



November 4, 2002

Mr. James P. Bearzi, Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Ref: Los Alamos National Laboratory Facility Order

Dear Mr. Bearzi:

Nuclear Watch of New Mexico (“NWNM”) respectfully submits these comments on the New Mexico Environment Department’s (“NMED”) Draft Sandia National Laboratories (SNL) Corrective Action Order of September 3, 2002. Thank you for the opportunity to comment. We also salute you, your staff and NMED as whole for initiating this Order. We believe that it has tremendous potential, so long as NMED remains resolute behind the Order’s apparent intent to induce genuine comprehensive cleanup at SNL.

Determination of an Immanent and Substantial Endangerment to Health and the Environment: NMED largely grounds its release of the draft CAO upon its Determination of an Immanent and Substantial Endangerment against SNL. NWNM supports that finding. Being the amateurish wannabe lawyers that we are, we believe that finding is on a solid legal basis. Related to this, we believe that the DOE//UC challenges to the May 2, 2002 LANL CAO are, in fact, unsupported, especially in their sweeping attack against the states’ authority over mixed wastes. We commend NMED on its findings for both laboratories.

Frankly put, the DOE/UC challenges to the draft LANL Order appear ill conceived and insubstantial. For example, UC’s “Complaint for Declaratory Relief and for Review of Administrative Action” makes the claim that “The AEA [Atomic Energy Act] provides DOE with the exclusive authority to regulate all pure radioactive waste and the radioactive portion of any waste mixture.” This is, to put it charitably, an extravagant (even radical) claim. As much as we think it a “root of all evils,” we don’t dispute DOE’s legal claim over jurisdiction over “purely” radioactive wastes. But for UC to categorically assert that it (as LANL’s manager) also has sole jurisdiction over mixed radioactive waste flies in the face of the relevant portions of the Resource Conservation and Recovery Act and the Federal Facilities Compliance Act. In sum, we strongly support and urge NMED to vigorously work to fend off UC’s legal challenge which, were it successful, would not only inevitably block the Order itself but also provide precedent to rollback hard won environmental laws nation-wide. In short, we strongly urge NMED to vigorously fight off UC’s unmerited challenge while simultaneously proceeding with the issuance of both the LANL and SNL final Orders. However, in order to protect both Orders we strongly urge NMED to make them consistent with each other to the fullest extent possible (as discussed below).

Section I. Introduction: NWNM applauds NMED for its issuance of the draft CAO. The Department, in our view, deserves much credit for finally doing something meaningful, aggressive, comprehensive and forward looking in its regulatory enforcement role over SNL. We salute the Secretary and his staff for having done so - - they all deserve much credit. We want to emphatically state our praise.

Our concerns with the draft CAO lie not so much within the Order as much as they lie outside in directly related developments, for example the Letter of Intent co-signed with DOE setting forth certain agreed upon “accelerated cleanup” principles and at least obliquely incorporating SNL’s so-called Performance Management Plan. These are a crucial part of our comments that we strongly argue that NMED should not summarily reject just because they could be narrowly interpreted as lying outside the bounds of relevant comment. It is NMED who made these comments relevant through its decision to enter into an agreement with DOE, and hence they should be seriously considered and responded to. It is particularly alarming to us that through its so-called “Accelerated Cleanup Program” DOE intends to close the environmental management program at SNL by 2006 while relying on half-baked platitudes such as “Long Term Environmental Stewardship,” even as the full extent of waste, the potential for groundwater contamination and risk to human health and the environment remain insufficiently determined. We urge the NMED to be most skeptical of DOE projections and promises, as the last decade should have made clear by now. We counsel “trust, but verify,” and base that verification on soundly formulated and vigorously executed compliance orders.

Our most critical general observations of the SNL CAO itself are three:

1) **The Order should have been issued more than a decade ago.** This is an obvious fact that current NMED officials have freely acknowledged is true for the LANL CAO. This fact should be held in mind throughout the processes for both Orders (and accordingly in any related permit issues) that time is of the essence and too much time has already been lost. There should be much zeal on the part of NMED to finalize the Order and then to vigorously implement and enforce it as needed. We are dismayed that there has been further delay to the issuance of the final LANL Order, which should have been released just days ago from this writing. We are probably not far off base in guessing that something similar will happen with the Sandia Order. It is imperative that NMED act expeditiously on both Orders for many reasons, among which is the pending change in the gubernatorial administration, with all of the uncertainty that can bring.

