A Review of the

Draft
Los Alamos National Laboratory

Site-Wide Environmental Impact Statement

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The Draft LANL Site-Wide Environmental Impact Statement

Summary Sheet: The Los Alamos National Laboratory (LANL) Draft Site-Wide Environmental Impact Statement (SWEIS) gives the public an opportunity to comment on and influence the future of the laboratory. The lab knows what it wants; in many respects, the Draft SWEIS represents the formalization of what LANL has always wanted. Under the Draft SWEIS's preferred alternatives, plutonium pit production will be relocated from the notorious Rocky Flats Plant to LANL's plutonium complex; plutonium pit storage will be expanded; high explosives testing, much involving special nuclear materials, will triple; tritium operations will be expanded; the development of accelerator produced tritium will be pursued; and the lab's "low-level" radioactive dump expanded. The lab's core nuclear weapons program budget has risen by nearly 50% since the end of the Cold War. DOE is preparing to claim substantial cleanup at LANL by the year 2008 by moving some waste to the Waste Isolation Pilot Plant, while planning to leave 85% of total wastes buried in the ground. Furthermore, over the next 20 years, massive volumes of new radioactive wastes will be generated.

LANL's professed post-Cold War reason-for-being is to help ensure the "safety and reliability" of the nuclear weapons stockpile. As a baseline, the stockpile is currently judged to be safe and reliable. DOE's own documents state that no problems are expected for decades with stockpile aging that couldn't be detected and fixed by existing evaluation programs and remanufacturing-as-needed of both nuclear and nonnuclear parts. Nevertheless, DOE has proposed and is implementing the Stockpile Stewardship and Management (SSM) Program at budget levels now approaching $4.5 billion annually, exceeding Cold War levels for core nuclear weapons research, development, and testing programs. In a SSM programmatic environmental impact statement, DOE repeatedly stated that as a matter of national policy that new nuclear weapons would not be produced. However, DOE's real SSM Plan, (the so-called "Green Book", released in a declassified version due to citizen litigation), contains a number of admissions pertaining to the indefinite maintenance of the stockpile, gradual replacement of existing weapons with modified or new ones, the possible development of new nuclear weapons in response to emergent threats, and the reconstitution of the nuclear arsenal to Cold War levels, if deemed necessary.

The indefinite extension of US nuclear weapons, coupled with plans for the design and production of new replacement or completely new nuclear weapons, has extremely significant international implications. The principal international instrument for suppressing the proliferation of nuclear weapons has been the NonProliferation Treaty, in which the nuclear weapons states promised in 1970 to enter into serious negotiations towards total nuclear disarmament. As their part of the bargain, nonweapons states forever forswore the acquisition of nuclear weapons. The recent deplorable nuclear weapons tests by India and Pakistan have shattered the old nonproliferation regime, but also have highlighted long held complaints of a *de facto* nuclear apartheid enforced by the nuclear weapons states. The LANL SWEIS largely represents an indefinite extension of US nuclear weapons programs. Ultimately, this will help hinder global resolution of the root causes of proliferation.

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In its leaked 1993 LANL Strategic Plan, LANL management made clear its desire to obtain whatever residual share of production capabilities of the consolidating nuclear weapons complex that it could, in order to arrive at the ultimate ability to produce complete nuclear weapons. The Draft LANL SWEIS is now implementing expanded nuclear weapons operations at the lab, which will help assure LANL of its position as the nuclear weapons laboratory. Under the new stockpile plutonium pit production mission, LANL will step up pit production from the current rate of around 14 annually for R&D (in the past often detonated at the Nevada Test Site) to 50 to 80 for stockpile production and eventual deployment. In order to help create more floor space for pit production, the Draft SWEIS proposes as a possible alternative an advanced plutonium laboratory, reminiscent of a project that was stopped in the early 1990's, the completion of which would have capped the creation of a "special nuclear material park." In addition, because of a demonstration project to reduce pits into commercial reactor fuel rods and the processing of dangerous LANL and Rocky Flats plutonium residues, LANL is slated to remain very much involved in a variety of plutonium operations for a long time to come.

The second major expanded activity under the Draft SWEIS is the expansion of the Area G "low-level" waste (LLW) dump, which will otherwise run out of capacity by the year 2000. It is not just a low-level waste dump - - in the past reactor rods and "classified" wastes have been buried there. The Draft SWEIS projects the burial of approximately 120,000 cubic meters of LLW over the next 10 years at Area G, in an area contiguous to the designated San Ildefonso Pueblo Sacred Lands. In a process separate from the SWEIS, DOE is also considering whether LANL should become a consolidated disposal center for LLW from other DOE sites, potentially opening the floodgates for huge volumes of offsite LLW. Additionally, the Draft SWEIS calls for the tripling of high explosives testing, much of it involving nuclear materials, and the ten-fold increased storage of tritium at key facilities.

As important as what is in the Draft SWEIS is what is not. Omitted issues include:
- Specific budget costs for specific projects under expanded nuclear weapons activities;
- The rebuild of the Nuclear Materials Storage Facility, an underground plutonium pit vault, never used because of egregious design and construction deficiencies. If rebuilt under one possible alternative, its design capacity could hold up to 35 metric tonnes of special nuclear materials (LANL's declared inventories for plutonium and highly enriched uranium is 2.6 and 3.2 metric tonnes respectively);
- Site-wide plans for cleanup;
- Site-wide plans for the prevention of the offsite migration of radioactive wastes;
- Site-wide plans for the monitoring and protection of surface and ground water;
- Clear transportation data regarding total projected current and future shipments of radioactive materials;
- Environmental and health impacts of a major forest fire on lab property; and
- Comprehensive analysis of the environmental justice impacts of locating expanded nuclear weapons activities in New Mexico. This state has the highest "minority" population, and is also home to the Waste Isolation Pilot Plant, the nation's first permanent dump for defense nuclear waste.

Given post-Cold War realities and the need to suppress the proliferation of nuclear weapons, are the expanded nuclear weapons activities proposed in the draft SWEIS the direction that you want for Los Alamos National Laboratory? Written public comments are to be submitted to Mr. Corey Cruz, U.S. DOE, Albuquerque Operations Office, P.O. Box 5400, Albuquerque, NM, 87185. Mr. Cruz will be accepting public comments until July 15, 1998. Copies of the April 1998 Draft SWEIS Summary and its supporting documents can be obtained by calling Mr. Cruz at 1-800-898-6623.

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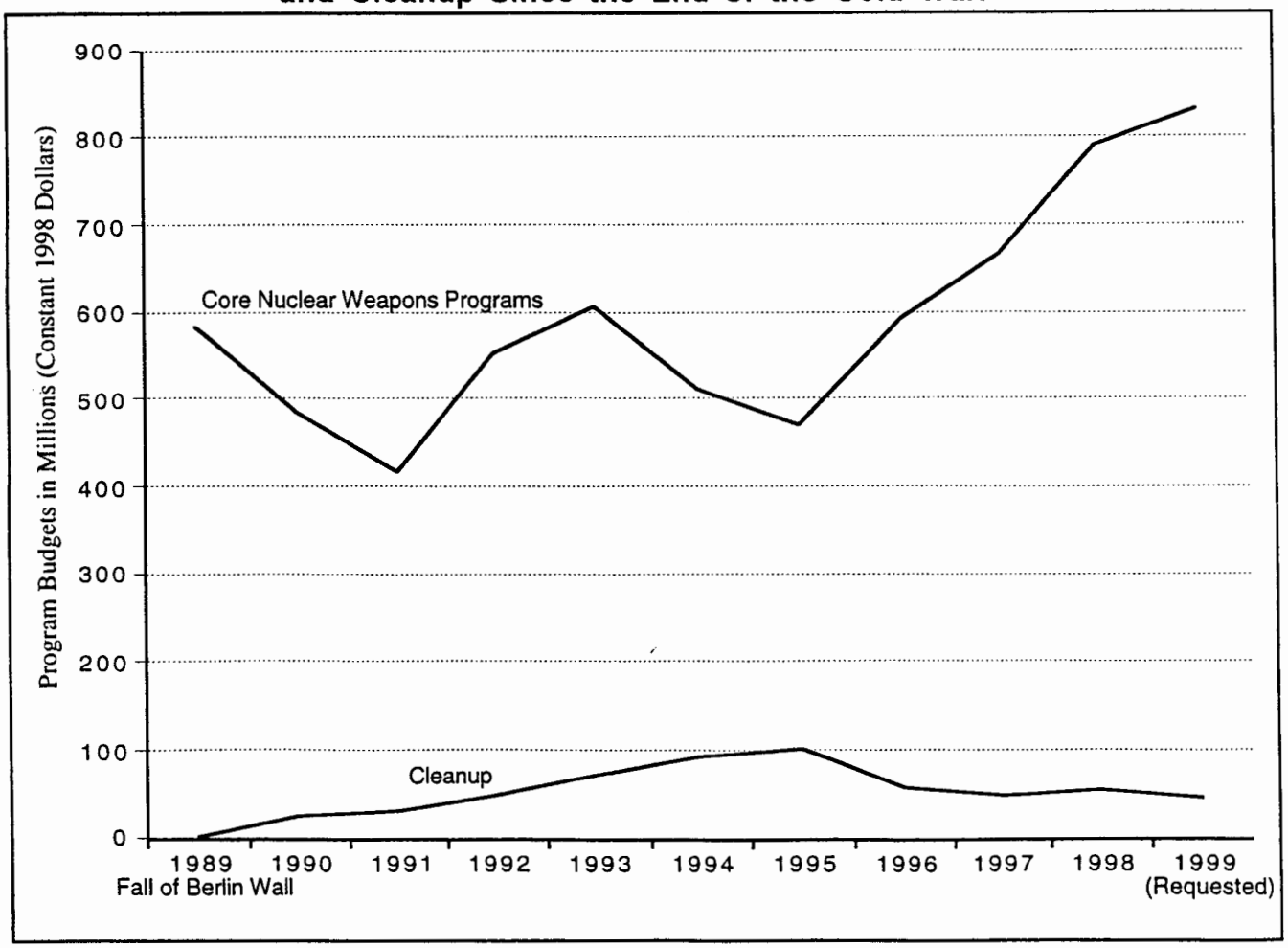
Los Alamos National Laboratory Background

