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FACT SHEET

Proposed Order on Consent
Under Section 74-4-10 of the New Mexico Hazardous Waste Act and
Section 74-9-36(D) of the New Mexico Solid Waste Act
Issued to the United States Department of Energy, and the
Regents of University of California for the
Los Alamos National Laboratory, Los Alamos, New Mexico

Facility Name: Los Alamos National Laboratory (LANL)

EPA ID Number: NM0890010515

Owner and Operator: The Respondents for the proposed Order on Consent are the United States Department of Energy (DOE), the owner and co-operator of LANL, and the Regents of the University of California (UC), the co-operator of LANL pursuant to a contract with DOE.

Type of Facility: LANL is a hazardous waste treatment, storage, and disposal facility subject to the New Mexico Hazardous Waste Act (HWA) and the federal Resource Conservation and Recovery Act (RCRA) and their implementing regulations.

Proposed Action: NMED is proposing to enter into an Order on Consent with the DOE and UC pursuant to section 74-4-10 of the HWA and section 74-9-36(D) of the New Mexico Solid Waste Act. The Order on Consent will require DOE and the UC (or its successor) to conduct a laboratory-wide investigation and cleanup of contamination at LANL in accordance with the procedures and schedules set forth in the Order. Once final, the Order on Consent will replace most of the corrective action requirements currently included in "Module VIII" of the LANL RCRA Hazardous Waste Facility Permit. The proposed Order on Consent was released September 1, 2004. The public is invited to comment on it during a thirty-day comment period.

Location and Description of Facility: LANL is a research facility under the administration of the United States Department of Energy (DOE) and is operated by the Regents of the University of California (UC). LANL is the site of research and development of the first atomic bomb. It has been in operation since the early 1940's. Throughout its history, LANL has conducted experimental research on the production of nuclear weapons and explosive materials, among other things. As a result of the research, LANL has generated and disposed of on-site a variety of hazardous, radioactive, and solid wastes. Disposal activities at LANL started in the early 1940's and some continue to the present day. Hazardous and solid wastes that have been handled and



disposed of at LANL include chlorinated and non-chlorinated solvents, high explosives, metals, polychlorinated biphenyls (PCB's), pesticides, perchlorate, nitrates, and radionuclides.

LANL covers approximately 40 square miles of federal land 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. LANL is adjacent to lands owned and controlled by the Pueblo of San Ildefonso, Department of the Interior Bureau of Indian Affairs, Los Alamos County, Santa Fe County, Bandelier National Monument, Santa Fe National Forest, and Bureau of Land Management. The Rio Grande, the tribal lands of the Pueblo of San Ildefonso, and the community of White Rock border LANL downstream to the east. Municipal wells supplying groundwater for Los Alamos County and LANL are located within and adjacent to LANL. Historically, LANL has been divided into numerous Technical Areas (TA's). Currently, 49 TA's exist; however, many former TA's have ceased operations and have either been abandoned, have been combined with other TA's, or never became operational.

Nineteen major surface drainages, or canyons and their tributaries dissect the Pajarito Plateau. 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. The intervening mesas range in elevation from approximately 7,800 feet above mean sea level at the flank of the Jemez Mountains, located to the west of Los Alamos, to about 6,200 feet above mean sea level at their eastern extent, where they terminate above the Rio Grande.

Hydrogeologic investigations have identified four discrete hydrogeologic zones beneath the Pajarito Plateau on which LANL 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. Based on contaminant data the zones are interconnected, and the upper units provide recharge to the regional aquifer.

Habitat for several federally threatened and endangered species, including the bald eagle, the southwestern flycatcher, and the Mexican spotted owl, have been identified on Facility property. Other species, such as the Jemez Mountains salamander, spotted bat, whooping crane and black-footed ferret, may live on Facility lands. The Mexican spotted owl, southwestern flycatcher, bald eagle and Jemez Mountains salamander have been observed on LANL and Los Alamos County lands.