2) Our second critical general concern is that **this Order mandates no actual corrective measures, that is to say cleanup**, another obvious fact which again current NMED officials have freely acknowledge with respect to the LANL Order. Similarly, the SNL Order is essentially a glorified information request by NMED, albeit with the virtue of real legal weight. However, NWNM refrains from wholesale condemnation of these Orders because of their lack of mandated cleanup precisely because we believe that these Orders can lead to genuine and comprehensive cleanup if the Department remains zealous about them. This leads us to strongly support both Orders generally while awaiting exactly how they unfold. Unfortunately, the matter of how exactly these Orders manifest (and by extension future cleanup at the labs as well) will be largely influenced and determined by issues outside of the Orders, some of which we attempt to address in these comments. But we restate here that we strongly support these Orders, so long as NMED remains zealous in both implementing and protecting the LANL Order from the DOE/UC challenge and using both Orders as a platform for proceeding directly

into real cleanup at both labs. Again, time is of the essence, and further delays by NMED are strongly disappointing.

3) The final LANL and SNL Orders should be more consistent with each other. We enter this comment for two reasons: a) to better protect NMED's final LANL Order from attack by DOE/UC on the grounds that NMED is not pursuing parallel enforcement at the two labs; and b) in order to strengthen the SNL Order itself, as we believe the LANL order to be the stronger of the two draft Orders.

This comment is prompted mainly by the fact that the draft SNL Order does not have a Section VIII "Cleanup and Screening Levels" as the draft LANL Order does. Otherwise, in the general outline of sections the two Orders are virtually identical to each other (while naturally allowing for the many obvious site-specific differences). We raise this not just as a matter of appearance. In many respects we believe Section VIII to be the very heart of things in the LANL order, one that in the desired future of mandated cleanup will firmly put LANL on the road to comprehensive cleanup. Its omission in the draft SNL Order is, to us, striking and could potentially lead to the undermining of both Orders.

We generally strongly support the selected target risk level of 10^{-5} . We do think it is an eminently defensible position that NMED selected the middle ground between the EPA's recommended range of 10^{-4} to 10^{-6} for lifetime excess cancer risk. Having said that, we are fearful that the 10^{-5} risk factor will be completely skewed by a struggle to begin in the near future over the application of residential vs. industrial standards in the determination of environmental restoration remedies at LANL and SNL. We argue in the strongest possible terms that in order to ensure genuine protection for human health and the ecology that NMED must vigorously pursue the application of residential standards at both labs. At the same time, agricultural scenarios also need to be seriously considered as well. This is also eminently defensible given that the labs have been in existence for less than sixty years, while agricultural use in the general region has been in existence for at least a 1,000 years. Even LANL and SN will pass someday, and NMED needs to strongly protect the environment for the future unpredictable needs of posterity. We already know that DOE and the labs are making self-serving critical assumptions that industrial standards will be used.

In the draft LANL Order much of the substance of its Section VIII was previously captured in its Section VII.C.2.b. "Risk Screening Levels" which set a target risk goal for screening of 10^{-5} for total cancer risk. However, significantly, that level of risk was then codified as the target risk level "for establishing cleanup levels for regulated substances." The draft SNL Order contains the identical Section VII.C.2.b. "Risk Screening Levels," yet the draft SNL fails to similarly codify that risk level into the formulation of cleanup levels. Suffice it to say we regard this as a very serious omission in the draft SNL Order, one that not only impairs the Order itself but may also imperil the final LANL as well. We strongly recommend the inclusion of a Cleanup and Screening Levels section in the final SNL Order.

As a final comment on the Section VIII "Cleanup and Screening Levels" that we believe that the SNL Order should contain we note the many hazardous and radioactive contaminants listed in NMED's Finding of Imminent and Substantial Endangerment against SNL under Section VII. "Toxicity of

Contaminants.” We recommend that a Section VIII “Cleanup and Screening Levels” in the final SNL Order establish cleanup and screening levels for all of those contaminants. A failure to do so for all or part should be carefully explained by NMED.

II. A. Findings of Fact: NWNM concurs with all of the facts presented therein. It is a good, and even damning, summary of the status of cleanup and various environmental affairs at SNL. We note that all the facts presented have to do with the Respondents and NMED. We suggest that it could possibly be worthwhile noting that declining DOE cleanup budgets in New Mexico (at both SNL and LANL) led NMED to doubt that all of the noted deficiencies and cleanup in general could ever be rectified for the foreseeable future.