Los Alamos National Laboratory (LANL), the birthplace of the atomic age, is 25 miles northwest of Santa Fe in north central New Mexico. It was established in 1944 as the research and development center for the World War II Manhattan Project, which produced the two nuclear weapons dropped on Hiroshima and Nagasaki. LANL has been managed under contract for the Department of Energy (DOE) by the University of California (UC) during its 54 years of existence. Because UC is a "non-profit, educational" institution, LANL pays no gross receipts tax to New Mexico (unlike Sandia National Laboratory in Albuquerque). The lab occupies approximately 43 square miles and is divided into 49 separate Technical Areas (TAs) (not all of which are numbered sequentially). The lab currently employs 9,977 full time worker equivalents, including subcontractors. If the Draft SWEIS's alternative of expanded nuclear weapons activities is implemented, it is projected that 11,351 full time worker equivalents would be employed. LANL's current overall budget is $1.2 billion. The DOE FY 1999 budget request for LANL nuclear weapons programs is $835.9 million (nearly 50% higher than 1989 when the Berlin Wall fell); cleanup $45.2 million (much of it mere paper studies). By the year 2003, the lab itself projects a nuclear weapons program budget of over $900 million. LANL is clearly "building up", not "cleaning up", a questionable post-Cold War priority.

LANL's Budget for Core Nuclear Weapons Programs and Cleanup Since the End of the Cold War.



The Stockpile Stewardship and Management Program

LANL's professed reason-for-being in the post-Cold War environment is to help ensure the "safety and reliability" of the nuclear weapons stockpile. As a baseline, the stockpile is currently judged to be safe and reliable[1], and the evidence available to the public suggests that few problems are to be expected with stockpile aging for the foreseeable future. Briefly put, the overwhelming majority of components in a nuclear weapon are nonnuclear (such as radar, parachutes, arming, firing and fusing mechanisms, etc.). All of these components can be extensively bench tested. With the loss of full-scale underground testing and hoped for ratification of the Comprehensive Test Ban Treaty, DOE has proposed advanced experimental facilities, augmented by greatly enhanced computer simulations of the performance of nuclear weapons. The core area of possible concern pertains to the plutonium pit primary or "trigger",[2] which must be imploded in near perfect symmetry to reach critical mass. However, the isotope of plutonium used for pit production (Pu-239) has a long half life of 24,000 years, meaning that for radioactive material it doesn't "age" that rapidly.[3] Therefore, it is unlikely that serious problems would arise with pit aging that couldn't be detected and fixed by already existing DOE programs for stockpile evaluation and remanufacturing-as-needed for pits. [For more background information, please see attached fact sheet "The Need for the Stockpile Stewardship and Management Program?"]

Nevertheless, DOE has proposed and is implementing the Stockpile Stewardship and Management (SSM) Program at budget levels now approaching $4.5 billion annually, exceeding that of Cold War levels for core nuclear weapons research, development and testing activities. Due to citizen activism, DOE was eventually pressured into completing a SSM programmatic environmental impact statement (PEIS), which continually professed the need for the Program to ensure stockpile safety and reliability. However, in the course of citizen litigation over the adequacy of the SSM PEIS (in which CCNS was one of 39 co-plaintiffs), DOE was forced to release a declassified version of its "Green Book", the real Stockpile Stewardship and Management Plan. That plan contains a number of admissions pertaining to the indefinite maintenance of the nuclear weapons stockpile, the gradual replacement of existing weapons with modified or new ones, the development of new

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1 The safety of nuclear weapons involves the prevention of unauthorized use and accidental detonation and the mitigation of radioactive materials dispersal in the event of a fire. Obviously, nuclear weapons are not "safe" in the event of authorized use. Reliability involves the successful detonation of the weapon within a classified percentage of design yield (probably ± 5 to 10%), and not necessarily whether a nuclear weapon actually blows up or not. This distinction is important in debate over whether the maintenance of stockpile reliability is for deterrence purposes only (in order to prevent attack) or is so assiduously maintained in order to preserve first strike capabilities. As a matter of military policy, the US has always refused to pledge "no first use", an important step in building international arms control confidence.

2 In modern nuclear weapons, a plutonium pit is a grapefruit-sized sphere. Tritium is injected into a hollow inside the pit immediately prior to detonation. The pit then implodes, reaching critical mass while fissioning. The injected tritium fuses, which in turn enhances the pit's fissioning process. The boosted pit then acts as a "trigger" to initiate fusion in secondary components, which results in the immense destructive yields of modern thermonuclear weapons. The development of boosted pits allowed for the miniaturization of nuclear weapons such that they could be mated to intercontinental ballistic missiles and other delivery systems.

3 J. Carson Mark (an eminent LANL physicist, "father" of the American H-bomb, and eventual ardent arms control advocate (now deceased)) suggested to this writer in 1996 that LANL scientists had the foresight 30 - 40 years ago to set aside plutonium pits for the express purpose of measuring aging effects. In his words, "the big news was that there was no news", that is the pits had not detectably aged. While acknowledging that these materials exist, DOE denied the author's request for information.

weapons systems in response to emergent threats, and the reconstitution of the nuclear weapons arsenal back to Cold War levels, if deemed necessary (primarily due to the possibility of a resurgent Russia). The Green Book declares:

> The requirement to maintain the capability to design and engineer new weapons systems to military requirements [was] stated in the DoD [Department of Defense] Nuclear Posture Review. Nuclear weapons in the enduring stockpile will eventually be replaced. (New system development may be needed even to maintain today's military characteristics.) This work is anticipated to begin around 2010. In the meantime, future national policies are supported for deterrence by retaining the ability to develop new nuclear weapons for emergent threats.

This is in contrast to repeated statements in the SSM PEIS that as a matter of presidential policy there would be no more production of new nuclear weapons for the foreseeable future.[4]

The indefinite extension of the US nuclear weapons stockpile,[5] coupled with plans now being made for the design and production of new replacement or completely new nuclear weapons, has extremely significant international implications. The principal international instrument for suppressing the proliferation of nuclear weapons has been the 1970 NonProliferation Treaty (NPT), in which the nuclear weapons states promised to enter into serious negotiations towards total nuclear disarmament. As their part of the bargain, the nonweapons states forever forswore the acquisition of nuclear weapons. The recent deplorable nuclear weapons tests by India and Pakistan have shattered the old nonproliferation regime, but have also highlighted long held complaints of a *de facto* nuclear apartheid enforced by the nuclear weapons states.[6] The LANL SWEIS largely represents an indefinite extension of nuclear weapons programs at the lab and, by extension, this nation as well. Ultimately, this will hinder global resolution of the root causes of proliferation.

