

XX. AT RISK WORK

The Parties agree that DOE may perform any of the corrective action activities required by this Consent Order at risk and in advance of NMED approval.

XXI. CERTIFICATION OF COMPLETION OF CORRECTIVE ACTION

A. Certificates of Completion shall be issued, as appropriate to support the purposes of this Consent Order described in Section II (Purpose and Scope). DOE shall request Certificates of Completion for SWMUs and AOCs subject to the requirements of this Consent Order. DOE commits to timely submission of Certificate of Completion requests upon receipt of NMED's approval of completion reports, and NMED commits to a timely review of DOE's requests for Certificates of Completion.

B. NMED shall review the request(s). If NMED concurs that the corrective action activities are complete, NMED shall issue Certificate(s) of Completion. If NMED does not concur that corrective action activities are complete for the SWMU(s) or AOC(s), as applicable, NMED shall disapprove the request for Certificate of Completion and provide the basis for the disapproval in writing.

C. DOE may request Certificate(s) of Completion with or without controls, as appropriate, based on NMED's approval of relevant reports prior to the effective date of this Consent Order.

D. DOE may request, and NMED may grant, Certificate(s) of Completion without Controls for SWMUs and AOCs for which institutional or physical controls are not needed to meet cleanup objectives identified in accordance with Section IX (Cleanup Objectives and Cleanup Levels), and for which operation, maintenance, and/or monitoring will not be required after completion of corrective actions. Except as provided in Subsections G, H, and I, SWMUs and AOCs meeting cleanup objectives for human health under the residential scenario and posing no unacceptable risk to ecological receptors shall be eligible for Certificate(s) of Completion without Controls.

E. DOE may request, and NMED may grant, Certificate(s) of Completion with Controls for SWMUs and AOCs for which institutional and/or physical controls are needed to meet cleanup objectives identified in accordance with Section IX (Cleanup Objectives and Cleanup Levels), and/or for which operation, maintenance, and/or monitoring will be required after completion of corrective actions. For such SWMUs and AOCs, DOE shall propose appropriate controls in their request for Certificate(s) of Completion, and NMED shall specify such controls upon issuance of the Certificate(s) of Completion. Controls shall be limited to

actions necessary to meet cleanup objectives identified in accordance with Section IX (Cleanup Objectives and Cleanup Levels), as related to releases of site-related Contaminants from SWMUs and AOCs.

F. DOE may request, and NMED may grant, modification or removal of institutional and/or physical controls required by previously granted Certificate(s) of Completion based on new information, including information that demonstrates that institutional and/or physical controls are no longer needed to meet cleanup objectives.

G. Should NMED determine that specific Contaminants are not attributable to the Facility (e.g., Contaminants from anthropogenic sources) or not attributable to a SWMU or AOC covered by this Consent Order but are included in the risk assessment and the SWMU or AOC exceeds a residential risk solely due to the presence of these Contaminant(s), DOE may request a certificate of completion without controls. DOE's request must include the following items:

- 1) The request must indicate those Contaminants for which an acceptable risk level under a residential risk scenario was reached during corrective action activities at the site;
- 2) The request must indicate those Contaminants for which an acceptable risk level under a residential risk scenario was not reached through corrective action activities at the site;
- 3) The request must indicate how DOE will notify the current property owner (if property not owned by DOE) of the certificate of completion without controls, including any contaminant(s) identified in number 2 above at the site. NMED must be provided a copy of this notification.

H. After receipt of the certificate of completion without controls request pursuant to Subsection G, NMED will review the request and either request additional information, deny the request or issue a certificate of completion without controls. NMED's certificate of completion will list the Contaminants that pose an acceptable risk under a residential risk scenario as well as the Contaminants that pose an unacceptable risk under a residential risk scenario addressed as part of corrective action activities at the SWMU or AOC.

I. When applicable, DOE will comply with the terms of 40 CFR § 266.202 with respect to identifying the presence of military munitions and whether such military munitions

are a solid waste. Where DOE is conducting corrective action activities for those SWMUs and AOCs where munitions were formerly detonated, DOE will submit requests for certificates of completion that demonstrate how the requirements of 40 CFR § 266.202 have been met and will identify proposed controls, if any, and appropriate time frames for such controls. At either Party's request, the DAMs will meet to discuss proposed controls to resolve NMED's concerns, thus facilitating the timely issuance of certificates of completion for these SWMUs and AOCs. At a minimum, DOE will commit to maintaining records on the former use of the property as a range.

J. Pursuant to the SWA, NMED reserves any right it may have to impose long-term monitoring or other activities relating to certain Contaminants that are not hazardous wastes or hazardous constituents as part of issuance of a certificate of completion under this Consent Order.