II. B Conclusions of Law:

Conclusion # 10: We strongly support NMED’s assertion that “*Such monitoring and reporting [of radionuclide contaminants] is necessary for the Department to properly implement the regulation of hazardous wastes constituents, and other solid wastes pursuant to the HWA and the Hazardous Waste Regulations. United States v. New Mexico, 32 F. 3d 494 (10th Circuit 1994).*” DOE is notorious for its lack of knowledge about the characterization of its own wastes, including admissions to that very effect in legally required NEPA documents (see, for example, the 1997 DOE Waste Management Programmatic Environmental Impact Statement (whose completion had to be enforced by citizen litigation to begin with)). Additionally, there have been many waste characterization issues concerning the New Mexico State Waste Isolation Pilot Plant permit. Experience has taught that DOE must be forced to properly characterize its waste to begin with, hence the justification for NMED to require monitoring and reporting of radionuclide contaminants is legally justifiable. We also concur that the case law cited above strongly buttresses this argument.

Conclusion #11: NMED appropriately asserts its jurisdictional authority over DOE and SNL through the provisions of the Resource Conservation and Recovery Act and the Hazardous Waste Act. NMED should also note its jurisdictional authority invested by the Federal Facilities Compliance Act.

Section III. A Purposes: The draft Order states that its purposes are

3) to identify and evaluate where needed alternatives for corrective action measures to cleanup contaminants in the environment, and to prevent or mitigate the migration of hazardous wastes or hazardous constituents at or from the Facility, and 4) to implement such corrective measures.

Purposes #3 and 4 are not backed up by Order Section XI Compliance Schedule Table (which we consider to be where “the rubber hits the road”) with the possible partial exception of Corrective Action Implementation Reports. This leaves us with critical general questions that we feel NMED should answer. Does NMED contemplate this Order to be a “work in progress” which will be continually added to or, alternatively, will there be subsequent Orders that mandate actual corrective action measures? And to what extent will the pending permit processes incorporate corrective action measures? Please clarify.

Section III. C Jurisdiction: Again, NWNM believes that the Federal Facilities Compliance Act should be referenced as appropriate.

Section III. G Work Plans and Schedules: It is essential as well that NMED is expeditious in its review and approval/disapproval of work plans and schedules. Directly related to this, it is also essential that NMED secures its resource base so that it can be expeditious.

Section III. J Availability of Information: *“the Respondents shall, within a reasonable time after a request from any authorized representative of the Department, furnish information to the Department relating to hazardous wastes that are or have been managed at the Facility.”* Given DOE’s past chronic delays, if not outright obfuscation, in providing environmental information and reports, NWNM strongly recommends that precise times be mandated rather than “a reasonable time.”

Section III. M. Enforcement: As previously stated, NWNM supports NMED in vigorous enforcement as needed.

Section III. N Relationship to Work Completed: It is important that NMED gets the lab to inventory what might be satisfactory work already completed in order to save taxpayers money and to effectively accelerate genuine cleanup at SNL. At the same time, it obviously holds true that NMED must investigate and soundly judge for itself whether or not previous work is satisfactory, and to reject it if it isn’t. Related to all of this, the final SNL Order needs to spell out quality assurance programs to ensure that the data presented is true and accurate.

Section III.O Integration with Permit: *Subsequent to the issuance of this Order, the Department may renew the Hazardous Waste Facility permit issued to the Respondents for the Facility under the HWA, and such permit may incorporate the requirements of this Order. The requirements of this Order shall not terminate upon issuance of such permit.*

NWNM strongly believes that in the final Order NMED needs to better explain and clarify exactly how and where the Order, possible future Orders and future permits may or may not intersect.

Section IV. Facility Investigation: To what extent will the reports and information generated be available to the public? What are the mechanisms for that? Obviously we regard access to significant information to be very important and clearly in the public’s interest. We suggest the use of both NMED’s and SNL’s web sites.

Section IV A. C Mixed Waste Landfill: NMED should avail itself of documents obtained by the non-profit organization Citizen Action through the Freedom of Information Act.

Section IV H Long Term Environmental Stewardship: We strongly deplore DOE’s reliance on its so-called Long Term Environmental Stewardship (LTES) Programs for the individual sites. We view it essentially as a stratagem whereby DOE will avoid its cleanup responsibilities, push for industrial land use, build fences and install some monitoring devices and walk away from a long-term threat to posterity.

We commend the draft Order’s mandate to SNL to detail its projected LTES activities at each SWMU or AOC. Here, we simply urge in the strongest terms that NMED stick to its guns and not let DOE

offer vacuous plans that have no real substance. In addition, NMED should require of DOE and SNL proof of intent to adequately fund LTES activities. Finally, NMED should consider the necessity of financial assurances for both cleanup and LTES activities.