Draft LANL SWEIS Background

Due to activist pressure, DOE agreed in 1995 to begin the preparation of a new LANL SWEIS. In accordance with the National Environmental Policy Act (NEPA), it is current DOE policy to review existing SWEISs every five years and update them for significant new information or changed missions, as needed. SWEISs are important because they act as the site-wide foundation for later proposed project-specific NEPA analyses, a process which is known as "tiering." SWEISs are supposed to analyze the cumulative impact of a DOE site, which the Council on Environmental Quality Implementing Regulations for

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4 In 1997, a new earth-penetrating nuclear weapon, the B61-11, was rushed to the stockpile after being designed at LANL and produced there and at other DOE sites. Semantically, the U.S. government has insisted that the B61-11 is not a new nuclear weapon because it is a modification of an existing weapon. In terms of its new military characteristics (an earth-penetrator has an inherently different military mission from the original model), it is difficult to describe this modification as other than a new weapon.

5 DOE is implementing Stockpile Life Extensions Programs specific to each weapons system that it expects to maintain after the year 2003 in order to guarantee their operational readiness until mid-next century. Assuming that Russia will eventually ratify the START II arms control treaty, the U.S. is planning on an "enduring" stockpile of 7 - 10 weapons types, with a total of 3,500 deployed warheads and roughly equal numbers of warheads and plutonium pits held in reserve.

6 India had refused to sign the NPT precisely because of what it viewed as its discriminatory nature. In turn, Pakistan refused to sign the treaty unless India signed. Israel is the other suspected nuclear weapons power that is not a signatory to the NPT.

NEPA defines as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions..." The first and only LANL SWEIS was completed in 1979, which LANL had internally acknowledged in the early 1990's as "obsolete and out-of-date." Nevertheless, the lab still pursued a number of expensive and potentially dangerous projects tiered off the old SWEIS. The new Draft SWEIS provides the public the only formal opportunity to comment on and influence LANL's preferred expanded nuclear weapons operations. Following DOE's collection of comments and subsequent response to comments, DOE will then issue a Final LANL SWEIS, expected in the Fall of 1998 (however, it is common for DOE NEPA documents to be delayed). That will be followed by a formal Record of Decision implementing DOE's chosen course of action. [Written comment period expires July 15, 1998. See the last page for DOE address for submittal of comments.]

NEPA requires government agencies to conduct an environmental impact statement (EIS) of any major proposed action, and to offer a range of alternatives to that action, including as an analytical baseline a No Action Alternative (the status quo). In this Draft LANL SWEIS, DOE proposes to continue operations at LANL from the perspective of four different alternatives: no action, expanded operations, reduced operations, and the "greener" alternative. As defined by DOE, the No Action Alternative includes continuing operations in support of DOE missions without increasing plutonium pit production capacity (currently 14 annually) and without expanding the lab's radioactive waste dump. The Reduced Operations Alternative would include the minimum levels of operation considered necessary by DOE to maintain the needed capabilities to support Defense Program missions. The Greener Alternative - - an alternative that activists had pressured DOE into considering - - reflects increased levels of operations at LANL in support of nonproliferation efforts, basic science and nuclear materials recovery/stabilization and reduced levels of nuclear weapons activities. Because DOE has already stated that expanded operations is its preferred alternative, the rest of this review is concerned with that future direction.

On a general note, NEPA analyses are supposed to inform federal decision makers of all reasonable alternatives to a proposed action before "resources are irretrievably committed" to any one proposal. The Draft LANL SWEIS is notably deficient in that it does not assign specific estimated costs to proposed actions (all budget figures in this review are derived from other sources). An obvious question is how can the Final LANL SWEIS, if it follows the draft, accurately inform decision makers in the absence of estimated project costs.

Expanded Operations at LANL

As the US nuclear weapons complex has shrunk and consolidated, LANL management has been eager to grab any residual share of the nuclear weapons business that it can. A 1993 LANL Strategic Plan had an 18-page summary, marked for external distribution, which was the occasion for a glowing newspaper editorial over potential regional economic development centered on the lab. The remaining 102 pages, marked for internal use only, explicitly stated that LANL's "unique reason to be" was nuclear weapons technologies and that the lab's goal was to become the "prime DOE/DP [Defense Programs] steward for the nation's stockpile." Towards that end, the lab sought to implement the following new or enhanced capabilities: stockpile plutonium pit fabrication, uranium components manufacturing, lithium secondary ("H-bomb") components manufacturing, expanded plutonium storage, development of tritium manufacturing techniques, and

fabrication of beryllium components (used as tampers and reflectors in nuclear weapons). These capabilities have already been implemented or soon will be under the LANL SWEIS. On a facility-specific basis, this has the following implications:

Plutonium Facility Complex. DOE has decided to relocate plutonium pit production from the notorious Rocky Flats Plant to LANL's TA-55, specifically at Building PF (Plutonium Facility)-4. Pit production at Rocky Flats was never resumed after operations were halted in 1989 following an FBI raid investigating environmental crimes. Rocky Flats experienced numerous fires (plutonium in some forms can self-combust in the presence of oxygen) and illegal radioactive waste dumping practices. With the transfer of this mission to the lab, LANL will step up its pit production from the current rate of approximately 14 annually for research and development (which in the past were often blown up at the Nevada Test Site) to 50 to 80 (depending on single or multiple work shifts) for stockpile production. The stated immediate reason for establishing this capability at LANL is to replace pits that are withdrawn from the stockpile for destructive analysis, specifically the submarine-launched W88 warhead. [LANL has recently produced its first pit to stockpile standards.] Probable underlying reasons for establishing pit production have been discussed in this review's section on the Stockpile Stewardship and Management Program. Continuing pit production capability will allow DOE to extend the life of the US nuclear weapons arsenal into the indefinite future and to produce new designs, contrary to Article VI of the NonProliferation Treaty (which mandates that the nuclear weapons powers enter into substantive negotiations leading to total nuclear disarmament).

In order to accommodate the need for more floor space for pit production at PF-4, the SWEIS proposes as a possible alternative the construction of a "Brownfield Plutonium Alternative", so-called because it would be constructed on previously disturbed earth. This Brownfield Plutonium Facility would essentially be a 15,300 square foot advanced plutonium laboratory, highly reminiscent of a project that LANL had proposed in the late 1980's called the Special Nuclear Materials Research and Development (SNMR&D) Laboratory. Because of aging problems with the Chemical and Metallurgical Research Building (see below), the lab sought the construction of the SNMR&D Lab as a substitute. At estimates as high as $440 million, it would have been the largest capital construction project in the lab's history. In LANL's own words, completion of that lab would have provided the keystone to the creation of a "special nuclear material" park at TA-55 based on a triad of facilities - - the new advanced plutonium lab, the existing PF-4 facility, and a rebuilt Nuclear Materials Storage Facility (also discussed below). CCNS and others had insisted on the preparation of an EIS for the SNMR&D lab; this stalled the project long enough for Congress to review its need given the end of the Cold War and to decline funding. The lab then proposed three different upgrade phases for the CMR Building as a substitute for the substitute. Now, as a result of further ongoing problems at the CMR Building, DOE and the lab are apparently refloating the proposal for an advanced plutonium lab at TA-55.

The plutonium complex would also develop a pit disassembly technology, processing up to 200 pits per year. This would include 240 pits over 4 years in a demonstration project to reduce pits to plutonium oxides for commercial reactor fuel rod fabrication. This program to produce "mixed oxide" (or MOX) fuel for commercial reactors can potentially become a major program at LANL. Other facilities at LANL are already pursuing research into MOX fuel fabrication, and the SWEIS fails to analyze the impacts of this program. PF-4 would

also process, use and recycle up to 43 kilograms of plutonium-238[7] for space and terrestrial uses (principally for the fabrication of thermoelectric batteries used in nuclear weapons and spacecraft). Costs for renovations and new glovebox lines have been reported to be approximately $350 million. In addition, the Draft SWEIS considers building a dedicated transportation corridor for special nuclear materials between TA-55 and the Chemical and Metallurgical Research (CMR) Building at TA-3.

According to a 1998 federal General Accounting Office report, LANL has the third highest inventory of plutonium residues of any DOE site. These residues are dangerous if not stabilized, and the program to do so is behind schedule by up to three years. LANL officials have cited competing priorities for funding, staff and equipment as impediments. As PF-4 is the only possible facility capable of processing plutonium residues, it is probable that the new and emphasized priority of expanded pit production could further delay stabilization of LANL's plutonium residues. In addition, up to 62 shipments of Rocky Flats' residues are tentatively scheduled for processing at the lab. Concerning plutonium stabilization, the Draft SWEIS says little more than that "LANL would recover, process, and store its existing inventory in 8 years." Although the Rocky Flats residues are mentioned, processing of those residues are not analyzed in the Draft SWEIS. The Final SWEIS needs to fully address the processing and stabilization at LANL of plutonium residues from both sites, and help ensure that stabilization of the lab inventory is completed without delay.