K. If either of the following occur, NMED shall notify DOE of its intent to re-evaluate and potentially withdraw a certificate of completion:

- 1) Conditions unknown to NMED at the time of issuance of a certificate of completion, which are discovered following issuance of the certificate of completion, where the previously unknown conditions together with other relevant information indicate that a particular certificate of completion is not protective of human health or the environment; or
- 2) Information unknown to NMED at the time of issuance of a certificate of completion, which is discovered following issuance of the certificate of completion, where the new information together with other relevant information indicate that a particular certificate of completion is not protective of human health or the environment.

XXII. DESIGNATED AGENCY MANAGERS

A. No later than 20 days after the effective date of this Consent Order, NMED and DOE shall each designate which position within their respective organizations shall serve as the Designated Agency Manager (DAM) responsible for coordinating the implementation of this Consent Order. Each Party shall notify the other in writing of the position designated, including

any changes made thereto. By mutual agreement, the Parties may designate a different position within their organizations to serve as the DAM, provided that the position has sufficient authority to make decisions on behalf of the organization.

B. To the maximum extent possible, communications between NMED and DOE and all documents, including reports, agreements, and other correspondence, concerning the activities performed pursuant to the terms and conditions of this Consent Order, shall be directed through the DAMs. Except as otherwise indicated in Subsections C and D, nothing in this section shall limit each DAM's ability to delegate authority, as appropriate, within their respective organizations, including signatory authority. Each DAM shall be responsible for ensuring the internal dissemination and processing of all communications and documents received from the other DAM.

C. The DAMs shall meet regularly and as needed, but no less than quarterly, to review and discuss the progress of work being performed under this Consent Order and any related issues or concerns. This obligation to meet may not be delegated below the position.

D. The DAMs shall participate in the annual planning process, including mid-year adjustments to Appendix B, and any other matter prior to its elevation to dispute resolution pursuant to Section XXV (Dispute Resolution). These obligations may not be delegated below the position.

XXIII. PREPARATION / REVIEW / COMMENT ON DOCUMENTS

A. To support the purposes of this Consent Order described in Section II (Purpose), the Parties agree to work collaboratively to resolve issues arising during preparation and review of documents and to facilitate the efficient approval of documents.

B. Any documents previously submitted and disapproved under the 2005 Consent Order, but not yet resubmitted by the effective date of this Consent Order, may be developed and submitted in accord with the procedures and requirements of this Consent Order.

C. Pre-submission Review. Prior to DOE's preparation of any work plan or report required by Sections XIII, XVI, XVIII, XIX, or XV (Facility Investigation, Corrective Measures Evaluation, Corrective Measures Implementation, Accelerated Corrective Action, Interim Measures), the Parties agree to confer, and meet as appropriate, on the content, technical

approach, and/or results to be presented in the documents in an effort to reach a common understanding, called the pre-submission review. During this pre-submission review, NMED will attempt to identify issues or concerns with the technical approach and/or results that would preclude NMED's approval.

D. Schedules for NMED's Review. Prior to DOE's submission of any work plan or report required by Sections XIII, XVI, XVIII, XIX, or XV (Facility Investigation, Corrective Measures Evaluation, Corrective Measures Implementation, Accelerated Corrective Action, Interim Measures), the Parties agree to reach agreement on review schedules by when NMED will review and approve or disapprove DOE's submission(s). Appendix D provides target review schedules for those submissions; however, agreed-upon review schedules will be based on the size (e.g., multiple volumes) and quality of the submission(s). NMED may request a single extension for a specified number of days to an agreed-upon review schedule. Such extension to the review schedule will be agreed upon by the DAMs. If NMED action on a DOE submission is not completed in accordance with an agreed-upon review schedule, the submittal will be deemed approved.

E. Informal Review/Comment Resolution Process. Prior to NMED's approval with modifications or disapproval of DOE's submission(s), the Parties agree to attempt to resolve NMED's concerns and comments informally to the extent possible. To accomplish this goal, the Parties shall meet to informally review, discuss, and, if possible, resolve, NMED's proposed concerns and comments.

- 1) During this informal comment resolution process, NMED may request that DOE provide supplemental information needed to aid NMED's review and DOE will use its best efforts to provide such information. Such supplemental information may also be voluntarily submitted by DOE to NMED.
- 2) During this informal comment resolution process, NMED agrees to share with DOE information regarding its anticipated approval with modifications or disapproval.

F. Following the informal comment resolution meeting, and upon review and consideration of any supplemental information provided by DOE, NMED shall submit to DOE a formal, written response to DOE's submission(s) that shall be limited to: approve the document as submitted; approve the document with modifications; or, disapprove the document.

