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Date: Fri, Jan 7, 2005 2:23 PM
Subject: PC-NIRS Comments on NEF DEIS

Attention: Anna Bradford

9/17/04
69 FR 56104

Attached you will find a PDF of the joint comments of Public Citizen and the Nuclear Information and Resource Service on the Draft Environmental Impact Statement for the National Enrichment Facility (NUREG-1790; Docket No. 70-3103).

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To ensure delivery, these comments will also be submitted via fax and U.S. mail.

Please enter these comments into the official record on this proceeding. Thank you.

Sincerely,
Joseph P. Malherek

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E-RIDS = ADM-03

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Template = ADM-013

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Mail Envelope Properties (41DEE19B.8E3 : 12 : 14563)

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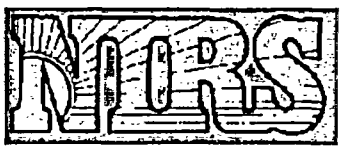

January 7, 2005

Chief, Rules and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, D.C. 20555-0001

Re: Comments on the Draft Environmental Impact Statement for the Proposed National Enrichment Facility in Lea County, New Mexico (NUREG-1790); Docket No. 70-3103

To Whom It May Concern:

Enclosed you will find the joint comments of Public Citizen and the Nuclear Information and Resource Service (NIRS) on the NRC's Draft Environmental Impact Statement (Draft EIS) for the proposed National Enrichment Facility (NEF) in Lea County, New Mexico.

Public Citizen and NIRS have jointly been admitted as a party to the licensing proceeding for the NEF, a proposed uranium enrichment plant proffered by a firm called Louisiana Energy Services (LES). As formal participants with standing in this proceeding, we hope that our comments and recommendations on the Draft EIS are considered seriously and taken into account before the NRC issues its final EIS on the NEF.

Please enter these comments into the official record on this proceeding.

Sincerely,

Joseph P. Malherek
Policy Analyst, Public Citizen's Critical Mass Energy and Environment Program

Michael Mariotte
Executive Director, Nuclear Information and Resource Service

[Enclosure]

A Note on the Public Comment Period

As a result of the NRC's security review of the documents posted on its website, the public was forced to submit comments under conditions that have greatly limited its ability to adequately review the environmental evaluation of the NEF as well as important related documents.

Included among these files were documents essential for preparing comments, including LES's license application for the NEF and the NRC's Draft EIS for this proposed plant. Additional items needed for drafting informed comments, such as the record of communications between the NRC and LES, were also restricted from public access.

Only recently have these documents been restored to the NRC's Web site, albeit in a limited form where parts deemed to contain sensitive security information have been removed. In the Draft EIS, the redacted portions include maps of the site and facility and all or parts of Sections 4.2.11.2 and 4.2.13, Tables 4-17 and 4-21, and large portions of Appendix C, which include evaluations of possible accidents at the NEF and their potential impacts on public and worker health. Moreover, a list of chemicals employed at the facility has been removed. This information is essential to public knowledge and understanding of the plant's operations and impacts. It is difficult to believe that an honest assessment of possible accidents and their consequences would be particularly useful to terrorists or others.

These conditions have made it difficult to perform a comprehensive review of the NRC's Draft EIS; nevertheless, Public Citizen and NIRS hereby present our comments based on the information available.

General Comments

The site of LES's proposed NEF sits in a region already negatively impacted by various industrial activities: there is a quarry and a petroleum-industry solid-waste treatment and disposal facility to the north, a hazardous and radioactive waste dump to the east, a municipal landfill to the southeast, and a petroleum-contaminated-soil treatment facility to the west—all of this among a landscape littered with 33,700 oil wells, several oil processing facilities with flame-off towers, and hundreds of associated pumps, jacks, and rigs (Draft EIS, § 3.2; § 4.2.3). The region has been thoroughly tapped for oil and gas resources, the ecological scars of which remain.

Amidst this, NRC has determined in its Draft EIS that the environmental impacts from building and operating a uranium enrichment facility on the site would be mostly "small" to "moderate," and has recommended that the proposed license be issued to LES (Draft EIS, § 2.4). Public Citizen and NIRS do not agree with this assessment.

It is also the view of Public Citizen and NIRS that the Draft EIS for the NEF falls short of the requirement of the National Environmental Policy Act (NEPA) that each federal agency must consider in an environmental impact statement "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (42 U.S.C.

§ 4332(c)(iv)). But the NRC staff merely notes that a "detailed analysis of the impact of the proposed NEF on connected actions that include the overall nuclear fuel cycle activities were not considered" (Draft EIS § 1.4.3). The cumulative hazards and dangers of the nuclear fuel cycle, nuclear power generation, and nuclear waste management deserve a thorough accounting in the EIS, which is lacking in this draft version, where there is only a cursory consideration of these factors in chapter 4 on "Environmental Impacts." Considering the enormous problem of properly disposing of irradiated nuclear fuel—one of the ultimate products of this plant—and isolating it from the environment, this omission amounts to an evasion of responsibility. While the NRC, in the context of drafting an EIS for a uranium enrichment facility, may not have a statutory obligation to consider the long-term management of wastes produced by nuclear power reactors, it is the opinion of Public Citizen and NIRS that this necessary stage in the production of nuclear fuel is a proper forum for a consideration of its ultimate destination. We request that this be remedied in the final version.

Furthermore, the analysis of "Alternatives to the Proposed Action" (Draft EIS, § 2.2) is perfunctory and myopic. NEPA requires agencies of the federal government to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources" (42 U.S.C. § 4332(E)). Considering the fact that the problem of radioactive waste is, by virtually all accounts, an "unresolved conflict" (note the many years of contentious debate over the Yucca Mountain nuclear waste repository), the section covering alternatives to the proposed action should encompass a broader range of possibilities than merely other means of enriching uranium for use as fuel in nuclear reactors. The Final EIS should consider alternative energy sources—such as wind and solar—and the means required to employ them instead of nuclear power. Nuclear-generated power requires the use of finite resources while creating unique and dangerous environmental and health hazards; an alternative to this course should be evaluated before issuing a license for a nuclear fuel facility.

NEPA Requirements

Per the requirements of NEPA, an EIS is required to include a "detailed statement" on:

(i) the environmental impact of the proposed action,
(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
(iii) alternatives to the proposed action,
(iv) the relationship between local short-term uses of man's environment and the maintenance of long-term productivity, and
(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented. [42 U.S.C. § 4332(2)(c)]

Chapter 4 of the Draft EIS does include a discussion of these things, but it is far from being a "detailed statement"; rather, it is cursory, perfunctory, and limited in scope and vision. For example, Section 4.7, titled "Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity," fails to adequately consider the long-term hazards created by depleted uranium waste (not to mention irradiated fuel rods, the

ultimate destination of the proposed NEF's product) upon the long-term productivity of our natural resources. In the Final EIS, these NEPA-required statements of environmental impact should be expanded in scope and detail to address such important questions.

Site Selection

The description of LES's site selection process in Section 2.2.2.1 is misleading in that it only mentions certain objective criteria of respective sites and neglects the political situation that led to the selection of the site in New Mexico.

LES was opposed by many members of the communities in Louisiana, where it failed to attain a timely license for its proposed Claiborne Enrichment Center (CEC), as well as in Tennessee, where many local officials also opposed the project.