The Nuclear Materials Storage Facility. The Nuclear Materials Storage Facility (NMSF) at TA-55 was originally built in the mid-1980's for around $25 million; the lab never took occupancy of the facility because of egregious design and construction deficiencies.[8] Vaults in PF-4 now hold up to 2.6 metric tonnes of plutonium and other special nuclear materials. With its original design capacity of 6.6 metric tonnes, the NMSF will be rebuilt for expanded storage at a cost of $56.7 million.[9] Because stored pits radiate heat, cooling systems are necessary for storage. The NMSF's current design utilizes a passive cooling system. Installation of an active cooling system, which the SWEIS states may be considered "as appropriate", would enable the NMSF to hold up to 35 metric tonnes of SNM. [Current declared inventories for plutonium and highly enriched uranium (HEU) are 2.6 and 3.2 metric tonnes respectively.] This would effectively constitute dramatic expansion of the NMSF's design capacity. In the 1995 Notice of Intent for the LANL SWEIS, DOE stated that proposed capacity changes would be addressed in the SWEIS, but the Draft fails to do so.

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7 Plutonium-238 has a half-life of 87.7 years and is approximately 200 time more radioactive than Pu-239. During a recent processing and manufacturing campaign at PF-4 to produce spacecraft batteries for the NASA Cassini Program, the number of radiological incidences increased by 2 and a 1/2 times.

8 Some of these deficiencies were:

- The docking bay for Safe and Secure Trailers transporting pits was built too narrow to open the trailer doors. As a result, pits would have to have been transported via NMSF office space to the vault;
- 2-3 feet of dirt was placed on the roof of the vault. The roof was not seismically qualified;
- Ventilation from the vault exited in office space;
- Special paint in the vault that was to aid in cleanup immediately debonded from the substrate;
- Two gas boilers were placed near the vault, an obvious fire and explosion hazard; and
- Inadequate shielding was provided to protect personnel from radiation.

9 At this writing, a House subcommittee on Energy and Water Appropriations is recommending no funding for FY 1999 because it is "concerned that a validated baseline for the cost and schedule of these two ongoing projects [NMSF rebuild and CMR upgrades] does not exist."

The SWEIS is treating the rebuild of the NMSF as a "done deal", with the installation of an active cooling system as a possible alternative. DOE has claimed that the NMSF rebuild can be categorically excluded from further NEPA review on the basis of its 1986 environmental assessment, which was arguably inadequate at that time. The NMSF rebuild issue is important because DOE has so far failed to make a programmatic determination for the storage location(s) for "strategic" pits.[10] Other reasons that the issue of the NMSF rebuild is important are the known transfer of SNM from other DOE sites to LANL, deficiencies involving the individual canisters in which individual pits are stored, and increasing evidence of seismic risks at LANL.

The Chemical and Metallurgical Research Building. The Chemical and Metallurgical Research Building (CMR) Building at TA-3 (the most populous technical area of the lab) was built in the mid-1950's. It is the lab's largest building at 550,000 square feet. Although it has many programs, its principal mission is to support SNM processing and fabrication at PF-4 through sample analysis of SNM. The CMR Building had a serious explosion during a classified experiment in November 1997. Other safety problems finally caused a seven month safety stand down, which has only recently been fully lifted. The first upgrade phase for the CMR Building has experienced serious enough cost overruns to warrant Congressional scrutiny (see footnote 8).

Under the SWEIS's expanded operations, two currently unused wings of the CMR Building are being considered for direct support of LANL's plutonium pit production mission. Special nuclear materials sampling would increase to approximately 11,000 samples per year. A special recovery line would be relocated from PF-4 to the CMR Building to recover tritium from plutonium components. It is also possible that "pit reuse" operations (a "tune-up" of pits) would be relocated to the building. All of these relocations serve the ultimate aim of providing more floor space at PF-4 for stockpile pit production. In addition, the CMR Building would be a major facility for the recovery, processing and storage of the lab's 3.2 metric tonne inventory of HEU. In December 1996, DOE identified the CMR Building as one of the ten most safety vulnerable HEU facilities in the entire nuclear weapons complex.

Tritium Facilities. Under expanded operations, the major tritium facilities at TA-16 and 21 would store approximately 10 times the amount currently stored. This would include the loading of neutron tube targets and high pressure gas fills and processing. Tritium is a radioactive isotope of hydrogen (H-3), used to boost the fission of plutonium pits. Because it has a relatively short half-life (12.2 years), tritium is periodically replenished so that US weapons meet design yields. Because of the perceived need to produce more tritium, LANL is also conducting a major effort into research and development of accelerator-produced tritium (see LANSCE below). As a gaseous radioactive isotope, tritium is difficult to contain. It also readily condenses into water vapor which is easily absorbed by living tissue, multiplying its potential biologic damage.

High Explosives Testing Facilities. Under expanded operations, overall high explosives testing at various TAs will nearly triple, consuming up to 82,500 lbs. of explosives and 6,900 lbs. of depleted uranium annually, along with "smaller amounts of other materials"

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[10] Strategic (or war reserve) pits are those which have not been declared excess and may be used in nuclear weapons in the future.

(among which is certain to be plutonium).[11] Many of these tests are related to continuing research and development of plutonium pits. As a result of this increased activity, the Draft SWEIS postulates that the radioactive dose to the public will increase by one millirem annually (the Clean Air Act limit is 10 millirem). These high explosives experiments are "nonpoint" sources of radioactive air emissions (that is the emissions don't exit up a stack). Such sources must be monitored through the lab's ambient air monitoring program, whose adequacy may be questionable because of issues involving the appropriate density of sampling units, siting criteria, periodicity of sampling and analysis, quality assurance, etc.

The Draft SWEIS assumes that the Dual Axis Radiographic Hydrodynamic Testing (DARHT) will commence operations.[12] DARHT is a $270 million facility which will provide two x-ray lines of sight for the implosion process of surrogate pits (some of which may be full-scale mockups using isotopes of plutonium not capable of achieving criticality). DOE is already planning for a $440 million follow-on to DARHT, the Advanced Hydrotest Facility with 6 - 8 lines of sight, to be located at either LANL or the Nevada Test Site. The Draft SWEIS fails to consider this possible new facility.

The Los Alamos Neutron Science Center. The anchor facility for the Los Alamos Neutron Science Center (LANSCE) at TA-53 is a 800 million electron volt accelerator (formerly known as the Los Alamos Meson Physics Facility (LAMPF)), which directs a proton beam to specially made targets. These targets undergo neutron spallation, which is used for a variety of purposes. Before the proton beam strikes the targets, it traverses an air gap and ionizes air constituents. These gaseous activation products are responsible for 95% of LANL's radioactive air emissions. In 1992, CCNS filed a notice of intent to sue under the Clean Air Act for long-standing violations at LANL. Shortly thereafter, DOE announced the closure of LAMPF. Vigorous lobbying by both LANL management and the New Mexican congressional delegation not only ensured LAMPF's survival, but ultimately the expansion of its mission and change of name, with an estimated $750 million in add-ons and improvements. All of this was accomplished by switching funding from the DOE Energy Research budget account to Defense Programs, a prime example of post-Cold War "conversion-in-reverse."

Because of CCNS's litigation, annual operations at LANSCE fell at one point to 3 - 4 months per year. Under the SWEIS's expanded operations, and with reported improvements to LANSCE's exhaust line, operations will be increased to 10 months and 1,000 to 2,000 experiments per year. Upgrades at LANSCE are expected to send around 225,000 cubic feet of "low-level" waste to the Area G dump (see below). A high explosive assembly area and magazine will be constructed adjacent to a new Dynamic Experiments Laboratory. This lab will incorporate the use of gas guns for shock wave experiments,

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11 The 1979 LANL SWEIS states that an estimated 220,000 lbs. of depleted uranium had been blown up by that time in high explosives experiments, 10% of which was assumed to have been aerosolized. The 1998 draft SWEIS gives no current estimate. The amount of cumulative deposition of radioactive and hazardous materials used in these experiments may be of concern because of, among other reasons, the area's history of forest fires. The draft SWEIS does not address this issue.