- 1) If NMED approves the document as submitted, no additional revisions or modifications to the document shall be needed.
- 2) If NMED approves the document with modifications, NMED's notification shall clarify whether DOE needs to resubmit a revised document and specify a time frame for DOE's response. The Parties agree that, whenever possible, NMED shall limit the need for DOE to resubmit the document; the Parties further agree that NMED's approval of a document with modifications is intended to address the situation where modification can be accommodated by limited page changes without a complete revision of the document. Except in cases where DOE objects to the modifications, if DOE's document need not be revised, DOE will incorporate the modifications into corrective action activities. Where NMED approval with modifications entails additional work, the Parties agree to discuss NMED's proposed additional work during the informal comment resolution process in Subsection E and follow the process set forth in Subsections J and K.
- 3) If NMED disapproves the document, NMED shall provide written comments that identify the reasons for the disapproval ("disapproval comments") and specify a time frame for DOE's response. NMED's disapproval comments shall be limited to addressing the information presented in the document being reviewed and requirements applicable to that document, and shall not apply to other documents. NMED comments intended to impact future document submissions shall be addressed pursuant to Subsection I.

G. Disapproval. If NMED disapproves the document, after NMED provides disapproval comments, a meeting to discuss the disapproval comments and to resolve these comments shall be held if requested by DOE's DAM. This meeting shall be attended by both DAMs, NMED's reviewer(s) of the document, and technical staff familiar with the document.

- 1) Before this meeting, DOE may prepare and provide to NMED, a draft written response (e.g., response letter, comment response document, or change table) to each of NMED's disapproval comments. DOE's draft responses shall either indicate concurrence with NMED's comment or indicate nonconcurrence and

provide an explanation for nonconcurrence. Each draft response shall also identify revisions to the document, if any, resulting from the comment.

- 2) After this meeting, NMED may withdraw its disapproval and submit to DOE a formal, written response that approves the document or approves the document with modifications agreed upon as a result of the meeting.
- 3) After this meeting, DOE may revise and submit to NMED the revised document based on NMED's disapproval comments and the resolution of comments agreed upon at the meeting. If DOE elects to submit a revised document, DOE shall include a final written response to each of NMED's disapproval comments with its revised document.
- 4) If DOE's DAM does not request a meeting, DOE may revise the document and resubmit to NMED without a meeting. In this case, DOE shall include a written response to each of NMED's disapproval comments with its revised document.
- 5) Upon DOE's submission of a revised document, NMED shall review DOE's revised document and shall submit to DOE a formal, written response which shall approve the document as revised, approve with modifications, or disapprove the document. If NMED disapproves the document, NMED shall provide written comments that identify the reasons for the disapproval.

H. If NMED disapproves a revised document pursuant to Subsection G, the Parties shall use the dispute resolution process provided in Section XXV (Dispute Resolution) to resolve disapproval comments. This dispute resolution process shall determine the actions, if any, required to reach a resolved document.

I. The Parties agree that, during the comment resolution process, NMED may raise comments for discussion intended to impact future document submissions if intended to improve quality or efficiency. The DAMs will be notified of such comments and meet to discuss as needed.

J. NMED may at any time request additional work, including field modifications, remedial investigatory work, or engineering evaluations, which NMED believes is necessary to accomplish the requirements of this Consent Order. Such requests shall be in writing to DOE and provide explicit justification for the additional work relative to defined, site/project-specific objectives. DOE agrees to give full consideration to all such requests. In response to such

requests, DOE may either (1) accept any such requests and incorporate them into future work plan or (2) request a meeting of the DAMs to further discuss the request.

K. Should additional work be required pursuant to Subsection J, as appropriate, Appendices B and/or C to this Consent Order may be modified in accordance with Section VIII (Campaign Approach) and Section XXVIII (Extensions) of this Consent Order.

L. Newly-discovered SWMUs and AOCs shall be addressed under Section X (Newly Discovered Releases) of this Consent Order, rather than as additional work under Subsections J and I.

XXIV. NOTIFICATION

A. Unless otherwise specified, submittals provided to NMED or correspondence sent to DOE pursuant to this Consent Order shall be sent by certified mail, return receipt requested, hand-delivered, or similar method (including electronic transmission) which provides a written record of the sending and receiving dates. Should submittals be provided through electronic transmission, a hard copy shall also be provided as soon as practicable. Submittals shall be addressed to the following persons:

1) NMED

Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

2) DOE/EM ADDRESS

U.S. Department of Energy
Environmental Management
Los Alamos Field Office
1900 Diamond Drive, MS-M984
Los Alamos, New Mexico 87544

B. Any Party may, by written notice to the other Party, change its designated recipient or notice address provided above.

C. Notices submitted pursuant to this Section shall be deemed submitted upon receipt, unless otherwise provided in this Consent Order or by mutual agreement of the Parties in writing.

D. The Parties agree that electronic transmissions made during normal business hours fulfill the submission requirements if DOE is unable to provide the hard copy submission by the submission deadline.

XXV. DISPUTE RESOLUTION

A. Any dispute that arises under this Consent Order shall be subject to the procedures of this section unless the Consent Order expressly excludes such dispute from dispute resolution. However, the Parties agree to attempt to resolve areas of disagreement and topics of potential dispute through the regular or required coordination among DAMs and designated staff.