It has been reported that Sen. Pete Domenici of New Mexico, an ardent proponent of the nuclear industry, "wooed" the company to his home state when it was having trouble meeting zoning requirements established at its chosen site in Tennessee.[1] Officials at the federal, state, and local level in New Mexico were, unlike in Tennessee, generally favorable to the project.[2]

Yet nothing of this is mentioned in the Draft EIS; rather, the process used to select the site is described as a "multi-attribute-utility-analysis methodology" (page 2-35, line 5). Seven candidate sites were eliminated because of the risk of an earthquake (Draft EIS, Table 2-7), yet the site that was ultimately chosen lies in a seismically-active area near, possibly over, a geologic fault.[3] The site in Bellefonte, Alabama is said to have been eliminated because a "historic preservation assessment" may have been required (page 2-38, line 16); yet at the chosen site in Lea County, the presence of seven archaeological sites, each of which has been determined to be eligible for listing in the National Register of Historic Places, has been identified (page 3-9), requiring LES to negotiate a "Memorandum of Agreement" with the state of New Mexico (page 1-17). Also at the Bellefonte site, the "costly relocation" of high-voltage transmission lines is cited as a reason for lowering Bellefonte's rating below the Lea County site. Yet existing at the latter site is a high-pressure carbon-dioxide (CO_2) gas line that would have to be relocated before the site is developed (page 2-9). Additionally, potable water pipelines from the nearby cities of Eunice and Hobbs—8 and 32 kilometers in length, respectively—would have to be constructed to serve the facility; and two independent electrical substations and two 115-kilovolt overhead transmission lines stretching 13 kilometers would be required to serve the NEF (Draft EIS, § 2.1.6). Considering this, why did LES judge the Bellefonte site to be inferior to the Lea County site?

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[1] "LES to set up plant in New Mexico," *Nuclear Engineering International*, Oct. 31, 2003: 3; "Full Review – Enrichment – The race is on," *Nuclear Engineering International*, Sept. 30, 2003: 12.

[2] "Nuke fuel factory planned for Lea County; environmentalists oppose it," *Associated Press Newswires*, Sept. 3, 2003.

[3] National Enrichment Facility Environmental Report, Revision 2, Table 3.3-3, July 2004; for an account of the geologic fault discovered under the Waste Control Specialists site, *see* Memorandum from Herman L. Graves to Joseph G. Gitter, "May 27-28, 2004, Meeting Summary: Louisiana Energy Services' In-Office Review, Hobbs, New Mexico and Site Visit, Eunice, New Mexico," June 29, 2004.

Proximity to Other Facilities
As shown in the maps presented in figures 4-5 and 4-6, the location of the proposed NEF is remarkably isolated from other related nuclear fuel cycle facilities, requiring the shipment of radioactive and hazardous materials over great distances, increasing the possibility of a harmful accident, which could produce adverse health effects in up to 28,000 people in an urban area (Draft EIS, Table 4-7). In fact, none of the waste processing/disposal facilities cited by LES is closer than 1,000 miles from the site.[4] Yet proximity to these sites does not appear to have been a criterion considered in the selection of the Lea County site (Draft EIS, § 2.2.2.1). Considering the fact that the two previous sites chosen by LES—in Louisiana and Tennessee—would have been much nearer to these related facilities, would it be correct to assume that this was a factor considered by LES but neglected in its most recent site selection?

Contamination at Lea County Site
Samples taken by LES at the NEF site reveal that the U.S. Environmental Protection Agency's maximum contaminant levels are exceeded for several substances, including boron, chloride, iron, manganese, sulfate, uranium-234 as well as "gross alpha" radioactive constituents (Draft EIS, Table 3-11). Considering the existing contamination at the site, what cumulative health effects would arise from an additional industrial development that would produce, among other things, mass quantities of uranium-238? What impact would this combination of substances have on the safety of water resources?

Cesium-137, a man-made radionuclide produced by past atmospheric atomic weapons testing, is "ubiquitous in the environment" around the NEF site, according to an LES survey (Draft EIS, page 3-31, line 40). Considering the already pervasive presence of this radionuclide, what are the cumulative health effects are anticipated from the combination of NEF radiation exposures and this already-ubiquitous radioactive element?

Need for Facility

Net Energy Output
The NEF would require approximately 30 megawatts of electricity for operation (Draft EIS, § 2.1.6, line 35). The average nuclear reactor has a production capacity of just under 1,000 megawatts.[5] In the Final EIS, please calculate the length of time and the quantity of electricity consumed by the NEF before the fuel it produces creates electric power in excess of that which was used to enrich the fuel. Such a calculation is necessary to judge the value of this fuel source over others that may more quickly and efficiently recover the energy lost in attaining, capturing, refining, or exploiting a fuel.

Domestic Supply of Enriched Uranium
The discussion of the need for the NEF in Section 1.3 of the Draft EIS underestimates the value to American national security that comes from the United States' 1993 agreement with Russia—known as "Megatons to Megawatts"—to convert 500 metric tons of highly enriched uranium

[4] National Enrichment Facility Environmental Report, Table 4.13-1, Dec. 2003.
[5] U.S. Energy Information Administration, Table: "Monthly Nuclear Generation by State, 2003 (Megawatt hours)," <http://www.eia.doe.gov>.

(HEU) from dismantled nuclear warheads into low-enriched uranium (LEU) for use in domestic nuclear power reactors. This program is essential to preventing nuclear proliferation by diverting this dangerous material to a beneficial use, but if another source of enriched uranium is introduced in the U.S. market—as with the proposed NEF—prices may become depressed, thus threatening this crucial program as well as our national security. The exposure of the Abdul Qadeer Khan nuclear network highlights the urgent need to eliminate surplus HEU from the international supply.

Furthermore, the discussion of the "No-Action Alternative" (Draft EIS, § 2.2.1) should contain an evaluation of the benefits to public health (from deferred mining, for example) and non-proliferation that would come from an acceleration of purchases of HEU from Russia as well as use of other down-blended reactor fuel—including fuel that could come from the United States' surplus HEU inventory.

Future Nuclear Capacity

The Draft EIS states that "nuclear-generating capacity within the United States is expected to increase, causing an increase in demand for low-enriched uranium" (page 2-23, lines 46-47). Given the facts that (1) no new nuclear power reactor has been ordered in a quarter of a century; (2) no company has received a license to build a new reactor; (3) no company has expounded an explicit plan to build a new nuclear reactor; and (4) Wall Street does not seem to have an interest in funding a new generation of nuclear reactors, even with government support,[6] how does the NRC justify the claim that nuclear-generating capacity is expected to increase in the United States?

Socio-economic Impact

The NRC judges the socio-economic impact of the proposed NEF to be "moderate," citing benefits to Lea County and the surrounding region in the form of jobs and taxes (Draft EIS, Table 2-8, page 2-52; *see also* § 4.2.9.7). However, per the terms of the agreement between LES and Lea County on the $1.8 billion in industrial revenue bonds the county offered to finance the project, LES would not have to pay any property taxes for the duration of the operational life of the NEF—roughly 30 years—and it may be exempt from other taxes as well.[7] According to the Economic Development Corporation of Lea County, this kind of property tax exemption could be worth $3 million over 30 years for a $10 million project.[8] Considering that construction of the NEF is expected to cost $1.2 *billion* (Draft EIS, Table 2-8, page 2-52), what does the NRC expect the total property tax exemption for the NEF to be? That is, how much revenue will this exemption cost Lea County compared to the $177 million it is expected to earn from taxes on the NEF, according to LES estimates (Draft EIS, page 4-21, lines 9-11)? Such a calculation should

[6] *Time for a New Start for U.S. Nuclear Energy?*, Standard & Poor's, June 2004.

[7] Ben Neary, "Issues with LES Parent Company Might Be Red Flags," *The Santa Fe New Mexican*, Dec. 9, 2003: A4; Jim Carlton, "New Mexico Takes a New Look at Building of Uranium Plant," *The Wall Street Journal*, Jan. 7, 2004: B4B; see also Web site of the Economic Development Corporation of Lea County at the section entitled "Finance and Incentives: Industrial Revenue Bond," Nov. 24, 2004, <http://www.leanm.org/irb.asp>.