Regulatory Background and Authority: The federal Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 to 6992(k), provides for the regulation of hazardous waste. In section 6001(a) of RCRA, 42 U.S.C. § 6961(a), Congress waived the sovereign immunity of the United States for actions brought under state waste laws as well as under RCRA. The New

Mexico Hazardous Waste Act (HWA), NMSA 1978, §§ 74-4-1 to 74-4-14, the State analogue to RCRA, also provides regulation of hazardous waste. Pursuant to the HWA, the State has promulgated the Hazardous Waste Management Regulations (HWMR), 20.4.1 NMAC, to implement the HWA. On April 16, 1985, pursuant to Section 3006 of RCRA, 42 U.S.C. § 6926, the EPA delegated to the NMED the authority to administer and enforce the State hazardous waste program under the HWA and the HWMR in lieu of the federal program administered and enforced by EPA under RCRA. The HWA and the HWMR require corrective action at sites, such as LANL, where hazardous waste or hazardous constituents have been released into the environment. DOE and UC must comply with the HWA and HWMR.

The existing LANL Hazardous Waste Facility Permit (Permit) was issued in November 1989 to DOE and UC. At the time of issuance of the Permit, New Mexico had not received authorization to administer and enforce requirements pursuant to the Hazardous and Solid Waste Amendments of 1984 (HSWA). EPA issued the HSWA portion of the LANL Permit on April 19, 1994. Module VIII of the permit requires the DOE and UC to conduct corrective action for releases of contaminants from solid waste management units (SWMU's) at LANL. The existing Permit for LANL covered storage and treatment of hazardous waste and expired in December, 1999. DOE and UC submitted a Part A and Part B Permit Application for a new permit prior to the expiration of the existing Permit, in compliance with 20.4.1.900 NMAC (incorporating 40 C.F.R. §§ 270.11(h) and 270.51(d)). LANL is currently authorized to manage hazardous waste pursuant to the original permit - or, in some cases, under interim status - until NMED reaches a final decision on the permit application.

Release of Contaminants: LANL began operations in 1943 when the United States Army Manhattan Engineer District was established for the research and development of an atomic bomb. Current and historic 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.

As a result of these operations, the DOE and UC have generated, treated, stored, disposed of, and otherwise handled solid wastes, including hazardous wastes, hazardous waste constituents, and hazardous wastes mixed with radioactive wastes at LANL. They have disposed of hazardous and solid wastes, hazardous constituents, mixed wastes and radionuclides in septic systems, pits, surface impoundments, trenches, shafts, landfills, and waste piles throughout LANL. They have also discharged industrial wastewater and other discharges into many of the canyon systems at LANL.

As a result of the releases, LANL has identified over 2100 solid waste management units (SWMU's) and "areas of concern" (AOC's) where hazardous wastes, hazardous constituents, solid wastes and mixed wastes and radionuclides have been disposed. These wastes include chlorinated and nonchlorinated solvents such as carbon tetrachloride, methylene chloride,

trichloroethane, trichloroethylene, tetrachloroethylene, benzene, toluene, acetone, chloroform, and methyl ethyl ketone (MEK); high explosive compounds such as trinitrotoluene (TNT), dinitrotoluene compounds, octahydro-1357-tetranitro-1357-tetrazocine (HMX), triaminotrinitrobenzene, (TATB), and cyclonite (RDX); corrosive and toxic gases; metals such as arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, molybdenum, silver, and zinc; cyanide; polychlorinated biphenyls (PCB's); pesticides such as 2,4-D; perchlorate; other inorganic contaminants such as nitrates, ammonia, and fluoride; various radionuclides such as tritium, and plutonium; and other wastes.

The DOE and UC have disposed of radioactive wastes, some of which are also solid wastes, at LANL. In some cases, the radioactive wastes were mixed with hazardous wastes; in other cases they were disposed of separately. These radioactive wastes may include isotopes of plutonium and uranium as well as a variety of activation and mixed fission products including tritium, actinium-227, cobalt-60, strontium-90, cesium-137, technetium-99 and americium-241. Little operational data concerning the quantities and releases have been documented historically.