B. Any dispute that arises under this Consent Order shall in the first instance be the subject of informal negotiations among or between the Parties' staff engaged in the dispute. The period for informal negotiations shall not exceed twenty business days from the date the dispute arises, unless the period is extended by written agreement of the Parties to the dispute. To initiate a dispute, the complaining Party's DAM shall send the other Party's DAM a written notice (email is acceptable). Such notice shall describe in detail the disputed issue, the basis for and significance of the dispute, and a proposed resolution. The dispute shall be considered to have arisen when the receiving Party receives the written notice of dispute from the complaining Party.

C. If the Parties are unable to resolve a dispute by informal negotiation under Subsection B, the dispute shall be elevated to NMED Resource Protection Division, Division Director (or successor Division), and DOE, Office of Environmental Management, Los Alamos Field Office, Office of Quality and Regulatory Compliance, Director (the "Tier 1 Officials"). Within ten business days after the expiration of the informal dispute resolution period, the DAMs (or their staff) shall submit a written statement of position to the Tier 1 Officials. The written statements of position shall document which specific milestones within Appendix B are involved or impacted by the dispute. The Tier 1 Officials shall review the written statements of

position and shall meet and confer in an attempt to resolve the dispute. The period for Tier 1 negotiations shall not exceed fifteen business days from the date the Tier 1 Officials receive the Parties' written statements of position, unless the period is extended by written agreement of the Parties to the dispute.

D. If the Parties are unable to resolve a dispute by Tier 1 negotiations under the preceding Subsection, the matter shall be immediately elevated to NMED Deputy Secretary and DOE, Office of Environmental Management, Los Alamos Field Office, Manager (the "Tier 2 Officials"). The Tier 2 Officials shall review the Parties' written statements of position and shall meet and confer in an attempt to resolve the dispute. The period for Tier 2 negotiations shall not exceed fifteen business days from the date the Tier 2 Officials receive the statements, unless the period is extended by written agreement of the Parties to the dispute.

E. If the Parties are unable to resolve a dispute by Tier 2 negotiations under the preceding Subsection, the Parties may agree to seek to resolve the dispute through non-binding mediation or another non-binding dispute resolution method, or the Parties may pursue any available legal remedy to resolve the dispute, which may include, for NMED, bringing an enforcement action or, for DOE, petitioning a court to resolve the matter. The decision or other action forming the basis of the dispute shall be deemed final for purposes of judicial review once the Tier 2 negotiations are complete.

F. The deadline for any obligation of DOE under this Consent Order that is directly affected by a dispute raised pursuant to this Section shall be held in abeyance until the dispute is resolved. The invocation of the dispute resolution process shall not, however, extend, postpone, or affect in any way any obligations of DOE under this Consent Order not directly in dispute, unless otherwise agreed by NMED in writing. Stipulated penalties attributable to the disputed matter shall continue to accrue, but payment shall be stayed pending resolution of the dispute. If NMED prevails in the dispute, DOE shall pay all accrued stipulated penalties, plus accrued interest, in accordance with Section XXXV (Stipulated Penalties).

XXVI. QUALITY ASSURANCE/DATA MANAGEMENT/DATA REVIEW

A. Samples collected by DOE during investigations, monitoring, or other activities conducted pursuant to this Consent Order shall be analyzed using EPA and industry-wide

accepted practices and procedures. Analytical methods used by DOE for sample analysis shall have detection limits consistent with site/project-specific Data Quality Objectives and approved by NMED. Contract analytical laboratories used by DOE shall maintain internal quality assurance programs in accordance with EPA and industry-wide accepted practices and procedures and which meet EPA's laboratory certification requirements. Laboratory analytical data shall be validated using data validation procedures consistent with EPA guidelines.

B. DOE commits to maintaining a publicly accessible database containing all data from analysis of environmental media samples collected by DOE as part of environmental investigations and monitoring under this Consent Order or the 2005 Consent Order, and all historical data presented in documents prepared under this Consent Order or the 2005 Consent Order.

C. By the fifteenth (15) day of each month, DOE shall review the analytical data from all groundwater monitoring conducted under this Consent Order that was received during the previous month, and shall record the date of such review; provided, however, that if the fifteenth day of a month is a non-business day, then the review shall be conducted by the next business day. DOE shall notify NMED orally within one business day after review of the analytical data if such data show detection of a Contaminant in a well screen interval or spring at a concentration that exceeds either the New Mexico water quality standard or the federal maximum contaminant level for the first time in such well screen interval or spring.