12 DARHT had its own separate NEPA analysis, but only because the Los Alamos Study Group and CCNS successfully litigated against DOE for its failure to prepare an EIS. A federal judge imposed a 16-month injunction against DARHT construction, which was lifted once DOE completed an EIS. In his ruling to lift the injunction, the judge also recognized the serious environmental impacts that DARHT could have in the event of an accident. DOE maintains that explosions involving plutonium will be held in containment vessels.

many of which may involve special nuclear material for further research and development of plutonium pits. All of this could ultimately be directed towards the development of proton radiography for the Advanced Hydrotest Facility, which could be a distinct improvement over the x-ray radiography planned for DARHT (and therefore a yet better tool for weapons design).

Given scant discussion in the LANL SWEIS is a new 40-million volt accelerator that will be constructed at LANSCE for the demonstration of a new technology for accelerator-produced tritium (APT). Because tritium decays relatively rapidly at 5% per year, it needs to be periodically replenished in order to ensure weapons reliability (i.e., that they would explode within ± 5 - 10% of design yields). DOE has been unable to produce tritium since the late 1980's when production reactors at the Savannah River Site (SRS) in South Carolina were shut down for serious safety reasons. DOE is now exploring two tracks for future tritium production - one in a commercial reactor (which could violate international prohibitions against mixing civilian and military nuclear uses) and the development of APT technology at LANL. That technology, if successful, would then likely be scaled up for construction at SRS. However, the need for future production of tritium is itself doubtful, given possible further bilateral cuts in Russian and American nuclear weapons stockpiles. Needed tritium production rates are predicated on the high number of weapons allowed under the first Strategic Arms Reduction Treaty (START) (approximately 10,000 each). START II has been ratified by the US Senate and is up for consideration by the Russian parliament. Tritium from additional dismantled weapons can be recovered and recycled for remaining weapons. Nevertheless, the lab is planning on spending approximately $290 million on this new production technology by the year 2004.

Possibly related to the development of APT technology is development of the accelerator transmutation of nuclear waste (ATW). This may initially seem like an attractive idea, where theoretically a proton beam could bombard nuclear waste and break down plutonium and high-level radioactive wastes into more stable elements. ATW is likely unfeasible because:
1) Nuclear waste would first have to be reprocessed, which creates yet more waste;
2) Reprocessing for ATW would provide an international example for continued reprocessing, which can always give the opportunity for diversion of materials into weapons programs; and
2) Waste typically consists of more than just a few long-lived radioactive elements. An accelerator beam would likely have to be individually configured for each major radioactive element, driving up costs to potentially exorbitant levels.
The ATW program is yet another significant subprogram at the lab that could mushroom in size, acting as a potential magnet for more onsite waste generation and the potential influx of wastes from other sites.

Area G "Low-Level" Waste Dump. Area G, located in TA-54 on the narrow Mesa del Buey, is approximately 3 miles from LANL's bedroom community of White Rock. Its long northeastern boundary is contiguous to designated San Ildefonso Pueblo Sacred Lands. TA-54 contains many potential archeological sites of traditional cultural importance. Area G is just one mile west of Tshirege, the largest Ancient Pueblo ruin on the Parajito Plateau. In operation since 1957, Area G has over 160 unlined disposal shafts and numerous disposal pits. Far from being just a "low-level" (LLW) radioactive waste dump, in the past reactor rods, highly activated targets from LAMPF and "classified" wastes were buried at Area G. With the stroke of a pen in the mid-1980s DOE raised the radioactive level of

transuranic (TRU)[13] waste by an order of magnitude, thereby increasing the amount of radioactive materials that will remain buried. There are no plans to cleanup Area G. Tritium vapor transport across the narrow mesa is a potentially serious problem.

Under the SWEIS's expanded operations, DOE's preferred alternative is to expand two new zones to the northwest of Area G in a stepwise fashion. Without expansion, disposal capacity is projected to be filled before the year 2000. Due to the overall increase in programmatic weapons activities, construction upgrades to major facilities and curtailment of offsite shipments of LLW, the Draft SWEIS projects that on-site shipments to Area G will be almost double the current 1300 shipments each year, resulting in the burial of approximately 120,000 cubic meters of LLW over 10 years. In a process separate from the SWEIS, DOE is also considering whether LANL should become a consolidated disposal center for LLW from other DOE sites. Hence, any expansion of Area G could open the floodgates for huge volumes of offsite LLW.

Environmental Management Issues

Environmental Restoration and Waste Management

DOE agreed in a 1990 federal court order to prepare an integrated national NEPA study on the environmental restoration (ER) and waste management (WM)[14] of the nuclear weapons complex. That study would have helped set cleanup standards and priorities and future land-use policies. ER and WM are inextricably linked because of the overwhelming volumes of wastes that cleanup could send into DOE's WM infrastructure. In 1994, DOE unilaterally decided to drop cleanup from the study. In 1995, DOE released a draft waste management study, which was roundly criticized.[15] In 1997, after being questioned in court over its long delay, DOE finally released its final waste management study, which substantively differed little from the draft. In that document, DOE stated that the impact of cleanup wastes transferred to the waste management infrastructure was possibly ripe for programmatic analysis, but that analysis couldn't be done because DOE didn't know the extent of needed cleanup and or even the composition of wastes throughout the complex. That, of course, would be a major point of a national study. In current litigation (initiated by a coalition of 39 activist organizations, including CCNS), DOE has still refused to prepare the national cleanup study that it agreed to do long ago. DOE's rationalization is that all cleanup decisions are entirely specific to individual sites, an assertion obviously contradicted by the massive volume of current and planned transfers of cleanup wastes between sites. A federal court hearing on whether DOE should be held in contempt for its failure to prepare the national cleanup plan is scheduled for October 1998.

DOE has published three successive draft national cleanup plans without NEPA review, despite the requirement that all major federal actions undergo environmental analysis

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13 TRU wastes are wastes with elements heavier than uranium at amounts containing 100 nanocuries or more per gram for 20 years (excluding spent nuclear fuel and high level wastes). This principally means plutonium-contaminated wastes. Until DOE redefined TRU wastes in the mid-1980's, the threshold was 10 nanocuries.

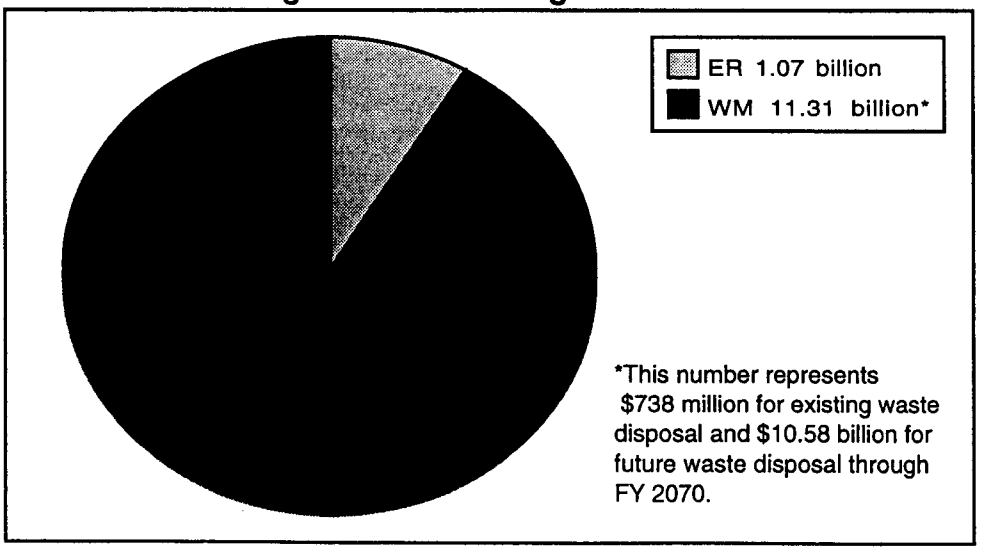
14 Environmental Restoration is the cleanup of past wastes. Waste Management is the storage, treatment and disposal of current and future wastes.