[8] Web site of the Economic Development Corporation of Lea County at the section entitled "Finance and Incentives: Property Tax Exemption," Nov. 24, 2004, < http://www.leanm.org/pte.asp>.

be integral to any assessment of alleged socio-economic benefits that the plant would bring to the community.

Moreover, the job benefits cited for the local community contradict a later admission that the "current labor force...cannot currently supply the specialized skills needed for the proposed NEF operations" (Draft EIS, S 4.2.9.7, lines 9-10). Indeed, the percentage of persons in the region employed in the "Professional, Scientific, Management, Administration, and Waste Management" fields—presumably applicable to jobs that would be created at the NEF—is less than half the averages for New Mexico and Texas (Draft EIS, Table 3-15, line 27). Similarly, the percentage of persons in the region who have attained at least a bachelor's degree is about have the averages for the two states (Draft EIS, Table 3-14, line 24). The EIS should make clear the reality that most, if not all of the higher-wage jobs available as a result of the facility would go to people outside the region, and even outside the United States.

"Environmental Justice"

The NRC staff judges that the impact of the NEF in the area of "environmental justice" will be "small" because "no disproportionately high adverse impacts would occur to minority and low-income populations living near the proposed NEF..." (Draft EIS, Table 2-8, page 2-53; *see also* § 4.2.9.8). Yet the criteria used to determine whether or not the effects on minority or low-income populations would be "disproportionately high" stem from the narrowly defined data analyses recommended in Appendix C of NUREG-1748 ("Environmental Review Guidance for Licensing Actions Associated with NMSS Programs").

The guidelines described in NUREG-1748 strictly limit what qualifies as a high concentration of minority or low-income persons near the proposed site of a nuclear facility. The author of the regulatory guidelines, the Office of Nuclear Material Safety and Safeguards (NMSS), recommends a review of the demographic composition of the area encompassing a four-mile radius from the site. A high minority or low-income population percentage is considered to be at least 20 percentage points higher than the average county or state percentages. But comparing the minority and low-income population percentages to county and state averages, rather than to national averages, skews the data. According to data from the 2000 U.S. Census, Hispanics make up 42.1 percent of the population of New Mexico—the highest percentage of any state—and 39.6 percent of the population of Lea County, but only 12.5 percent of the U.S. population at-large, a difference significantly greater than 20 percentage points. The total minority population of New Mexico is 55.3 percent, compared to 30.9 percent nationally, a difference of more than 24 percentage points. Likewise, Texas has a very large Hispanic population of 32.0 percent and a total minority population of 47.6 percent. Moreover, New Mexico also had the third-highest percentage of people living in poverty between 2000 and 2002 among all states, according to the U.S. Census Bureau.[9]

The NMSS document clearly states that the criteria it defines are only intended to be used as guidelines and should not be followed absolutely, suggesting that even in cases where the

[9] Proctor, Bernadette D. and Joseph Dalaker, "Poverty in the United States: 2002," *Current Population Reports* (U.S. Department of Commerce, Economics and Statistics Administration, and U.S. Census Bureau) Sept. 2003.

defined demographic data analysis does not indicate a disproportionately high low-income or minority population, an environmental justice review may be conducted if it becomes apparent through public comments or scoping activities that such a population may be adversely affected by the proposed action.

Furthermore, the Council on Environmental Quality, which drafted a guidance document for federal agencies to use in implementing the 1994 executive order that created a national "environmental justice" policy, identified a significant minority population as composing a population percentage "meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis."[10] While the NRC staff did adjust the methodology of its environmental justice evaluation to account for the extraordinarily large Hispanic and minority populations in New Mexico and Texas by considering U.S. Census "block groups" with minority and/or low-income population percentages at least as great as statewide percentages instead of 20 percent greater (Draft EIS, page 3-61, lines 1-4), per the NMSS recommendations, it still only compared these local groups to statewide populations, not nationwide populations, which would have produced a much greater disparity, presumably warranting a more detailed review. In the Final EIS, the NRC staff should consider the impacts of the NEF on minority and low-income populations, taking into account the fact that, relative to the rest of the country, these communities are highly concentrated in the area near the NEF site.

In Section 4.2.9.5, NRC staff describes the most significant kind of accident scenario involving the NEF, a release of uranium hexafluoride (UF_6), which could result in seven latent cancer fatalities. NRC staff reasons that, in such an event, "minority and low-income populations would not be more obviously at risk than the majority population" (Draft EIS, page 4-25, lines 29-30). Yet this rationale betrays a faulty logic: if this event is more likely to occur in a situation where the NEF is permitted to operate, and this dangerous facility is located in an area of the country with a disproportionately large minority population, then these minority groups are, in fact, presented disproportionately high risk of ill health effects.

Consultations with Effected Groups

The Draft EIS records that 72 census block groups within a 50 mile radius of the site "were identified as satisfying the criteria used in this analysis to consider environmental justice in greater detail based on their minority population" (page 3-63, lines 1-3). NRC staff goes on to note the "extra effort" that was made to meet with minority groups to determine the effects construction of the NEF would have on them (page 3-63, lines 5-8). The staff also conducted inquiries into these communities and discovered no potential ill effects from the facility (§ 4.2.9.5). Were these inquiries and meetings, or attempts to arrange meetings, the "extra effort" described by NRC staff towards the end of its consideration of these groups "in greater detail"? Were these meetings recorded in any way? In the Final EIS, please describe, in detail, the content of these meetings and other methods by which NRC staff considered environmental justice "in greater detail."

[10] Council on Environmental Quality, "Environmental Justice Guidance Under the National Environmental Policy Act," Dec. 10, 1997: 25.

Cumulative Impacts

The NRC staff should take into account the entire constellation of industrial facilities that surround the NEF site, which may contribute to cumulative health effects that would be compounded by the addition of the NEF. These industrial operations include quarry and a petroleum-industry solid-waste treatment and disposal facility to the north, a hazardous and radioactive waste storage and treatment facility to the east, a municipal landfill to the southeast, and a petroleum-contaminated-soil treatment facility to the west—all of this within a regional landscape littered with 33,700 oil wells and associated pumps, jacks, and rigs (Draft EIS, § 3.2).[11] Waste Control Specialists, LLC (WCS), which operates the hazardous waste facility just across the border in Andrews County, Texas (less than a mile from the NEF site), has recently submitted several applications to Texas state regulators for permits to allow it to expand the capacity and breadth of hazardous and radioactive wastes stored and processed at its facility.[12] In the Final EIS, the NRC should evaluate the cumulative health and ecological effects of these facilities, located in an area of the country with an extraordinarily high percentage of minority and low-income populations.

Water Resources

Municipal Water Consumption

The NRC estimates that, during the construction phase of the NEF, annual water usage would be approximately 2 million gallons, a figure "based on the design estimates for the formerly proposed Claiborne Enrichment Center [CEC]" (Draft EIS, § 4.2.6.1). Was this figure adjusted to account for the fact that the size of the proposed CEC was half that of the proposed NEF (Draft EIS, page 6-5, line 31)?

In Section 4.1.2 ("Utilities Impacts") of the NEF Environmental Report (ER), LES notes that, in addition to two new electrical transmission lines, the NEF will require the construction of two new potable water supply lines in Lea County—one from the city of Eunice and the other from the city of Hobbs. In the Draft EIS, the NRC observes that the water requirements of the NEF—which would average 240 m^3/day and peak at 2,040 m^3/day—are well within the capacity of the Eunice and Hobbs municipal water systems, which together have a capacity of 92,050 m^3/day and have excess water capacities of 66 and 69 percent, respectively (page 4-14 and § 3.8.2.2).

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[11] *See also* National Enrichment Facility Environmental Report, Page 1.2-1, Dec. 2003.