D. DOE shall notify NMED in writing within fifteen days after review of the analytical data if the data show any of the following:

- 1) Detection of a Contaminant that is an organic compound in a spring or screened interval of a well if that Contaminant has not previously been detected in the spring or screened interval.
- 2) Detection of a Contaminant that is a metal or other inorganic compound at a concentration above the background level in a spring or screened interval of a well if that Contaminant has not previously exceeded the background level in the spring or screened interval.
- 3) Detection of a Contaminant in a spring or screened interval of a well at a concentration that exceeds either one-half the New Mexico water quality standard or one-half the federal maximum contaminant level, or if there is no

such standard for the Contaminant, one-half the EPA Regional Human Health Medium-Specific Screening Level for tap water, if that Contaminant has not previously exceeded one-half such standard or screening level in the spring or screened interval.

- 4) Detection of a Contaminant that is a metal or other inorganic compound in a spring or screened interval of a well at a concentration that exceeds two times the background level for the third consecutive sampling of the spring or screened interval.
- 5) Detection of a Contaminant in a spring or screened interval of a well at a concentration that exceeds either one-half the New Mexico water quality standard or one-half the federal maximum contaminant level, and that has increased for the third consecutive sampling of that spring or screened interval.

E. The written notification shall be submitted to NMED in a letter report that includes in table format, at a minimum, the date or dates of the sampling event, an identification of the well or spring, the location of the well or spring, the depth of the screened interval of the well or zone sampled, a list of the analytical data that triggered the reporting requirement, any known issues with sample quality, and the specific category for which the data is reported under this Section.

F. DOE shall develop and maintain an e-mail notification list to notify members of the public concerning groundwater analytical data reported under this Section. DOE shall provide a link on an appropriate DOE webpage whereby members of the public may submit a request to be placed on this list. Within five business days of submittal to NMED of the written notification under this Section, DOE shall post a notice on this webpage and shall notify those on the e-mail notification list.

XXVII. ACCESS / DATA/ DOCUMENT AVAILABILITY

A. In accordance with section 74-4-4.3 of the HWA, for purposes of enforcing the requirements of this Consent Order, DOE shall allow any authorized representative of NMED to enter the Facility at reasonable times and in accordance with applicable security requirements:

- (1) to inspect the Facility;
- (2) to obtain samples of any hazardous waste or environmental

media; and (3) to inspect and copy documents relating to this Consent Order, subject to applicable security restrictions related to classified information. With the exception of unannounced inspections, NMED inspections will be previously arranged and coordinated, and DOE will honor all reasonable requests for access made by NMED.

B. DOE shall notify NMED in writing or by e-mail or fax of any field sampling activities undertaken pursuant to any plan or requirement of this Consent Order a minimum of 15 days prior to the sampling being conducted as required to meet the terms of this Consent Order, and shall provide NMED the opportunity to collect split samples upon request of NMED. For such events, DOE shall provide NMED as much advance notice as is practicable.

C. DOE shall notify NMED in writing or by e-mail or fax a minimum of 15 days prior to the implementation of any plan required under this Consent Order.

D. Nothing in this Section shall be construed to limit or impair in any way the inspection and entry authority of NMED under the HWA, the Hazardous Waste Regulations, RCRA, or any other applicable law or regulations.

E. If any work under this Consent Order is required on or requires access to property not owned or controlled by DOE, DOE shall use their best efforts to obtain access from the present owners of such property to conduct required activities, and to allow NMED access to such property to oversee such activities. In the event that access is not obtained, DOE shall notify NMED in writing regarding DOE's best efforts and the failure to obtain such access. Such work will become "Deferred" until the time that access issues are resolved. Additionally, provided DOE is denied access despite its best efforts, NMED will not take enforcement action, including pursue stipulated penalties, against DOE for failure to complete corrective action activities on property not owned or controlled by DOE or that requires access to property not owned or controlled by DOE.

F. Information, records, or other documents produced under the terms of this Consent Order by the Parties shall be available to the public except (a) those identified to NMED by DOE as classified, or unclassified but controlled, within the meaning of and in conformance with the AEA, or (b) those that could otherwise be withheld pursuant to the Freedom of Information Act or the Privacy Act, unless expressly authorized for release by the originating Party. Documents or information so identified shall be handled in accordance with applicable laws and regulations. If any information, record, or other document is final and no

confidentiality claim accompanies information which is submitted to any Party, then the information, record, or document may be made available to the public without further notice to the originating Party.

XXVIII. EXTENSIONS

A. A milestone shall be extended upon receipt of a timely request for extension and when good cause exists for the requested extension. If an extension due to good cause affects any milestone in Appendix B, the revised milestone will be incorporated into Appendix B pursuant to the process set forth in Section VIII.C (Campaign Approach). Moreover, targets related to the revised milestone shall also be extended, consistent with the revised milestone and also pursuant to the process set forth in Section VIII.C (Campaign Approach).