15 On the day of its release, the headlines for *USA Today* was "The $59 Million Lemon." A whistleblower involved in the study claimed it was using incomplete or fraudulent data and was granted protected status by the Department of Labor.

and public comment. The cleanup of the nuclear weapons complex is expected to be the largest cleanup program in human history; estimates are as high as $300 billion. Nevertheless, DOE continues to make national and local cleanup decisions, budget allocations and interstate waste transfers based on these draft and non-NEPA-reviewed plans. The latest plan, the so-called *Accelerating Cleanup: Paths to Closure*, makes the claim that most DOE sites will be "cleaned up" by the year 2006 (LANL has slipped to 2008). In the lab's case, what cleanup means is that all retrievably stored TRU wastes will have been shipped to WIPP while 85% of all total radioactive wastes be left in the ground. The irony here is that the WIPP wastes are relatively safe in that they are above ground and monitored. The danger is that TRU wastes buried at the lab before the mid-1970's requirement for retrievable storage may be left largely unremediated. Finally, the *Paths to Closure* Plan assumes that no treatment of groundwater contamination will be required. The first lab deep groundwater monitoring well in 30 years has recently found traces of tritium. Additionally, the New Mexico Environment Department (NMED) DOE Oversight Bureau has compiled a growing body of data that documents offsite migration of radionuclides, principally onto San Ildefonso Pueblo lands.

The final waste management study projects that LANL will generate 11,000 cubic meters of TRU waste and 150,000 cubic meters of "low-level" waste by the year 2017 as a result of nuclear weapons research and production. [The latter figure is probably low because of more planned facility upgrades.] The *Paths to Closure* Plan lowers the original $3 billion estimate of lab cleanup to $1.1 billion,[16] but then projects $11.31 billion as needed for the waste management of current and future wastes through the year 2070.

Indication of LANL Programmatic Priorities:
Comparison of Lab Budgets for Cleanup of Past Wastes and Waste Management of Existing and Future Wastes



As mentioned above, there are no plans to cleanup LANL's largest radioactive waste dump (Area G), which will be enlarged under the preferred alternative of expanded nuclear weapons operations.

16 An estimate has recently been floated for the cleanup of TA-21 alone at a cost of over $450 million. This land is extensively contaminated, is close to the Los Alamos town site, and is coveted by the Los Alamos County Commission as a possible site for future economic development. The danger here is that this TA-21 cleanup estimate may illustrate how overall cleanup costs at the lab are grossly underestimated; or the TA-21 cleanup, at roughly 40% of total lab cleanup costs, could detract from all other cleanup at LANL; or both.

A July 1997 audit by DOE's Inspector General found that out of $386 million spent on lab cleanup between FY 1991 - FY 1996, 79% ($305 million) had been spent on paper studies and program management instead of actual cleanup. The LANL SWEIS states "[t]he ER Project is ongoing and its implementation is unaffected by the changes examined in the four alternatives in the SWEIS. The ER Project is included in all alternatives." The SWEIS further states "[b]ecause there are no individual or specific environmental restoration activities proposed within the scope of this SWEIS (such actions are proposed and undertaken on a time-scale that is not compatible with the preparation of this SWEIS), the impact analyses regarding such actions are presented in general terms based on the experience of the program to date." The DOE Inspector General has effectively summed up the experience of the LANL cleanup program to date. Furthermore, the statement that the time-scale of ER activities is not compatible with the preparation of the LANL SWEIS appears to prioritize the procedural completion of the SWEIS over its contents. In short, the SWEIS acts as a vehicle for the implementation of expanded nuclear weapons activities (with related generation of future wastes causing the need for yet more cleanup), and fails to give the public a site-wide analysis of lab cleanup plans, the cumulative environmental impacts of long buried wastes, and possible ways that LANL cleanup could be improved and made more efficient.

Offsite Contaminant Migration

In the semi-arid, canyon-and-mesa environment in which LANL is located, storm water runoff events can be a significant pathway for the offsite migration of contaminants. The Draft SWEIS states "[a]t LANL, surface runoff is controlled by flow barriers, collection of surface water, or contouring the ground such that flow off the site is precluded." That statement is false - - it is commonly understood that offsite water runoff often occurs during dramatic storm events. During a single storm event in September 1995, personnel from the New Mexico Environment Department took samples of flowing water and sediment at the offsite junction of State Highway 4 and Los Alamos Canyon. Levels as high as 24 picocuries per liter (pCi/L) of gross beta and 7 pCi/L of strontium-90 were found in water runoff. Levels as high as 16 pCi/L of gross beta, 7 pCi/L of Cesium-137 and 1.8 pCi/L of Pu-239 and 240 were found in sediment. When a dozen possible storm events producing offsite flow in a year (this is highly variable) is multiplied times some six major canyon systems at LANL (and over 50 years of operations), the amount of potential cumulative offsite migration is sobering. As an example, the LANL Environmental Surveillance Reports for 1991 show values recorded as high as 6.9 pCi/L of Pu-239, 240 in sediment where Los Alamos Canyon enters the Rio Grande, compared to .010 pCi/L immediately upstream.[17]

As a general condition of LANL's liquid effluent discharge permit, the lab is required to develop and implement Stormwater Pollution Prevention Plans. To date, around 60 of these plans have to been developed, but only on a building-by-building basis. The SWEIS is deficient in that it fails to integrate these plans on a site-wide basis or to analyze the

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[17] As late as 1992, LANL management was claiming that "[l]evels of radioactivity higher than the naturally occurring background have never been measured in the Rio Grande. The Laboratory takes samples frequently from the river between Abiquiu and Cochiti reservoirs." This claim was carried in a lab-generated public relations document that was included in a Sunday circulation of the region's newspaper. While in a hair-splitting technical sense this statement may be true, it is nevertheless disingenuous. Plutonium is not water soluble. If present, it is found "hitchhiking" on sediments and not in river water itself.

cumulative impacts of past, present and future offsite migration of contaminants. It is unlikely that any vehicle other than the SWEIS would present the public with a legally mandated opportunity to comment on and influence a site-wide Stormwater Pollution Prevention Plan. Towards that end, it is important that the final SWEIS help develop and incorporate such a plan.

Groundwater Contamination

As previously mentioned, DOE's current cleanup program plan for LANL assumes that groundwater remediation will not be required. For years, the lab perpetuated the myth that the volcanic tuff above the deep ground water from which Los Alamos County draws its drinking supply is an impermeable barrier to any potential contaminants. In the 1990s this myth has been thoroughly debunked by NMED and others. In addition, the first ground water monitoring well drilled in 30 years has tentatively detected traces of tritium, which, if verified, can be a precursor of future contamination.[18] As discussed below, existing monitoring wells for intermediate bodies of ground water have detected heavy contamination at various locations. The hydrological avenues of recharge of deep ground water from the intermediate bodies is not understood at this time.

The Draft LANL SWEIS states that "[a]lthough mechanisms for recharge to groundwater are highly uncertain, it is possible that discharges under any of the alternatives could result in contaminant transport in groundwater beneath Los Alamos Canyon and off site. The outfalls associated with the Expanded Operations and Greener Alternative would reflect the largest potential for such contaminant transport..." Under alluvial and perched water quality, the Draft SWEIS further states that "many questions remain regarding where groundwater occurs, groundwater quality, and potential contaminant migration." For 1990 - 1994, "trace amounts of tritium, plutonium-239 and plutonium-240, americium-241, and strontium-90 have been detected in samples taken from the main aquifer" (although with the exception of tritium these results have not been duplicated). Ultimately, the Draft SWEIS calls for the installation of more monitoring wells in order to better understand the effects of LANL operations on the main aquifer, something which the lab, if it was a responsible environmental steward, should have done long ago. Due to the lack of data and understanding, the Draft SWEIS is incapable of providing a picture of cumulative LANL impacts on groundwater, one of the region's most precious natural resources.

The Radioactive Liquid Waste Treatment Facility

Relevant to both the general issues of surface water and groundwater contamination already discussed is the Radioactive Liquid Waste Treatment Facility (RLWTF). This facility, to which radioactive liquid effluent is piped directly from TA-55 and the CMR Building, is a 35-year old facility using 40-year old water treatment technology. A 1994 LANL budget request admitted that the RLWTF could possibly be violating the Clean Water Act, which "may cause higher than acceptable exposures to the public and wildlife." Effluent from the facility commonly exceeds State water quality standards for nitrates (likely due to the extensive use of nitric acid for plutonium processing) and self-regulated

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[18] As an interesting side issue, this new monitoring well is now projected to cost $1.7 million, quadruple its initial estimate of around $400,000. Besides being an example of LANL cost overruns, this could have serious implications in that, as per an agreement with the State, there are 30 more wells to drill, raising doubts that the agreement can be fulfilled.

DOE Derived Concentration Guidelines for various radionuclides. In the drought of 1996, NMED personnel commonly witnessed LANL's large herd of elk drinking at the RLWTF's liquid effluent outfall.