Proposed Order on Consent and its Relationship to the Previously Issued Order Under Sections 10.1 and 13:

On May 2, 2002, NMED released a Determination of an Imminent and Substantial Endangerment to Health and the Environment concerning Los Alamos National Laboratories (the Determination). NMED also released for public comment a draft order to compel investigation and cleanup of environmental contamination at LANL pursuant to the HWA, NMSA 1978 §§ 74-4-10.1 and 74-4-13. The draft order contained investigation and cleanup requirements and a schedule for implementation of corrective action at LANL. The public was invited to comment on the draft order during an initial sixty-day comment period that was later extended by an additional thirty days. The ninety-day comment period ended on July 31, 2002. Four public meetings were also held by NMED in 2002 to provide information to the public at various locations. NMED received written comments from various parties, including the DOE and UC, during the public comment period. A response was prepared for all the written comments received. NMED issued the final Order under Sections 10.1 and 13 of the HWA including a revised Imminent and Substantial Endangerment finding on November 26, 2002, after considering all the comments received. The United States of America on behalf of DOE and UC, then sued NMED in federal and State court, challenging the Order. Subsequently, the Parties entered into settlement negotiations. As a result of these negotiations, the parties have agreed on the proposed Order on Consent that NMED is releasing for public comment. The proposed Order on Consent is based largely on the original November 26, 2002 Order.

Contents of the Proposed Order on Consent: The following summarizes the contents and requirements set forth in the proposed Order on Consent, which is divided into 13 sections (I through XIII). Section I is the Introduction. Section II sets forth the findings of fact and conclusions of law in support of the proposed Order on Consent. Section III contains general

provisions, such as purposes, definitions, stipulated penalties, force majeure, dispute resolution, offsite access, entry and inspection, availability of information, reservation of rights, document review, land transfer processes, and enforcement. Section IV sets forth the requirements for a detailed, comprehensive investigation of environmental contamination at LANL. It is divided into three subsections, addressing general LANL-wide investigations, investigations of separate watersheds within LANL, and investigations of individual waste management units and technical areas (TA's) at LANL. Section V provides for the investigation of units not otherwise addressed in Section IV and Section VI. Section VI provides for the completion of investigations that are currently underway for several waste management units at LANL. Section VII provides for the identification of cleanup alternatives and the implementation of cleanup measures for LANL. Section VIII establishes screening and cleanup levels for contaminants at LANL. Section IX sets forth methods and procedures for investigation, sampling, and analysis. Section X establishes requirements for groundwater monitoring, drilling and well construction. Section XI sets forth the requirements for various documents to be submitted to the NMED. Section XII establishes the schedule for implementation of the proposed Order on Consent and completion dates for required corrective action activities in watersheds and specific sites. Finally, Section XIII establishes the effective date of the proposed Order on Consent. Except as expressly provided herein, the requirements in the proposed Order on Consent apply to all solid waste management units (SWMU's), "areas of concern" (AOC's), other sites named in the proposed Order on Consent, and all other places at LANL where contaminants have come to be located.

Major Changes Incorporated in the Proposed Order on Consent: The original Order and the proposed Order on Consent are similar in structure and their requirements for corrective action. The schedule in the original Order is considered by the NMED to be one of the key components of that document. There are some differences between the schedules outlined in the proposed Order on Consent and the original Order. Added to the proposed Order on Consent are completion dates for several high priority individual waste management units in addition to the individual watersheds. The schedule mandates completion of corrective action activities at LANL by calendar year 2015.

Several other substantive differences between the proposed Order on Consent and the original Order exist. These include:

1. Various general provisions have been included in the proposed Order on Consent, such as provisions for dispute resolution, covenants not to sue, force majeure, reservation of rights, and land transfer.
2. The proposed Order on Consent contains provisions for stipulated penalties should the DOE and UC fail to comply with certain requirements of the proposed Order on Consent.