B. A request for an extension shall be made in writing prior to the milestone listed in Appendix B. If extraordinary circumstances preclude DOE from providing a written extension request in accordance with this Section, DOE may notify NMED orally or by e-mail (distinct from electronic transmission) and follow up in writing within 72 hours. Any written request shall be provided to NMED pursuant to Section XXIV (Notification). The written request shall specify:

- 1) The milestone that is sought to be extended;
- 2) The length of the extension sought;
- 3) The good cause(s) for the extension; and
- 4) Any related milestones or targets that would be affected if the extension were granted.

C. Examples of good cause for an extension include but are not limited to:

- 1) An event of force majeure and recovery from force majeure;
- 2) A delay caused by the good faith invocation of dispute resolution or the initiation of judicial action;
- 3) A delay caused, or which is likely to be caused, by the grant of an extension in regard to another milestone;
- 4) A delay caused by NMED's inability to meet review schedules consistent with Section XXIII.D.

- 5) A delay caused because of additional work added pursuant to Section XXIII.J and XXIII.K.
- 6) Unanticipated breakage or accident to machinery, equipment, or lines of pipe;
- 7) Any other event or series of events, including but not limited to new technical information or technological barriers mutually agreed to by the Parties as constituting good cause.

D. Within fifteen (15) business days of receipt of a written request for an extension of a milestone in Appendix B, NMED shall provide written response to DOE with approval or disapproval, including a justification for disapproval. NMED's failure to respond within fifteen (15) business days shall result in an automatic extension of time for DOE, and such extension would be incorporated into the next scheduled revision of Appendix B.

E. A timely and good faith request for an extension shall toll any assessment of stipulated penalties or application for judicial enforcement of the affected milestone until a decision is reached on whether the requested extension will be approved. Following the grant of an extension, an assessment of stipulated penalties, as defined in Section XXXV (Stipulated Penalties), or an application for judicial enforcement may be sought only to compel compliance with the revised milestone date.

XXIX. RETENTION OF RECORDS

A. DOE shall maintain all records, documents, data, and other information required to be prepared under this Consent Order for ten years after DOE's receipt of NMED's written notice of termination of the Consent Order pursuant to Section XXXVII (Termination). The only exception to this requirement relates to:

- 1) Those SWMUs and AOCs which have received a Certificate of Completion With Controls pursuant to Section XXI (Certification of Completion) and for which controls are being implemented and enforced under the Facility's Hazardous Waste Permit.
- 2) Those SMWUs and AOCs identified as "Deferred" in Appendix A at the time of Termination of this Consent Order and for which corrective actions will be implemented under the Facility's Hazardous Waste Permit.

B. Nothing herein shall be construed as a waiver of any attorney-client, work product, or other privilege that DOE might otherwise possess.

XXX. FUNDING

A. It is the expectation of the Parties that all obligations of DOE arising under this Consent Order will be fully funded through Congressional appropriations. Consistent with Congressional limitations on future funding, DOE shall take all necessary steps and use its best efforts to obtain timely funding to meet its obligations under this Consent Order, including, but not limited to, the submission of timely budget requests.

B. Nothing in this provision herein shall be interpreted to require obligation or payment of funds in violation of the Antideficiency Act, 31 U.S.C. § 1341.

C. NMED reserves the right to revise and/or adjust review times or any other time commitments pursuant to this Consent Order due to State funding limitations.

XXXI. COMPLIANCE WITH LAWS

DOE shall undertake all actions required by this Consent Order in accordance with the requirements of all applicable federal, state, and local laws and regulations. Nothing in this Consent Order shall be construed as relieving DOE of the obligation to comply with applicable law. NMED shall not require DOE to implement any actions under this Consent Order that would result in noncompliance with other State and Federal requirements.

XXXII. FORCE MAJEURE

A. A Force Majeure shall mean any event arising from causes beyond the control of DOE or its respective agents, contractors, or employees that causes a delay in or prevents the performance of any obligations of DOE under this Consent Order. A force majeure event shall not include unanticipated or increased costs or expenses associated with the implementation of this Consent Order.

B. A Force Majeure could include, but is not limited to:

- 1) Act of God, natural disasters such as fire or flood, war, terrorism, insurrection, civil disturbance, or explosion;
- 2) A federal government shutdown, including lapse of appropriations;
- 3) Restraint by court order or order of public authority;
- 4) Inability to obtain, at reasonable cost and after exercise of reasonable diligence, any necessary authorizations, approvals, permits, or licenses due to action or inaction of any governmental agency or authority other than DOE;
- 5) Delays caused by compliance with applicable statutes or regulations governing contracting, procurement, or acquisition procedures despite the exercise of reasonable diligence; and
- 6) Any strike or other labor dispute, whether or not within the control of the Parties affected thereby.

C. DOE's failure to comply with any obligation under this Consent Order that is caused by a force majeure event, such as an event listed in Subsection B above, is not a violation of this Consent Order.