In spite of the RLWTF's known deficiencies, as part of justifying the decision to relocate plutonium pit production from Rocky Flats to LANL, the SSM PEIS made the claim that all lab waste management facilities were adequate. In the 1995 Notice of Intent for the LANL SWEIS, DOE had proposed to entirely replace the RLWTF and to analyze that proposal in the SWEIS. In this Draft SWEIS, the Department has abandoned the replacement idea and instead claims that reverse osmosis equipment will soon be retrofitted into the existing facility (which should take care of nitrates and most radionuclides, tritium being the notable exception). However, those retrofits were previously scheduled to take place in 1997. Additionally, for years LANL has promised to NMED that it would drill monitoring wells under the facility in order to gauge the extent of contamination from plutonium, americium, etc., a pledge which has yet to be fulfilled.

The RLWTF dumps liquid effluent onto the alluvium floor of Mortandad Canyon, in which perched aquifers are situated that are State-protected for possible future use. The 1995 LANL Environmental Surveillance Report states "[t]ritium; strontium-90; plutonium-238, plutonium-239 and 240; americium-241; gross alpha; and gross beta are clearly detected in many of the [monitoring] wells.....The levels of tritium, strontium-90, gross alpha, and gross beta exceed drinking water criteria in many of the wells." The final LANL SWEIS needs to explicitly address and lay out a concrete schedule for badly needed retrofits to the RLWTF. It also needs to address improved treatment of water soluble radionuclides (such as tritium), which reverse osmosis equipment cannot rectify.

Air Quality

The primary federal environmental law governing air quality and related public health is the Clean Air Act. Radioactive air emissions are regulated under Subpart H of the Act, which went into effect in December 1989. In September 1994 CCNS sued DOE over long-standing violations of the Act by LANL. In April 1996 a federal judge ruled in CCNS' favor, finding by the lab's own admissions that 31 out of 33 major stacks were out of compliance (the other two stacks were only brought into self-claimed compliance in the summer of 1993). Just four months after the judge's ruling, LANL issued a press release in which it claimed that not only that had all stacks been brought into compliance, but that the lab had done so for only $25 million. Originally LANL had requested $140 million for needed improvements through FY 2003. Neither EPA nor any other governmental agency has verified LANL's claim of compliance. The Draft SWEIS somewhat cautiously states that "[s]ince June 1996, DOE and UC [LANL manager] have asserted that LANL operations are in full compliance" (emphasis added), rather than simply claiming compliance.

As the result of a consent decree negotiated by CCNS to settle the litigation, an independent, non-governmental auditor was selected to rigorously examine LANL's compliance with the Clean Air Act. In May 1998 that auditor found in a draft preliminary report that the lab was still out of compliance, principally because of insufficient documentation of radionuclide inventories and problems with quality assurance. Radionuclide inventories are the prerequisite for building compliance because the amount of related potential emissions determine whether a facility is monitored or not. Quality assurance procedures then ensure that calculated public radioactive doses are properly

arrived at. Hence, the auditor essentially found that both the front and back ends of full Clean Air Act compliance were inadequate Predictably, the lab has disputed the auditor's overall finding of noncompliance. The final SWEIS should address the auditor's findings and discuss if and how they will be corrected, so that LANL can justifiably claim full compliance.

In the arena of hazardous (toxic but not radioactive) air emissions, the issue of beryllium emissions is of possible concern. Beryllium components are commonly used in nuclear weapons production. It is so closely linked to plutonium pit production that beryllium operations were historically located at Rocky Flats. With the demise of production at that site, DOE explicitly stated that future beryllium operations must be co-located with the future site of plutonium pit production. Beryllium operations were transferred from Rocky Flats in 1993, indicative of a predetermined decision to relocate pit production at LANL as well.

The Draft SWEIS states that New Mexico had ambient air quality control standards for beryllium emissions, but these were repealed in 1995. Beryllium monitoring at the lab was discontinued after December 1995. Berylliosis became a serious worker health concern at Rocky Flats, even to those not directly involved in production operations. Under the Draft SWEIS's expanded operations, beryllium operations will be dramatically increased, with a $13 million consolidated beryllium facility nearing completion at TA-3. As reported in the media, the lab is even claiming that certain beryllium operations are exempt from the Clean Air Act. The final LANL SWEIS needs to address the issue of beryllium air emissions and necessary monitoring for this toxic metal.

Transportation

In the Draft SWEIS, rates for increased transportation of radioactive materials are given only for the expansion of Area G and the enhancement of plutonium pit manufacturing. For the expanded Area G, on-site shipments would virtually double from the present 1,300 shipments annually, whereas offsite shipments would be reduced by around 380. However, this doesn't take into account the fact that Area G could become a consolidated radioactive dump for "low-level" waste from other DOE sites, which could result in large numbers of offsite shipments to LANL.

Under stockpile pit production, onsite shipments of special nuclear materials is expected to increase by 500 shipments per year and shipments to and from Oak Ridge in Tennessee (for weapons secondary components) and the Pantex Plant outside Amarillo, Texas (for final weapons assembly), by a total of 50 shipments. The Draft SWEIS then states that "the portion of these shipments attributable to [expanded] pit production is a small percentage of the total on-site (about 5 percent) and off-site (about 1 percent)." It can then be extrapolated that an aggregate number for onsite shipments would be 10,000, and the aggregate number of intersite shipments would be 5,000. This would still not include some estimated 7,500 WIPP shipments from LANL and additional shipments related to subprograms not considered in the Draft SWEIS (such as mixed-oxide fuel fabrication for commercial reactors and the processing of plutonium residues from Rocky Flats). In short, the Draft SWEIS fails to adequately estimate all total shipments of radioactive materials and related potential accidents as part of analyzing the possible cumulative impacts of continued and expanded operations at LANL.

Risk Analyses in the Draft LANL SWEIS

The Draft SWEIS contains a number of risk analyses pertaining to accidents involving hazardous or radioactive materials, all confined to specific facilities. According to DOE, these pose little risk to the public. There is, however, one very obvious risk that the Draft SWEIS completely fails to analyze, the risk posed by a major forest fire on LANL property. In the 1970s, the La Mesa fire burned beyond the Bandelier National Park boundary onto a small portion of the lab, stopping at the edge of a canyon, beyond which are located magazine bunkers for high explosives at TA-16.[19] This area has much tall timber, in which a forest fire can crown and quickly expand.

In 1996, the 16,000 acre Dome Fire burned through much of Bandelier National Park to a line that roughly paralleled within 2 to 3 miles the lab's southwestern boundary. It was only a favorable shift of wind that allowed this fire to be contained on the southern edge of Frijoles Canyon in Bandelier Park. Santa Fe was directly in the smoke plume of the Dome Fire for 2 to 3 days. Because it is relatively remote, the southwestern area of the lab has historically been used for a half century of high explosives testing, much involving radioactive materials. As already mentioned, this level of activity is projected to triple in the Draft SWEIS. In the past, DOE has assumed that 10% of depleted uranium in high explosives tests was aerosolized (figures are not available for other radioactive materials), which raises questions concerning uptake in plants and trees which can then be released in the event of a forest fire. The hot shrapnel from explosive testing itself has commonly caused fires in the past, none of which has fortunately yet caused a major forest fire. The bottom line is that forest fires remain as an annual and serious threat to LANL. Nuclear weapons activities are being expanded, yet the Draft SWEIS fails to consider the environmental and health risks to the public from a major forest fire on LANL property. This is a major deficiency, given that a SWEIS must analyze the cumulative impacts of ongoing and reasonably foreseeable activities.

Environmental Justice

DOE is required under Executive Order 12898 to identify and address disproportionately high and adverse human health or environmental impacts of federal programs on "minority" populations. Within a 50-mile radius of LANL, nearly 54% of the population is considered to be minority (predominantly Native American and Hispanic), in contrast to a national average of 24%. For all preferred expanded operations, the SWEIS concludes that there would be no adverse environmental justice impacts (it does note a "possible concern" relating to the expanded Area G radwaste dump next to San Ildefonso Pueblo Sacred Lands). New Mexico has a state-wide minority population of 49.6%, double the national average. There could be serious environmental justice issues involved with the consolidation of nuclear weapons programs at LANL, coupled with the siting of WIPP as the nation's first defense nuclear waste dump in the same state. As already mentioned, DOE stated in the SSM PEIS that the pit fabrication facility at TA-55 is expected to be the only TRU waste generating facility in the future. Those wastes would then be buried at WIPP. Furthermore, DOE stated in an EIS for the DARHT facility that it has a policy of not conducting high explosives tests involving plutonium in California, with no policy justification given. For DOE to be implementing an aggressive program of expanded

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[19] TA-16 has been the historic site for research and fabrication of high explosives and limited assembly of nuclear weapons (primarily for testing). It is now also the site for much of LANL's expanded tritium activities.

testing at LANL (coupled with a half-century's history of such testing) suggests the application of a double standard to the nation's state with the highest minority population. The Draft LANL SWEIS is deficient in its exploration of potential environmental justice issues associated with expanded nuclear weapons operations at Los Alamos and the cumulative impact of all related activities in New Mexico.