[12] WCS filed an application in August 2004 with the Texas Commission on Environmental Quality (TCEQ) to construct and operate a low-level radioactive waste disposal facility that would dispose of low-level radioactive waste from the Texas Compact (an agreement between states to establish a common waste disposal facility), which includes Texas, Vermont, and Maine. Nebraska state officials are also conducting negotiations with Texas officials to send waste from the Central Interstate Low-Level Radioactive Waste Compact (which includes Nebraska, Kansas, Oklahoma, Louisiana, and Arkansas) to Texas for disposal, probably at the WCS site. The WCS application with the TCEQ would also permit the company to accept radioactive waste from the U.S. Department of Energy (DOE). In addition to this application, WCS has recently filed separate applications with the Texas Department of State Health Services that would (1) expand the volume of hazardous material that can be stored at the site and (2) permit WCS to accept for disposal uranium mill tailings waste, currently in possession of the DOE, derived from U.S. nuclear weapons programs. Texas is one of the NRC's "Agreement States," meaning that the federal agency has trusted the state with the authority to enforce its regulations in some areas.

Based on conversations with Eunice and Hobbs city officials, the NRC judges that the NEF would thus not affect local water uses.

Yet this is a review of limited temporal scope: it totally neglects the severe long-term water shortage problem of Lea County, as documented in the *Lea County Regional Water Plan*. The majority of potable water in Lea County is drawn from the Lea County Underground Water Basin (UWB), which is part of the Ogallala aquifer—one of the largest aquifer systems in the world and an essential water source for agricultural irrigation, acknowledged by the NRC to be a "nonrenewable water source" (Draft EIS, § 3.8.2.1). According to the county's water plan, groundwater in the UWB is being withdrawn at a greater rate than it is being recharged, which has resulted in a water level drop of as much as 70 feet since the first use of groundwater in the 1920s. The report projects a doubling of water usage by 2040 and warns that "there is physically not enough water in the Basin to maintain an annual diversion of this magnitude."[13]

Moreover, the Draft EIS compares the NEF's lifetime water usage to the entire amount of Ogallala reserves in the State of New Mexico, rather than comparing NEF water usage to capacities in the Lea County Underground Water Basin; therefore, the anticipated "small" impact is based on a faulty comparison.

In an area with such finite water resources and a projected shortage, how can the NRC justify its judgment that the impact of the NEF on local water resources will be "small," especially considering the magnitude of this industrial operation and the acknowledgement that projected water shortages may force the NEF to comply with a drought management plan (Draft EIS, § 4.4.3)? In the Final EIS, please consider Lea County's documented long-term water shortage problem in evaluating the impact of the NEF on water resources in the region. Furthermore, in Section 4.7 ("Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity"), please include a thorough consideration of the long-term effects of further depleting the Ogallala aquifer from a diversion of water to the NEF.

Effects of Seismicity

The site of the proposed NEF lies in the vicinity of several geologic faults, one of which was recently observed a mere mile from the project area at the waste processing and disposal site in Texas operated by Waste Control Specialists.[14] Moreover, earthquakes frequently occur around the designated NEF site, including one with a magnitude of 5.0 in 1992.[15] Despite this, the NRC has not conducted an investigation of the possible effects of earthquakes and faulting on groundwater flow; nor has it considered the possibility of contaminant infiltration into groundwater due to such seismic activity. In the Final EIS, we urge the NRC to record the results of a comprehensive analysis of such a possibility.

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[13] *Lea County Regional Water Plan*, Prepared for the Lea County Water Users Association by Leedshill-Herkenhoff, Inc., John Shomaker & Associates, Inc., and Montgomery & Andrews, P.A. 7 Dec. 2000.

[14] Memorandum from Herman L. Graves to Joseph G. Gitter, "May 27-28, 2004, Meeting Summary: Louisiana Energy Services' In-Office Review, Hobbs, New Mexico and Site Visit, Eunice, New Mexico," June 29, 2004.

[15] National Enrichment Facility Environmental Report, Revision 2, Table 3.3-3, July 2004.

Groundwater Infiltration

Based on its investigations, the NRC reports that "no precipitation recharge (i.e., rainfall seeping deeply into the ground) occurs in thick, desert vadose zones with desert vegetation." Instead, the precipitation that infiltrates into the subsurface is "efficiently transpired by the native vegetation" (Draft EIS, page 3-35). Will this effect be compromised if the existing vegetation is removed in order to build the NEF, as one would expect? Alternatively, what precisely would be done to restore vegetation disturbed (Draft EIS, page, 2-9, line 41) by the construction of the NEF?

Even if the vegetation is restored, the purported effectiveness transpiration at the site appears to be questionable. For example, one of the subsurface borings drilled on the NEF site in September 2003 was described as "slightly moist" at 6 to 14 feet (ER Rev. 2, page 3.4-2), and boring B-2 revealed a stratum at 35 to 41 feet described as "moist" (SAR, Fig. 3.2-11). Moreover, the Draft EIS reports groundwater at the site at a depth of 220 feet within the Chinle Formation and a water-bearing sandstone layer at 600 feet below the surface (page 3-36). Also, notably, one well, MW-2, produced water that "continued to recharge throughout the monitoring period" (page 3-37). This well appears to be very near the proposed site of the storage pad that will host the Uranium Byproduct Cylinders (UBCs) containing DUF_6 (compare Draft EIS Figure 3-21 with NEF ER, Rev. 2, Figure 2.1-2).

Furthermore, the Draft EIS appears to indicate an assumption by the NRC that the liners employed to impound the contents of the NEF's wastewater basins will retain their integrity for the duration of the facility's operation, since there is no estimate of the likelihood of liner corruption and subsequent leakage of contaminated liquid effluents from the plant. How long does the NRC assume that the liners will contain the waste, and on what basis is this assumption made?

Geological Disturbance in Region

The proposed NEF is to be situated among several sites in which significant ground excavation has been performed. These sites are within a one-mile radius of the proposed NEF's center and would appear to have the possible effect of compromising the area's geological integrity. To the north of the NEF site, there is a sand and gravel quarry operated by Wallach Concrete; to the east of the site, just over the border in Texas, is a hazardous and radioactive waste processing and disposal facility operated by Waste Control Specialists, LLP, which includes a landfill with 11 million cubic yards of permitted disposal capacity[16]; to the southeast of the site is the Lea County Landfill (a municipal waste disposal site); and to the west lies the "DD Landfarm," a petroleum-contaminated soil treatment facility. In addition, much of the immediate region has been drilled by the oil and gas industry, which has produced more than 37,000 wells in southeastern New Mexico (Draft EIS, § 3.2)[17] and has contaminated groundwater in the region (Draft EIS, page 4-66, line 11).

Nevertheless, the Draft EIS gives only scant attention to these important factors in analyzing the site's hydrology. In the Final EIS, a full account of the effects of this kind of land-use on hydrology should be presented.

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[16] Web site of Waste Control Specialists, LLP, Nov. 2, 2004 <http://www.wcstexas.com/facilities.html>.

[17] *See also* National Enrichment Facility Environmental Report, Revision 2, § 2.1.2.1, July 2004.

Preparation of the site for the NEF requires grading in order to create a level surface for the facility. This would require an excavation of up to 4 meters, cutting into the layer of caliche that lies below the surface. Moreover, a high-pressure CO_2 pipeline that crosses underneath the site would have to be relocated (Draft EIS § 2.1.4). What effect would these activities have on the permeability of the geologic formations that lie beneath the site? Could the excavation that is required to build the NEF increase the chance that site geology could be disturbed such that new pathways could be created through which contaminants could enter groundwater? Please consider this possibility in the Final EIS.

Regional Groundwater Quality

The NRC staff considers the proposed NEF's impact on water resources to be "small," reasoning, in part, that "groundwater resources under the proposed NEF site are not considered potable" (Draft EIS, Table 2-8, page 2-50). Yet the Santa Rosa aquifer, which lies below the NEF site,[18] has been described as "the principal source of ground-water for domestic and livestock uses in the southwestern portion of [Lea] County."[19] Moreover, the Draft EIS observes that "people in the area of the proposed NEF site do depend on ground water supplied from personal wells..." (page 3-63, lines 25-26). In the Final EIS, please address and/or resolve this apparent contradiction.