D. DOE shall notify NMED within seven days after DOE becomes aware of a force majeure event and shall take all reasonable measures to minimize and mitigate any delay. In its notification, DOE shall identify and provide to NMED the delay expected for corrective action activities affected by the force majeure and provide appropriate justification for the length of the delay needed to account for the force majeure and sufficient recovery. Provided NMED agrees with the justification for the length of the delay, NMED shall grant an extension pursuant to Section XXVIII (Extensions).

XXXIII. MODIFICATION

A. This Consent Order may be modified by agreement of DOE and NMED. All modifications shall be in writing and shall become effective upon the date on which such modifications are signed by both DOE and NMED. Pursuant to Section VII (Relationship to Permits), modifications of this Consent Order are not subject to the requirements in 40 CFR § 270.42.

B. No informal advice, guidance, suggestions, or comments by NMED shall be construed to expand or reduce any obligation of DOE under this Consent Order unless documented as formal modification to the Order pursuant to Subsection A of this Section.

XXXIV. COVENANT NOT TO SUE / RESERVATION OF RIGHTS

A. Covenant Not to Sue: In consideration of the actions that will be performed by DOE under the terms of this Consent Order, and except as specifically provided in Subsection B (Reservation of Rights), the State covenants not to sue or take administrative action against DOE, their respective officers, agents, successors, or assigns, under the HWA, the SWA, or RCRA, for matters within the scope of this Consent Order. This covenant not to sue shall take effect upon the Effective Date of this Consent Order. This covenant not to sue extends only to DOE and its respective officers, agents, successors, and assigns and does not extend to any other person. This covenant not to sue shall survive the Termination of this Consent Order in accordance with the terms set forth in Section XXXVII.

B. Reservation of Rights:

- 1) Nothing herein shall prevent the State from seeking legal or equitable relief, either administratively or judicially, to enforce the requirements of this Consent Order. Moreover, nothing herein shall prevent the State from taking administrative action to implement the requirements of this Consent Order (e.g., approving or disapproving work plans, issuing certificates of completion). Finally, nothing herein shall prevent the State from taking appropriate action to address conditions at the Facility that constitute an emergency situation or that present an immediate threat to public health or the environment.
- 2) The covenant not to sue set forth in Subsection A does not pertain to any matters not within the scope of this Consent Order. The State reserves, and this Consent Order is without prejudice to, all rights against DOE with respect to all such other matters, including, but not limited to, the following:
 - a) Liability arising from the past, present, or future disposal or release of Contaminants outside the Facility to the extent the State obtains information concerning such disposal or release following Termination

of this Consent Order and such information was not available to NMED at the time of termination;

- b) Liability arising from the future disposal or release of Contaminants at the Facility to the extent the State obtains information concerning such disposal or release following Termination of this Consent Order and such information was not available to NMED at the time of termination;
- c) Liability for damages for injury to, destruction of, or loss of natural resources and the costs of any natural resource damage assessment or other related costs, and liability for damages under any federal or state statute (except for such liability, if any, under the HWA, SWA or RCRA) or federal or state common law, for past, present or future releases of contaminants to the environment;
- d) Criminal liability; and
- e) Liability for violation of federal or state law, which occurs during or after implementation of the corrective action.

XXXV. STIPULATED PENALTIES

A. Process and Notice

- 1) Milestones subject to stipulated penalties shall be determined in accordance with Section VIII (Campaign Approach).
- 2) For each federal FY between the effective date and termination of this Consent Order, the milestones listed in Appendix B for the current FY shall be subject to stipulated penalties.
- 3) A milestone for which NMED grants an extension pursuant to Section XXVIII (Extensions) beyond the current fiscal year is no longer a milestone.
- 4) Consistent with RCRA practice, for each failure of DOE to meet a milestone subject to stipulated penalties, NMED may assess a stipulated penalty in the amounts and pursuant to the procedures set forth in this section. Payment for any and all stipulated penalties assessed under this Consent Order shall not be

diverted from either the operational or environmental remediation budget at LANL.

- 5) If NMED seeks to assess stipulated penalties pursuant to this section, it shall provide written notice of intent do so to DOE. Such written notice of intent shall state the violation for which penalties are being assessed. If NMED issues such written notice within 15 days of the date the milestone comes due as identified in Appendix B, NMED may assess stipulated penalties beginning with the day after the milestone date. If NMED provides written notice 16 days or more after the date the milestone comes due, NMED may only assess stipulated penalties beginning on the date that written notice was given to DOE pursuant to this Section.
- 6) Consistent with the beginning dates for assessment of stipulated penalties set forth in this Section and only after receipt of written demand for payment discussed below, DOE shall pay to the State the following stipulated penalties for each day of noncompliance:
 - a) Day 1 through 30: \$1,000.00 per day
 - b) Days 31 and beyond: \$3,000.00 per day
- 7) NMED may, in its discretion, agree to reduce or waive the stipulated penalties that would otherwise be due under this Section.
- 8) DOE shall only be liable for stipulated penalties for failure to meet a milestone listed in Appendix B developed pursuant to Section VIII.C of this Consent Order.