Please submit written public comments on the Draft LANL SWEIS to Mr. Corey Cruz, U.S. Department of Energy, Albuquerque Operations Office, P.O. Box 5400, Albuquerque, NM 87185. Mr. Cruz will be accepting public comments until July 15, 1998. Copies of the April 1998 Draft SWEIS Summary and its supporting documents can be obtained by calling Mr. Cruz at 1-800-898-6623. SWEIS Public Hearings are scheduled for June 9, Los Alamos DOE Operations Office, 528 35th St, Los Alamos from 2:00 pm to 5:00 pm and 6:00 pm to 8:00 pm; In Santa Fe, June 10, at the Sweeney Convention Center, West Marcy from 10:00 am to 5:00 pm and 6:00 pm to 9:00 pm; In Española, June 24, at the Northern New Mexico Community College, 921 Paseo Oñate from 2:00 pm to 5:00 pm and 6:00 pm to 9:00 pm.

Acronyms:

CAMP	Capital Assets Management Process
CCNS	Concerned Citizens for Nuclear Safety
CMR	Chemical and Metallurgical Research Building
Curie	A measuring unit of radioactivity (3.7 billion decays per second)
DARHT	Dual Axis Radiographic Hydrodynamic Testing Facility
DoD	Department of Defense
DOE	Department of Energy
DP	DOE Defense Programs
HEU	Highly enriched uranium
EIS	Environmental impact statement
ER	Environmental restoration
LAMPF	Los Alamos Meson Physics Facility, now known as LANSCE
LANL	Los Alamos National Laboratory
LANSCE	Los Alamos Neutron Scattering Center
LLW	Low-level waste
Nano	Billionth (symbol n)
NEPA	National Environmental Policy Act
NMED	New Mexico Environment Department
NMSF	Nuclear Materials Storage Facility
MOX	Mixed oxide
NPT	NonProliferation Treaty
PEIS	Programmatic environmental impact statement
PF-4	Plutonium Facility in Building-4, Technical Area-55
Pico	Trillionth (symbol p)
Pu	Plutonium
RLWTF	Radioactive Liquid Waste Treatment Facility
SNM	Special Nuclear Materials (plutonium and highly enriched uranium)
SNMR&D Lab	Special Nuclear Materials Research and Development Lab
START I & II	Strategic Arms Reduction Treaties I & II
SWEIS	Site-wide environmental impact statement
TA	Technical area
TRU	Transuranic waste
UC	University of California
WM	Waste management

Sources: FY 1993-1999 DOE Congressional Budget Requests; 1998 DOE *Accelerating Cleanup: Paths to Closure;* FY 1994 - 1998 LANL CAMPs; FY 1989 - 1998 LANL Institutional Plans; April 1998 Draft LANL SWEIS; DOE October 1997 Stockpile Stewardship and Management Plan: First Annual Update ("The Green Book"); annual inflation conversions factors from 9th District Federal Reserve Bank web page.

CCNS
Concerned Citizens for Nuclear Safety

The Need for DOE's Stockpile Stewardship and Management Program?

DOE is planning to spend a minimum of 40 billion dollars over the next decade on its Stockpile Stewardship and Management (SSM) Program, a sum which by year exceeds Cold War averages. The Program includes the reestablishment of stockpile plutonium pit production at Los Alamos National Laboratory (LANL), a mission formerly held by the notorious Rocky Flats Plant near Denver. The purported need for the Program is to ensure the safety and reliability of the nuclear weapons stockpile. In order to implement its program, as a legal requirement DOE had to prepare a Stockpile Stewardship and Management Programmatic Environmental Impact Study (SSM PEIS). DOE's own language from that study (or its supporting documents) contradicts the urgent need for immediate implementation of the SSM Program that the Department claims is necessary.

First, as a baseline: "The stockpile is currently judged to be safe and reliable by DOE." SSM PEIS Vol. I at p. 2-3. Potential future problems in nuclear weapons performance can then be divided into problems with nuclear and nonnuclear components (the vast majority of components in a nuclear weapon are nonnuclear, such as fuses, firing systems, radar, etc.). Problems with nonnuclear components can then be ruled out as not being germane to the core of the debate over the SSM Program: "For nonnuclear components, a significant amount of functional test data is acquired during manufacture and is then used to begin building a statistical estimate of component reliability. Subsequent laboratory and flight testing in the surveillance program accumulates additional data that include the effects of aging and exposure to stockpile environments. Thus, over time, high confidence in the safety and reliability of nonnuclear components and subsystems can be established." SSM PEIS Summary, p. 19.

The SSM PEIS goes on: "The situation is not the same for nuclear components and the assessment of their nuclear performance.....In the past, [full-scale} nuclear testing filled the gaps in basic understanding of the complex physics phenomena; it provided high confidence in the certification of nuclear safety and performance. Without nuclear testing, science-based stockpile stewardship will focus on obtaining the more accurate scientific and experimental data that will be needed for more accurate computer simulations of nuclear performance." Ibid. Hence, the overarching justification for the SSM Program lies in future uncertainty over aging effects on nuclear components. But language in supporting documents for the PEIS indicates that there is little uncertainty for the foreseeable future.

DOE prepared two reports in support of the SSM PEIS. As the PEIS explains: "The technical and cost analyses for production capability and capacity alternatives were published in two draft reports released in support of the Draft PEIS: the Stockpile Management Preferred Alternatives Report and the Analysis of Stockpile Management Alternatives Report, both dated February, 1996. These reports will be

released in final form to support the Final [SSM] PEIS." SSM PEIS, Vol. IV, Public Comments & Responses, p. 3-107. The final Alternative Reports, released in July 1996, contain a number of statements by DOE that undermine the SSM Program's purported rationale.

Under "Capacity Assumptions and Contingency Options": "Only replacement of pits destroyed in routine surveillance testing is expected until a near term life limiting phenomenon is observed in stockpile pits. Most pit requirements during weapon refurbishment are expected to be satisfied by requalification and reuse of existing pits *since historical pit surveillance data and pit life studies do not predict a near-term problem.*" Stockpile Management Preferred Alternatives Report, July 1996, p.12. Emphasis added.

"Most nuclear weapons in the stockpile were designed for a minimum lifetime of 20 years. However, *experience indicates that weapons can remain in the stockpile well beyond their minimum design lifetime.* Two nuclear weapon systems remained in the stockpile for more than 30 years." Analysis of Stockpile Management Alternatives, July 1996, p. 7-8. Emphasis added. Under "Primary [the nuclear package with high explosives] Requirements": "Known aging effects of high explosive components results in an estimated stockpile life of 30 to 40 years based on current understanding of high explosive aging." Ibid., p. 7-11.

"*No age related problem has been observed in pits up to 30 years in age,* though very little data exists for pits older than 25 years. In addition, no age related problem is expected until well past the START II [the second Strategic Arms Reduction Treaty] implementation date [year 2003]." Ibid., p. 7-12. Emphasis added. Under "Conclusion": "Nuclear components (pits and secondaries) are expected to have service lives significantly in excess of their minimum design life of twenty to twenty-five years." Ibid., p. 7-17.

Senior DOE officials have hinted that the buildup of helium gas as a result of plutonium decay could affect nuclear weapons performance in the near term. Again, this is contradicted by PEIS language. During the SSM PEIS public comment period, a commentator asked, "How long can pits remain in the stockpile before buildup of decay products becomes a design or handling concern?" DOE responded: "Modern nuclear weapons are designed with a minimum design life of 20 to 25 years. Based on existing surveillance data, DOE expects the pits to last at least this long, and probably considerably longer. However, very little historical and applicable data exists beyond 30 years. *With regard to the buildup of decay products alone, DOE does not currently believe this will become a problem in less than 50 years.....*" SSM PEIS, Volume IV, p. 3-84. Emphasis added.

Thus, the underlying rationale that DOE advances for the SSM Program appears to have little immediate justification. Taxpayers should question the Program's need in light of its expense, the large volumes of future radioactive wastes that it will produce (for which DOE has not projected costs), and the provocative international example that continuing nuclear weapons design, testing, improvements and production will set.