Waste Management

Waste Classification

On page 2-27, the NRC states that "[f]or the purpose of this Draft EIS, the NRC considers the DUF_6 generated by the proposed NEF to be a Class A low-level radioactive waste as defined in 10 CFR § 61.55(a)(6)."

Why is it assumed in the Draft EIS that DUF_6 is low-level waste when (1) LES itself has not yet determined whether the DUF_6 it produces will be considered a waste or a resource,[20] and (2) the NRC has not finally determined the proper waste classification of depleted uranium?[21] On such an essential issue, the NRC staff should not proceed on a hypothetical basis.

Moreover, it is the position of Public Citizen and NIRS that the NRC may not arbitrarily classify DUF_6 as low-level waste under the agency's regulations at 10 C.F.R. § 61.55, a rule which was proposed when the country's stockpile of depleted uranium was under the jurisdiction of the U.S. Department of Energy (DOE), not the NRC. The rule explicitly did not consider the classification of depleted uranium (DU) waste for this reason. The box on page 2-29 which concludes that DU is Class A low-level waste ignores the fact that the regulations it cites omitted consideration of DU when they were originally drafted. The NRC may not conveniently judge

[18] National Enrichment Facility Environmental Report, Revision 2, page 4.12-9, July 2004.
[19] Leedshill-Herkenhoff, Inc., et al., *Lea County Regional Water Plan*, Dec. 7, 2000.
[20] National Enrichment Facility Environmental Report, Revision 2, Section 4.13.3.1.3, July 2004.
[21] U.S. Nuclear Regulatory Commission, "In the Matter of Louisiana Energy Services, L.P. (National Enrichment Facility); Notice of Receipt of Application for License; Notice of Availability of Applicant's Environmental Report; Notice of Consideration of Issuance of License; and Notice of Hearing and Commission Order," Docket No. 70-3103; CLI-04-03, *Federal Register*, Vol. 69, No. 25, February 6, 2004.

depleted uranium to be Class A low-level waste as it does in Section 4.2.14.4 of the Draft EIS; there must be a formal rulemaking and environmental analysis under the statutory obligations of NEPA before this waste attains a proper regulatory classification.[22]

In this arbitrary classification, the Draft EIS fails to recognize the Commission's repeatedly stated position that depleted uranium is not appropriate for near-surface disposal. The Final EIS for the Claiborne Enrichment Center (CEC) concluded that near-surface disposal of DU_3O_8 would not comply with 10 CFR Part 61 and suggested some form of deep disposal.[23] In 1995, during the scoping process for DOE's Programmatic EIS concerning long-term management of DU, NRC stated that large quantities of DU_3O_8 such as those derived from the DOE enrichment tailings inventory suggest the need for a unique disposal facility, such as a mined cavity or exhausted uranium mine.[24] On October 18, 2000, in commenting on the DOE Roadmap for management of DU, the Commission stated that "[s]hallow land (near-surface) disposal was not a likely option because a generic performance assessment indicated the dose requirements of 10 CFR Part 61 could be exceeded by a wide margin."[25] The Draft EIS for the NEF fails to account for the NRC's repeated positions on the subject of disposal of DU and simply assumes that disposal may occur at a near-surface site. An explanation of such a change in agency position is required.

Finally, the Draft EIS attempts to estimate the impact of disposal of depleted uranium from the NEF in its modeling of the releases expected from the site (pages 4-58, 4-59 and Table 4-19). The Draft EIS fails to disclose the models used or the parameter values. The text suggests that models used in analyzing the CEC site were used; however, the results are unlike any reported in connection with the CEC facility. Further, the model addresses only two hypothetical disposal sites and fails to examine any actual location of disposal. Performance of a disposal site is highly site-specific.

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[22] The regulations in Part 61 were initially proposed in 1981; see "Licensing Requirements for Land Disposal of Radioactive Waste, Proposed Rule," *Federal Register*, Vol. 46, page 38081, July 24, 1981. At this time, depleted uranium was under the jurisdiction of the U.S. Department of Energy and thus not considered in the drafting of Part 61 regulations, as stated in the Draft EIS for the rule: "[A]ll DOE wastes are now disposed of at DOE owned and operated facilities which are not subject to NRC or Agreement State licensing authority. Such wastes are thus not addressed in this EIS." *See* Draft Environmental Impact Statement on 10 C.F.R. Part 61, "Licensing Requirements for Land Disposal of Radioactive Waste," NUREG-0782, Vol. 2, at 3-8, Sept. 1981. For a complete and thorough argument on this point, see "Brief on Behalf of Petitioners Nuclear Information and Resource Service/Public Citizen in Support of NIRS/PC Contention EC-3/TC-1," *In the Matter of Louisiana Energy Services, L.P., National Enrichment Facility*, U.S. Nuclear Regulatory Commission, Docket No. 70-3103, ASLB No. 04-826-01-ML, Sept. 8, 2004.

[23] CEC Final EIS at 4-67.

[24] *See* Croff, A.G., et al., Evaluation of the Acceptability of Potential Depleted Uranium Hexafluoride Conversion Products at the Envirocare Disposal Site, ORNL/TM-2000/355, at 12 (Dec. 2000).

[25] Letter, E. Leeds, NRC, to Depleted Uranium Hexafluoride Management Program, DOE, Oct. 18, 2000.

Depleted Uranium is analogous to Greater than Class C Waste[26]

The assumption by the NRC staff stated in the Draft EIS that depleted uranium (DU) may be classified as Class A low-level radioactive waste (page 2-27) is imprudent. Instead, this waste should fall into the category of Greater than Class C Waste.

The classification of low-level waste can apply only to waste that would clearly be appropriate for shallow land disposal and 100-year institutional control. DU meets neither requirement. Greater than Class C (GTCC) waste requires special disposal methods. DU consists of long-lived alpha-radiation-emitting uranium isotopes, mainly uranium-238. The specific activity of DU is about 400 nanocuries per gram. It varies and can be slightly more or slightly less, depending on the U-234 content of the DU, but is always greater than about 340 nanocuries per gram, even at the theoretical limit when all U-235 has been extracted from the uranium. The limit for long-lived alpha emitting isotopes above which waste is normally classified as GTCC waste is 100 nanocuries per gram. It is true that the specific alpha-emitting radionuclides mentioned in the regulation are transuranic radionuclides (with atomic number greater than 92, the atomic number of uranium). This is probably because DU has never been formally viewed as a waste. Throughout the nuclear era, uranium-238, the main component of DU, has been considered as a resource because it can be converted into plutonium-239 in breeder reactor blankets. For such reasons, many, including DOE personnel, still regard DU as a resource. However, now that plutonium dreams have become far too costly to be realized on a large scale, DU is on the verge of formally being considered a waste, and its classification must be based upon criteria that were used to classify other wastes.

The long half-life of all three uranium isotopes (the shortest half-life, that of U-234, is more than 200,000 years), the fact that they are all alpha emitters, and the specific activity of DU being well over 100 nanocuries per gram (U_3O_8, the suggested disposal waste form, has a specific activity of over 300 nanocuries per gram) all point to the classification of DU as GTCC waste.