B. Procedure for Payment

- 1) Stipulated penalties under this Section shall be due within 45 days from the date that NMED makes a written demand for payment of stipulated penalties (which is distinct from the written notice of intent to assess stipulated penalties described in Subsection A of this Section).
- 2) Interest shall accrue on all stipulated penalties not paid when due at the rate specified in 28 U.S.C. §1961. Interest shall accrue from the date the penalty is due until the date it is actually paid.

- 3) Payment shall be made by DOE, either by wire into an account that NMED so designates or by check payable to the State of New Mexico and delivered to:

Chief, Hazardous Waste Bureau
New Mexico Environmental Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

- 4) Payment shall be accompanied by a transmittal letter referencing this Consent Order. A copy of the transmittal letter shall be delivered to the attorney for NMED at the following address:

First class mail address:
Office of General Counsel
New Mexico Environment Department
Post Office Box 5469
Santa Fe, New Mexico 87502

Overnight delivery address:
Office of General Counsel
New Mexico Environment Department
1190 St. Francis Drive
Santa Fe, New Mexico 87501

C. Reservation: NMED reserves the right to seek other appropriate relief, in lieu of stipulated penalties under this section for any failure of DOE to meet milestones subject to stipulated penalties. If, however, NMED elects to assess stipulated penalties pursuant to the provisions of this section, NMED will not seek a separate civil penalty or other monetary relief for the alleged noncompliance identified in NMED notice pursuant to Subsection A above (Process and Notice).

XXXVI. ENFORCEABILITY

A. This Consent Order is an enforceable document. If DOE violates any requirements of this Consent Order, the State's sole remedy for such noncompliance shall be to enforce those

requirements pursuant to applicable law, subject, however, to the provisions of Section XXXV (Stipulated Penalties), which apply where the State has sought stipulated penalties pursuant to this Consent Order.

B. The State may take the following actions, or some combination of the following actions, to enforce the requirements of this Consent Order: issue a compliance order under section 74-4-10 of the HWA seeking injunctive relief or civil penalties for DOE's noncompliance with the requirements of the Consent Order; file a civil action under sections 74-4-10 and 74-4-10.1(E) of the HWA or section 7002(a) of RCRA, 42 U.S.C. § 6972(a), seeking injunctive relief or civil penalties for alleged violations of the Consent Order; and file an action seeking criminal penalties under section 74-4-11 of the HWA. Each requirement of this Consent Order is an enforceable "requirement" of the HWA within the meaning of Section 74-4-10 and an enforceable "requirement" of RCRA within the meaning of Section 7002(a)(1)(A), 42 U.S.C. Section § 6972(a)(1)(A). The State further maintains that the list of authorities identified in this paragraph is not exhaustive and reserves all rights to take any action authorized by law to enforce the requirements of this Consent Order. The State maintains that citizens may sue to enforce the requirements of this Consent Order pursuant to section 7002(a) of RCRA, 42 U.S.C. § 6972(a), if DOE violates those requirements.

C. DOE reserves any and all rights and defenses to any enforcement action taken by the State or any citizen, and nothing in this Consent Order will constitute a waiver of such rights or defenses.

XXXVII. TERMINATION

A. The Parties agree that termination of this Consent Order will occur when all corrective action activities pursuant to this Consent Order are completed with the exception of sites to be addressed under the Permit consistent with Section VII.A. DOE shall notify NMED of its completion in writing and shall include sufficient documentation of such completion.

B. This Consent Order shall terminate on the date that DOE receives written notice from NMED that DOE has demonstrated that the terms of this Consent Order have been satisfactorily completed. NMED will provide such written notice within 60 days of receipt of DOE's notice of completion.

C. If NMED identifies requirements of the Consent Order that have not been completed, it will notify DOE in writing within 60 days of receipt of DOE's notice of completion of those specific requirements that have not been met and the activities that must be taken by DOE to complete those requirements.

XXXVIII. EFFECTIVE DATE

The effective date of this Consent Order is the date on which all of the Parties have signed the Consent Order.

APPENDICES

LIST OF ACRONYMS

APPENDIX A-SOLID WASTE MANAGEMENT UNIT/AREA OF CONCERN LIST + CAMPAIGNS

APPENDIX B-MILESTONES AND TARGETS

APPENDIX C-FUTURE CAMPAIGNS

APPENDIX D-DOCUMENT REVIEW/COMMENT AND REVISION SCHEDULE

APPENDIX E-EXAMPLE DOCUMENT TEMPLATES

APPENDIX F-SAMPLING/ANALYTICAL/FIELD METHOD REGULATORY GUIDANCE

Ryan Flynn
Cabinet Secretary
New Mexico Environment Department

3/30/2016