Section VII. C.2.b Risk Screening Levels: Please see Mr. Franke's comments below.

Section VII.D.3 Cleanup Standards: *The Respondents shall select corrective measures that are capable of achieving the cleanup standards and goals outlined in Section VII of this Order or, if the cleanup standards or goals cannot be achieved, approved risk-based cleanup goals established by a risk analysis.*

This short section is highly problematic, and may well represent the most severe defect in this Order. As already noted, they are essentially no cleanup standards presented in this Order, only screening levels. Again, as already noted, the draft SNL Order completely lacks a "Cleanup and Screening Levels" section comparable to the draft LANL Order. This, in our view, is badly in need of fixing, and must be proscriptive rather than allowing the Respondents to choose. Further, those standards should be based on residential or agricultural scenarios and not industrial or restricted use as the Respondents would no doubt choose. Finally, as noted in Mr. Franke's comments below, the criteria for determining what is infeasible or not need to be clearly and unambiguously spelled out in the final Order.

Section VII. D.5 Approval of Corrective Measures Evaluation Report: NWNM wants to know what access to these reports the public will have.

Section VII. D.6 Relationship to Corrective Action Requirements: *"The Corrective Measures Evaluation shall serve as a Corrective Measures Study for the purposes of RCRA compliance."* Again, the final order should better explain the relationship between the Order and the pending renewed LANL RCRA permit.

Section VII.E.2 Corrective Measures Implementation Plan: What role or opportunity to comment will the public have in NMED's final selection of remedies?

Section VII. Community Relations Plan: NMED's draft LANL Order mandated a community relations plan. The final SNL Order should too. As a specific, SNL should be required to place relevant documents on its ES&H web site. Additionally, what is NMED's community relations plan for ongoing public involvement during the implementation of the final Order in all of its aspects?

Section X. Reporting Requirements: What will be the public's access to critical information, reports and documents, such as risk assessment and corrective action reports, the type of future land use scenarios used, actual screening values used, uncertainty analyses and conclusions and recommendations? How may all of the above be used or incorporated into SNL permit processes? What is the quality assurance process for both SNL's preparation of the requested information and NMED's review and approval of it?

Section XII. Compliance Schedules Tables: The May 2002 GAO Report "Waste Cleanup: Status and Implications of DOE's Compliance Agreements" states:

Thus far, regulators [across the country] have generally been willing to negotiate extensions when DOE found itself unable to complete a milestone on time, approving about 93 percent of DOE's requests for milestone changes... However, regulators said that they were generally unwilling to extend milestones just to accommodate lower funding levels by DOE.

Obviously the situation is different here in New Mexico which, to date, has not had such comprehensive Orders with milestones until now. However, we believe that these Order were issued, at least in substantial part, precisely because NMED had witnessed a pattern of serious decline to environmental restoration funding in this state. In effect, NMED was put into a position by DOE of choosing whether or not it would accommodate lower funding levels. We say out of principle that there should be zero tolerance for missed milestones (other than *force majeure*) to begin with, but especially so in light of the past declining funding pattern.

A further reason for zero tolerance of missing milestones is that cleanup schedule slippages are endemic to DOE cleanup programs. As the June 2002 DOE Inspector General's Audit Report "Environmental Management Performance Measures" states:

At the 40 cleanup sites still open at the end of FY 2001, the average time to complete cleanup work changed from 11 years in 1998 to 17 years in 2001. These slippages have resulted in an increased duration of 6 years, or 55 percent, with schedule slippages occurring at 32 of the remaining 40 cleanup sites.

This is a situation that NWNM asserts will only grow worse as DOE hits the more intractable problems. Furthermore, NMED should bear in mind the obvious fact that SNL is and will remain a National Nuclear Security Administration (NNSA) site. The point here is that clearly the NNSA will not have environmental restoration as its highest priority, even as expanded nuclear weapons operations at SNL will increase the volumes of hazardous and radioactive wastes being produced. Finally, NMED and the lab simply need to make up for lost cleanup time. For all of these reasons NWNM urges NMED in the strongest terms to not tolerate missed milestones, but instead to enforce them vigorously with appropriate penalties as needed.

Some General Comments

NWNM again applauds NMED's Determination of Imminent and Substantial Endangerment. Of course, the people who know best what tangible dangers there might be would be SNL personnel. The final Order should incorporate measures that would protect any whistleblowers that might come forward with valuable information.