The conclusion that DU is analogous to GTCC waste fits squarely within the NRC definition for that category, if we focus on the substance of the rule. In 10 CFR 61.55 (3)(iii) and (iv), NRC defines wastes containing more than 100 nanocuries per gram of alpha-emitting transuranic radionuclides with half-lives of more than 5 years as "not generally acceptable for near-surface disposal." Indeed, such wastes are clearly comparable to the wastes defined as transuranic (TRU) waste by DOE and EPA (with small differences—the NRC definition is more stringent) (See 40 CFR § 191.02(i)). Such wastes must be disposed of in a deep geologic repository. The DOE is currently spending $20 billion to dispose of TRU waste in a deep repository; DU cannot

[26] The argument in this section is based in part of that developed by Dr. Arjun Makhijani, who is serving as an expert witness for Public Citizen and NIRS in our intervention against the LES license application for the NEF. Elements of the text in this section appeared in the Petition to Intervene by Nuclear Information and Resource Service and Public Citizen, *In the Matter of Louisiana Energy Services National Enrichment Facility*, Docket No. 70-3103, U.S. Nuclear Regulatory Commission, April 6, 2004: 29-31. Whatever the ultimate classification of depleted uranium may be, should it be declared a waste by the Commission, the disposal of DU through shallow land burial is extremely unlikely to be able to satisfy health and safety standards even under arid conditions and the disposal of depleted uranium in a deep repository should proceed under the assumption that DU is at least as risky as GTCC waste at the 100 nCi/gm threshold, and that DU must therefore be disposed of with a similar level of care in order to minimize the long-term impacts.

logically be considered in any other way than as being in a category that would mark it for deep geologic disposal.

UBC Storage

The Uranium Byproduct Cylinders (UBC) Storage Pad is described on page 2-6 of the Draft EIS. The UBCs would be stored on a concrete pad that could be expanded to a maximum size of 9 hectares, on which 15,727 cylinders could be stored. The stormwater collected in the UBC Storage Pad Stormwater Retention Basin would be monitored for contaminants (Draft EIS § 6.2.3), and the LES would institute a management program whereby UBCs would be inspected for such things as corrosion and valve leakage (Draft EIS, page 2-27, lines 14-17; § 4.2.14.3).

Why is it unfeasible or imprudent to house the UBCs in a contained, controlled environment in which they are not exposed to the elements and thus less likely to corrode or disintegrate? Would not such a measure create the desired "optimum storage conditions" (Draft EIS, § 4.2.14.5) to avoid the potential for public exposures from the "direct and scatter (skyshine) radiation" described on page 6-13 of the Draft EIS?

Furthermore, it is stated in Section 4.2.7.2 that the "potentially highest exposures to wildlife are expected to be to small animals occupying the UBC Storage Pad." Again, would not an effective mitigation measure (which could be included in Table 5-2) be to impound the UBCs in a storage shelter, thereby isolating them from penetration by wildlife?

Ultimate Disposal of Depleted Uranium

The Draft EIS lists as a second plausible disposition strategy a scenario in which LES would pay the U.S. Department of Energy (DOE) for conversion and disposal of its waste under Section 3113 of the 1996 *United States Enrichment Privatization Act* which states that the DOE "shall accept for disposal low-level radioactive waste, including depleted uranium if it were ultimately determined to be low-level waste..." (Draft EIS, page 2-31; the law is codified as 42 U.S.C. § 2297h-11). The NRC has yet to make a final determination on the waste classification of depleted uranium, as acknowledged in the Notice of Hearing[27] on the application for the NEF as well as in communications from officials at the NRC and DOE.[28] This being the case, transfer to the DOE cannot be considered a plausible option for disposal of DUF_6.

[27] U.S. Nuclear Regulatory Commission, "In the Matter of Louisiana Energy Services, L.P. (National Enrichment Facility); Notice of Receipt of Application for License; Notice of Availability of Applicant's Environmental Report; Notice of Consideration of Issuance of License; and Notice of Hearing and Commission Order," Docket No. 70-3103; CLI-04-03, *Federal Register*, Vol. 69, No. 25, February 6, 2004.

[28] "NRC staff considers that Section 3113 would be a 'plausible strategy' for dispositioning depleted uranium tails *if NRC determines that depleted uranium is a low-level radioactive waste.* In that regard, the staff expects that LES will indicate in its application whether it will treat the tails as a waste or a resource." (Emphasis supplied.) Letter from Robert C. Pierson, Director of the NRC's Division of Fuel Cycle Safety and Safeguards, Office of Nuclear Material Safety and Safeguards, to Rod M. Krich, Director of Licensing for Louisiana Energy Services, March 24, 2003. A recent letter from a DOE official confirms that the agency will not accept depleted uranium waste for disposal until it is properly classified: "There has been no formal determination by NRC that depleted uranium is low-level radioactive waste for purposes of Section 3113 of the 1996 USEC Privatization Act. Consequently, the Department is not obligated to accept it for disposal unless and until NRC makes such a determination." Letter, W.D. Magwood, Director of the Office of Nuclear Energy, Science, and Technology, to M.J. Virgilio, Director of the Office of Nuclear Material Safety and Safeguards, July 25, 2002.

Furthermore, if LES is to abide by the terms of its agreement with the governor of New Mexico,[29] which necessitate a timely disposal of depleted uranium outside of the state, it would require a conversion facility that will not be burdened by an already enormous inventory of waste. Deconversion of DUF_6 at the DOE's facilities, which are not yet operational, cannot be considered a plausible strategy, because the DOE's existing DUF_6 stockpile is so great that the queue for conversion would preclude acceptance of LES's waste. DOE possesses 704,000 metric tons of DUF_6 and predicts that converting its own waste will take 25 years.[30] LES acknowledges this fact,[31] and the Draft EIS acknowledges that processing NEF waste could extend the operational life of one of the DOE facilities by as much as 15 years (page 4-56, lines 5-7). And this calculation does not even take into account the processing of DUF_6 waste from the American Centrifuge Plant proposed by USEC, Inc.

Environmental Evaluation of Conversion Facility

The Draft EIS fails to discuss the environmental impacts of the construction and operation of a conversion plant for the DUF_6 waste. The Draft EIS entirely relies upon final EISs issued in connection with the construction of two conversion plants at Paducah, Kentucky, and Portsmouth, Ohio, that will convert the DOE's inventory of depleted uranium (Draft EIS, pages 2-28, 2-30, 4-53, 4-54). Such reliance is erroneous, because the DOE plants are unlike the private conversion plant contemplated by LES.

LES has chosen to focus its planning for a private conversion facility on a process different from the process to be used in the DOE plants. LES will adopt a process that generates anhydrous hydrofluoric acid (AHF).[32] The process discussed in the EISs for the Paducah and Portsmouth conversion plants is a different one, which generate aqueous HF and calcium fluoride (CaF_2).[33]

Thus, the facilities and processes analyzed in the conversion plant EISs do not fully correspond to the configuration proposed for construction by LES. In particular, the use of a distillation process to upgrade the HF resulting from the conversion process to AHF is not considered in the EIS for either the Paducah or Portsmouth facilities. In addition, when the engineering analysis for these proposed facilities was conducted, the distillation option was not even commercially developed. The Draft Engineering Analysis Report for the Long-Term Management of Depleted Uranium Hexafluoride - Rev. 2, Lawrence Livermore National Laboratory (LLNL)(1997), which is included as supporting material to the conversion plant EISs, states:

> Distillation is a common industrial process and was the design basis for this suboption. The processing of the azeotrope and the process parameters for the conversion reactors were patterned after the General Atomics/Allied Signal response to the RFR and the

[29] National Enrichment Facility Environmental Report, Revision 2, Page 4.13-8, July 2004.
[30] Audit Report: Depleted Uranium Hexafluoride Conversion, DOE/IG-0642, U.S. Department of Energy, Office of Inspector General, March 2004.
[31] National Enrichment Facility Environmental Report, Revision 2, Page 4.13-15, July 2004.
[32] LES Answer to Petitions of NIRS/PC and New Mexico Attorney General, May 3, 2004, at 72.
[33] See Paducah EIS, DOE-0359, at S-19, 1-18; Portsmouth EIS, DOE-0360, at S-17, 1-19.