3. Some findings of fact, information on toxicity of various substances, and most references present in the original Order are not included in the proposed Order on Consent. These findings are no longer necessary to establish liability under the agreed Order on Consent.
4. A new section has been added, III.W, which addresses the relationship between the proposed Order on Consent and the corrective action provisions in the current Permit.
5. The proposed Order on Consent includes a new section, III.Y, which addresses protocols for the transfer of property and land use restrictions that follow Section 120(h) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9620(h).
6. Corrective action requirements in the proposed Order on Consent apply to releases and potential releases of "Contaminants," which is defined to include hazardous waste, hazardous constituents, nitrate, explosive compounds and perchlorate. The definition of "Contaminants" is somewhat narrower than in the original Order. NMED has determined that the narrower definition includes all substances that may pose a threat to human health or the environment at LANL. Nevertheless, NMED reserves all rights to enforce corrective action requirements for any other substances that may be found to threaten human health or the environment.
7. The proposed Order on Consent contains language that allows the DOE and UC to establish industrial cleanup levels for specific sites based on the anticipated future land use. However, the Order on Consent contains elaborate provisions to ensure that future land use conforms to actual cleanup levels (Section III.Y). If the land use should change, the DOE and UC will be required to meet the appropriate land use cleanup level criteria. Moreover, if DOE transfers any property not cleaned up to residential levels, the Order on Consent requires DOE to impose as a condition of such transfer that the purchaser must agree to conforming land use. Any such purchaser must also agree that NMED can enforce the land use restrictions pursuant to CERCLA.
8. Although NMED reserves all rights to regulate radionuclides, requirements to monitor for, sample for, and clean up radioactive contamination are not included in the proposed Order on Consent. Instead, the DOE and UC have agreed to voluntarily provide to NMED sampling and monitoring data for radioactive contamination and potential radioactive contamination. NMED reserves all rights to acquire such information through appropriate legal measures.
9. References to watershed and waste management unit specific surface water monitoring requirements identified in the original Order (e.g., Section IV.A.5 and Table IV.A.5-1)

have been removed from the proposed Order on Consent. These requirements are to be placed in a Federal Facility Compliance Agreement (FFCA) under the Clean Water Act entered into by EPA and DOE, and subsequent Clean Water Act permits issued by EPA or NMED. NMED does not intend to enter into this Order on Consent without an executed FFCA between EPA and DOE. EPA currently preparing the proposed FFCA.

10. Section IV.A.5 now addresses firing sites and other waste management units within testing hazard zones of the firing sites. Also included in the proposed Order on Consent are two tables identifying waste management units where corrective action will be conducted immediately (Table IV-1) and where corrective action will be deferred (Table IV-2). Corrective action will be deferred only within the "Hazard Zone" of active firing sites, and only until such sites cease operations. Upon closure of the firing sites all "deferred" sites will be addressed under the proposed Order on Consent. However, if contamination is found on active sites at unacceptable levels, or if contaminant migration from active sites occurs, NMED may require remediation and stabilization under the proposed Order on Consent.
11. Section IV.B has been modified from the original Order to remove sediment investigations and some groundwater investigation requirements from Pueblo and Los Alamos canyons. These investigations have been completed. The results of sediment investigations for Pueblo and Los Alamos canyons were reported to NMED and a ground water work plan has been submitted to NMED for review and written approval. NMED may require additional characterization.
12. Section VII.F was added to the proposed Order on Consent. This section allows for accelerated corrective actions not included in the proposed Order on Consent schedule that need approval from NMED, but that may be implemented by DOE and UC.
13. Closure milestones were added to Section XII. These milestones mandate completion of corrective actions at LANL by calendar year 2015. As a result, Table XII-1 was added to the proposed Order on Consent to provide a quick reference for the identification of completion dates for individual watershed aggregate areas and specific high priority waste management units identified in the proposed Order on Consent.
14. Section XII has been modified as a result of negotiations. Most notably are changes to the sequence and timing of document deliverables. In addition, required document deliverables that have been submitted and have already been approved by NMED have been removed from the proposed Order on Consent. Documents that have been submitted by the DOE and UC which have not been approved are noted in a column in the relevant tables.