> Sequoyah Fuels Corp. patented process. This representative process has not been industrialized, but the initial research and development have been completed.[34]

Therefore, the EISs for the DOE plants do not consider the impacts of the distillation process chosen by LES to generate AHF, nor the safety aspects of such operation, nor the impacts of sale, transportation, and use of AHF. The distillation process is not commercially established and projection of its impact will be speculative.

The conversion plant for the DUF_6 from the NEF would have much smaller scale than the DOE plants, creating different economics of operation and needed rates of return. The LLNL Report specifically estimates that a conversion plant of the size contemplated by LES—approximately 7,000 metric tons per year—would have costs nearly as high as the cost of operating a plant with a throughput of 28,000 tons per year.[35] The prospect of a high-cost facility raises the question what cost reductions will be attempted, and at what price to safety and the environment.

Depleted Uranium as a Resource

It cannot be assumed that this inventory of depleted uranium may have a beneficial use, since the current stockpile "far exceeds the existing and projected demand for the material" (Draft EIS, page 2-44, lines 12-13). Thus the DOE avenue of disposal cannot be considered plausible, and it should be eliminated as a possible DUF_6 waste management option (*see* Draft EIS, § 4.2.14.3). The Final EIS on the NEF should acknowledge this.

Jurisdiction of Radioactive Wastes

Regarding disposal options for waste generated by the NEF, the Draft EIS observes that, because New Mexico is not part of the "Texas Compact" agreement, "any radioactive wastes generated at the proposed NEF could not be shipped *directly* to [the Waste Control Specialists (WCS) disposal facility] for disposal" (emphasis supplied) (page 2-32, lines 34-35). Does this mean that some intermediary entity may take possession of the NEF's waste and, thereafter, transfer it to the WCS disposal site if DUF_6 is ultimately determined to be low-level waste and WCS's application for low-level waste disposal is approved? On the same page, in a discussion regarding WCS's request to become a Federal Waste Disposal Facility, the Draft EIS again states that "the proposed NEF would not be able to ship depleted uranium *directly* to the proposed WCS facility" (emphasis supplied) (lines 44-45). Is the implication here that the NEF would first transfer possession of its waste to the U.S. Department of Energy, whereupon it would then be qualified for disposal at the WCS facility if it achieves its license? In the Final EIS, please explain.

License Amendments

On page 4-34 of the Draft EIS, several deconversion and disposal alternatives are considered to address the depleted uranium waste that would be generated by the NEF. Included in this list is the possibility of disposal of U_3O_8 (the form to which DUF_6 would be converted for disposal) at

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[34] J.W. Dubrin et. al., "DEPLETED URANIUM HEXAFLUORIDE MANAGEMENT PROGRAM: The Engineering Analysis Report for the Long-Term Management of Depleted Uranium Hexafluoride Volume I," Lawrence Livermore National Laboratory, May 1997 (UCRL-AR-124080 Vol. 1 Rev. 2), at 3-8.

[35] Hatem Elyat et al., "Cost Analysis Report for the Long-Term Management of Depleted Uranium Hexafluoride," UCRL-AR-127650, at Table 6.4 (May 1997).

the Nevada Test Site, the U.S. Ecology site in Hanford, Washington, or the Envirocare facility near Clive, Utah. Would it be necessary to amend the operating licenses of these facilities in order that they may legally accept depleted uranium for disposal? If so, would it be necessary to perform an EIS to evaluate the effects of such an action at these sites, as suggested in Section 4.2.14.4?

Depleted Uranium as a Resource

In Section 2.2.2.4, titled "Alternatives for DUF_6 Disposition," it is stated that the Draft EIS "will not further evaluate DUF_6 disposition alternatives involving its use as a resource" (page 2-43, lines 36-38). Yet, on the same page, several "Beneficial Uses of Depleted Uranium" are acknowledged in a box. Included among these is employment of depleted uranium for use in munitions, where it can be used "for tank armor and armor-piercing projectiles," a demand which is said to be decreasing "as environmental regulations become more complex." Considering the widespread and continuing concerns regarding the adverse health effects arising from exposure to depleted uranium in the battlefield,[36] does the NRC consider this a viable use of depleted uranium? And, if, prior to the issuance of the final version of this report, LES demonstrates that this is a "viable use" of depleted uranium, would the Final EIS include an evaluation of the potential environmental hazards created by this military application of the uranium tails from the NEF? Further, if the EIS will not evaluate DUF_6 as a resource, then the "Beneficial Uses of Depleted Uranium" box is inappropriate to include.

Nonhazardous Waste

The Draft EIS states that nonradioactive materials such as wood, paper, packing materials, and scrap metal would be disposed of in a commercial landfill (page 2-22, lines 5-7). In Figure 2-11, which illustrates the disposal pathways of waste from the NEF, one of the destinations is "recycle." Does LES have a specific plan to recycle its nonradioactive wastes, such as paper and scrap metal? The development of a "waste recycling plan" is listed as a mitigation measure in Table 5-2, but no specifics are provided.

Cultural Resources

Section 3.3.4 of the Draft EIS acknowledges the presence of seven archaeological sites within the proposed project area, each of which has been determined to be eligible for listing in the National Register of Historic Places, based on the expectation that "buried cultural deposits exist and/or the surface data indicate a definite research potential" (page 3-9). The New Mexico Department of Cultural Affairs, Historic Preservation Division has determined that the NEF "will have an adverse effect on cultural resources" (Draft EIS, page B-26).[37] Two or perhaps three of these archaeological sites would be impacted by construction activities, but it is noted that a Memorandum of Agreement is being prepared, setting the terms of a "historic properties treatment plan" that would, supposedly, mitigate any adverse impacts on cultural resources from building and operating the NEF (Draft EIS, page 2-46; § 4.2.2).

[36] See, for example, Lee Glendinning, "Gulf war uranium tests too late for many, say veterans," *The Guardian*, Sept. 24, 2004: 10; Deborah Blum, "A Dark Magic in America's Silver Bullets," *Los Angeles Times*, June 1, 2003: M2.

[37] Michelle M. Ensey, letter to Matthew Blevins, U.S. Nuclear Regulatory Commission, Washington, D.C., April 26, 2004.

In the Final EIS, please describe, in detail, the terms of this Memorandum of Agreement and the historic properties treatment plan it would require. Would there be a comprehensive archaeological investigation and excavation prior to initiation of construction activities? Can the preservation of important artifacts embedded in the site be guaranteed, such that a "small" impact can be assured? Moreover, what is the precise nature of these artifacts? Is it possible that some of these artifacts cannot be removed from the site without damaging them or corrupting their integrity?

Also, please justify the impact assessment on historical and cultural resources of "small *to moderate*" under the "no-action" alternative (Table 2-8, page 2-46; § 4.8.2). What evidence is relied upon to make the judgment that, in lieu of construction of the NEF and its concomitant "mitigation measures," "historical sites identified at the proposed NEF could be exposed to the possibility of human intrusion" (Table 2-8, page 2-46)? Is this mere conjecture? Since these sites have been identified, can they not be protected if the NEF is not constructed?

Land Use

In Section 2.1.4 and in Figure 2-6 of the Draft EIS, the site of the NEF is described and represented. About one-third of the total site area would be disturbed by construction of the NEF (Draft EIS, page 2-8, line 34; § 4.2.1.1, lines 24-28). Is this unused area necessary to the operation of the NEF? How likely is it that, following the 30-year lease period between LES and Lea County, when the ownership of the land is transferred from the State of New Mexico to LES (Draft EIS, § 4.2.1; page 4-3, lines 22-27), the remainder of the site property will be subjected to industrial development? The Draft EIS does acknowledge that "[t]his parcel of land would likely remain industrial even after the facility is decontaminated and decommissioned" (§ 4.5, lines 39-40). According to the Draft EIS, following decommissioning of the NEF, "only the building shells and site infrastructure would remain" (page 2-24, line 12). What potential use could these remaining structures serve? Would the site remain a brownfield?

Site Geology

According to the Draft EIS, "small" environmental impacts are those that "are not detectable or are so minor that they would neither destabilize nor noticeably alter any important attribute of the resource" (box, page 4-1). Yet, in the section describing the proposed NEF's impact on geology and soils, despite the fact that construction of the facility would require grading the site to make it flat and introducing a very large industrial facility covering 83 hectares that may require penetrating the subsurface soils and even the clay layer of the Chinle Formation—the average depth of which begins at 12 meters (Draft EIS, Table 3-8, lines 17-18)—NRC staff judges the impact of the facility to be "small" because "site preparations and construction result in only short-term effects to the geology and soils" (page 4-10, lines 21-22). Is such an action not more suitable for at least a "moderate" impact assessment, where the environmental effects are "sufficient to noticeably alter...important attributes of the resource"? The NEF will fundamentally alter the geology and soils of the site, far beyond the site preparations and constructions phase; it is thus inappropriate to consider the impacts of site preparation and

construction separate from the operational phase (considered in § 4.2.5.2)—this approach ignores the long-term effects of the initial development of the NEF.

Atmospheric Emissions

The Draft EIS notes that the NEF would annually discharge 440 cubic meters of helium, 190 cubic meters of argon, 53 cubic meters of nitrogen, 610 liters of methylene chloride, 40 liters of ethanol, 0.8 metric tons of volatile organic compounds, 0.5 metric tons of carbon monoxide, and 5.0 metric tons of nitrogen dioxide (page 2-23, lines 4-13). What mitigation measures are in place to limit these emissions, and what negative environmental and public health impacts would their dispersal into the atmosphere contribute to?

Cumulative Impact
Section 4.2.4.2 of the Draft EIS describes the air emissions—including hydrogen fluoride, acetone, volatile organic compounds, carbon monoxide, nitrogen dioxide, and particulate matter—that would be produced by the proposed NEF. NRC staff justifies the designation of a "small" environmental impact from these emissions because each pollutant is expected to fall below regulatory requirements for emissions. But how does NRC staff judge the *cumulative* impact of these emissions?

Diesel Generators
According to the Draft EIS, the NEF's emergency diesel generators have the potential to emit more than 90,700 kilograms of a "regulated air pollutant." What pollutant is this? What is the experience of comparable uranium enrichment plants, such as those operated by Urenco in Europe, in terms of reliance on these emergency diesel generators? Annually, what quantity of air pollutants do these generators typically emit?

Chlorofluorocarbons
Please indicate in the Final EIS whether any chlorofluorocarbons (CFCs and/or HCFCs) would be used, produced, or released by the NEF, as is the case at other uranium enrichment plants.

Decommissioning

Section 2.1.8 of the Draft EIS describes the processes of decontamination and decommissioning of the NEF, the operating license of which would expire in 30 years. The regulations at 10 C.F.R. § 70.33 allow for renewal of operating licenses for facilities such as the NEF. What is the likelihood that the operating license of the NEF would be extended after this initial 30-year period? What has been the duration of the operational life of the comparable facilities operated by Urenco in Europe?

Monitoring
During the course of the NEF's nine-year decommissioning period, it is estimated that more than 5,000 cubic meters of radioactive waste would be generated and disposed of in low-level radioactive waste facilities (Draft EIS, page 2-25). How will the NRC monitor the

decommissioning process to assure that all radioactive waste materials are disposed of properly rather than being shipped to unlicensed landfills or recycling facilities?

Impacts on Wildlife

The Draft EIS refers to a field survey of the proposed NEF site conducted by LES in the fall of 2003 that "did not locate any lesser prairie chickens" (page 3-47, lines 44-45), yet the duration of this survey and the methodology was employed is not discussed.[38] A similar concern about the adequacy of this assessment was expressed by Lisa Kirkpatrick, Chief of the Conservation Services Division for the State of New Mexico's Department of Game and Fish, in a February 23, 2004 letter to the NRC responding to the Environmental Report on the NEF submitted by LES.[39] Ms. Kirkpatrick questioned the adequacy of the survey, noting that "the area around the project has not been adequately surveyed for lek [breeding area] sites" and "[s]urveys should be conducted in the spring," not the fall. But despite this criticism, it does not appear that NRC staff has supplemented this initial, inadequate survey for the Draft EIS, determining that "[t]here are no onsite important ecological systems...that contain important species habitats such as breeding areas..." (page 3-50, lines 6-7; *see also* § 4.2.7). Further, this statements appears to contradict a later admission that the swift fox (*Vulpes velox*) and the western burrowing owl (*Athene cunicularia hypugea*)—two "species of concern"—may have their habitats and livelihoods threatened by the construction and operation of the proposed NEF (§ 4.2.7). Please remedy this in the Final EIS.

The Draft EIS provides further rationale for the moderate impact of the proposed NEF in that only one-third of the total site area would be impacted by construction and operation activities, allowing "highly mobile resident wildlife located within the disturbed areas of the proposed NEF site an opportunity to relocate to undisturbed onsite areas" (page 4-17, lines 16-18). Would these species—and please specify which species this statement refers to—be able to subsist solely within the site boundaries, or, if not, would they be able to freely pass through, under, or over the fence that would be erected at the perimeter of the site? If, for any species, the answer to these questions is "no," it seems that this habit would be rendered unsuitable.

Moreover, it is questionable to consider the "permanent elimination" of 73 hectares of wildlife habitat a "small" impact (Draft EIS, § 4.3.7).

Accidents

Release of Uranium Hexafluoride

The Draft EIS describes the most significant accident scenario at the proposed NEF to be an accidental release of uranium hexafluoride (UF_6), which could cause seven latent cancer fatalities. NRC staff judges that the risk of such exposures would increase if the winds were

[38] The survey referred to is mentioned in the National Enrichment Facility Environmental Report (Dec. 2003) at § 3.5.6. Details provided on the survey are scant.

[39] Lisa Kirkpatrick, letter to Chief, Rules and Directives Branch, U.S. Nuclear Regulatory Commission, Washington, D.C., Feb. 23, 2004.

from the south at the time of the accident, sending the plum of UF_6 towards Hobbs and Lovington, New Mexico (Draft EIS, page 4-25, lines 21-30). The local wind patterns documented in Section 3.5.2.4 and represented in Figures 3-8 and 3-10 show that southerly winds are predominant in the area; thus, the likelihood of this worst-case scenario, which is contingent upon winds from the south, is increased.

Tornadoes
The frequency and severity of tornadoes in the vicinity of the NEF is described in Section 3.5.2.5 of the Draft EIS. Has the NRC staff evaluated the damage that an F5 tornado would cause to the NEF?

Operations

The Draft EIS states that the proposed NEF "*currently* has no plans for internal cleaning or decontamination of the [UF_6] cylinders" (emphasis supplied) (page 2-15, line 36). Does this mean that it is possible that LES may decide, at some point in the future, to engage in the cleaning and decontamination of the emptied UF_6 cylinders at the NEF? If so, would the NRC undertake an evaluation of the environmental impacts of this practice? In the Final EIS, please consider the environmental effects of cleaning and decommissioning the Type 48X or Type 48Y cylinders that have contained UF_6.

Miscellaneous

The summary descriptions of the "proposed action" under the categories "Transportation" and "Public and Occupational Health," part of Table 2-8 at pages 2-55 and 2-56, appear to be truncated. Please correct this error in the Final EIS.

Conclusion

In the areas described above, the NRC's Draft EIS for the National Enrichment Facility (NEF) falls short of a complete evaluation of the environmental impacts of the proposed facility as required by the National Environmental Policy Act. Until the above questions and criticisms are adequately addressed and resolved, the NRC staff's recommendation that the license for the NEF be approved is premature.