The original Order issued on November 26, 2002, included a revised Determination that hazardous or solid wastes at LANL may present an imminent and substantial endangerment to health or the environment. Because the Order on Consent is based on Section 10 of the HWA, rather than Sections 10.1 and 13, and because DOE and UC have agreed to its requirements, such a determination is no longer necessary and is not included in the proposed Order on Consent.

Public Participation, Comment Period and Regulatory Contact: The thirty (30)-day public comment period on the proposed Order on Consent begins **Wednesday, September 1, 2004**, and ends **Friday, October 1, 2004**. To be considered and included in the Administrative Record, written and electronic mail (e-mail) comments must be received no later than **October 1, 2004, at 5:00 p.m.** at the following addresses.

James P. Bearzi, Bureau Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303
Phone: (505) 428-2500

Or, e-mail: hazardous_waste_comment@nmenv.state.nm.us
Ref: LANL Order on Consent

All significant written comments received during this comment period will become part of the Administrative Record.

In addition, a public informational meeting will be held in Pojoaque from **7:00 p.m. to 9:00 p.m.**, at the **Cities of Gold Hotel** at 10-A Cities of Gold Road, on **Wednesday, September 8, 2004**. The meeting will provide information as to the general content and organization of the proposed Order on Consent. The public will be afforded the opportunity to ask questions about the proposed Order on Consent, and will be able to submit written comments at that time. For additional information, please contact the Hazardous Waste Bureau at (505) 428-2500.

Availability of the Proposed Order on Consent and Other Documents: The Administrative Record for this action includes the proposed Order on Consent, the November 26, 2002 final Order, this Fact Sheet, the Public Notice, investigation and monitoring data, investigation reports, related correspondence and other documents. NMED has prepared an index to the Administrative Record to facilitate access to the Administrative Record by the public. The documents that comprise the Administrative Record may be reviewed at:

*NMED – Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building. 1
Santa Fe, New Mexico 87505-6303
(505) 428-2500
Monday – Friday from 8:00 a.m. to 5:00 p.m.*

*LANL Community Relations Reading Room
1619 Central Avenue
Los Alamos, New Mexico 87545
(505) 665-4400
Monday - Friday from 8:00 a.m. to 5:00 p.m.*

The text of the proposed Order on Consent, the Fact Sheet and this Public Notice are also available on the New Mexico Environment Department (NMED) web page at: <http://www.nmenv.state.nm.us/HWB/pubnotice.html> under Proposed Order on Consent (09/01/2004). To obtain a copy of the Administrative Record or a portion thereof, please contact the NMED Hazardous Waste Bureau at the address or phone number given above. NMED will provide copies of the Administrative Record, or portions thereof, at a charge of \$0.25 per page.

Any person who wishes to comment on this proposed Order on Consent should submit written or electronic mail (e-mail) comment(s), along with the commentor's name and address, to Bureau Chief, Hazardous Waste Bureau at the above mentioned address.

Arrangement for Persons with Disabilities:

Any person with a disability requiring assistance or auxiliary aid to participate in this process should contact Judy Bentley at the following address: New Mexico Environment Department, Room N-4030, P.O. Box 26110, 1190 St. Francis Drive, Santa Fe, New Mexico 87502-6110, (505) 827-2844. TDD or TDY users please access Judy Bentley's number via the New Mexico Relay Network. Albuquerque users may access Ms. Bentley's number at (505) 275-7333.

Procedures for Reaching a Final Decision: All written comments received during the comment period will become part of the Administrative Record and will be considered by the NMED in formulating the final Order on Consent. The NMED will prepare a response to all written and e-mail comments which will specify the provisions, if any, that have been changed in the final Order on Consent, and the reasons for the changes. NMED intends to enter into a final Order on Consent with DOE and UC upon incorporation of any such changes. NMED will make the final Order on Consent available to the public. All persons who presented written comments or who requested notification in writing will be notified of the issuance of the final proposed Order on Consent by mail.