In our view, NMED should be well aware of other states' Orders, what worked, what didn't and what may be applicable to this Order. We advise NMED that the May 2002 GAO Report "Waste Cleanup: Status and Implications of DOE's Compliance Agreements" has an excellent list by state of Orders and Consent Decrees issued against DOE. The GAO Report also notes that DOE HQ has made no attempt to calculate the costs of compliance with existing regulatory orders and consent decrees by site. While not advising that this should be part of the Order itself, NMED should nevertheless pressure DOE into calculating projected costs for complying with the Order so that future compliance can be better assured with a sound fiscal basis.

One major omission that we find pervading the draft Order is spelled out quality assurance procedures for both DOE and SNL in the fulfillment of data requests, reports, etc. and those for NMED in its review and approval process. We think this subject to be of sufficient stature that it merits having its own section in the final order, at least for SNL. We don't necessarily think that NMED needs to order itself in the final Order, but nevertheless NMED should self-examine this issue.

NMED should also examine its resource base for supporting the ongoing implementation of this Order and the means whereby it succeeds in consolidating that resource base. [We are not suggesting that self-examination should occur within the final Order, but nevertheless strongly note that it needs urgent redress.] The conventional adage is that the means don't always justify the ends. To be less cryptic, what we mean here is that NMED should be very leery of "snake oil" proposals by DOE and the labs to accelerate "cleanup," in which the feds attempt to lure struggling state environment departments into accepting certain premises that will inevitably compromise the course of future genuine cleanup. To cut to the quick, NMED is already culpable by having cosigned onto the now somewhat infamous Letter of Intent in the hopes of obtaining both greater cleanup funding for New Mexico and its own resource base (both of which are legitimate concerns but can obviously lead to potentially compromising situations). The point of all of this is that NMED should examine the currency and validity of the Letter of Intent and possibly rule it as invalid and inoperative. NWNM contends that the Letter of Intent was a contract of sorts between DOE and NMED. In the plausible event that Congress rejects the DOE request for an accelerated cleanup account then DOE will not be fulfilling that contract as planned. Therefore, NMED should not feel obligated to remain in a position whereby it could possibly be compromised by that ill-advised instrument. Again, NWNM is not suggesting that these deliberations internal to NMED should place within the framework of the Order. Still, we most strongly urge that they do indeed take place.

- End of Coghlan's Comments -

The following comments were prepared by our consultant Mr. Bernd Franke of the Institut fur Energie und Umweltforschung (Institute for Energy and Environmental Research) of Heidelberg, Germany.

Comments to NMED Draft SNL Order, dated September 3, 2002

1. We support the finding of the NMED Secretary of September 3, 2002 for Sandia National Laboratories (SNL) that "past or current handling, storage, treatment, or disposal of any solid waste or any hazardous waste may present an imminent and substantial endangerment to health and the environment"

We commend NMED for this finding which is overdue given the fact that the information which formed the basis for this determination has long been available. NMED should document the time period for which it had knowledge of this situation because this will provide a stronger case for prompt response on the part of SNL.

2. NMED selected a reasonable cleanup target risk level of 10^{-5} for individuals. For radionu-

clides, this level is equivalent to about 0.2 mrem/year CEDE using current Environmental Protection Agency (EPA) risk factors for radioactive contaminants. It should be appended by establishing an annual dose limit of 1 mrem/year CEDE.

In Section VIII C.2.b, NMED selected a reasonable cleanup target risk level. The risk level can be translated into annual radiation exposure over lifetime. According to USEPA-1994 the risk factor for the low dose rate for cancer morbidity is 7.6×10^{-7} . Accordingly, for an exposure over a 70-year lifetime at an average dose of about 0.2 mrem/year CEDE, the resulting risk would be about 10^{-5} . It is prudent to use a low risk level to account for uncertainties in the characterization of contaminated areas and associated risks and in order to be consistent with cleanup risk targets used elsewhere in the U.S. The risk level is compatible with the “*de minimis*” dose limit of 1 mrem/year CEDE that is used as a target dose for clearance of radioactive materials in international regulations (IAEA-2002, EC-1996). When limiting the maximum annual dose to 1 mrem/year, it is reasonable to assume that the average lifetime dose is a factor of 5 or smaller. By inverse rationale, it would be prudent to ensure that the maximum annual dose to individuals be limited to 1 mrem/year CEDE. NMED’s final Order should contain a cap to annual individual exposures of 1 mrem/year CEDE.

3. NMED should adopt EPA’s screening level at 10^{-6} risk from single pollutants in addition to a total target risk to individuals of 10^{-5} .

NMED deviated from the EPA procedure by allowing the target risk level of 10^{-5} to be exhausted by a single pollutant. According to EPA, even a single pollutant exceeding the screening level calculated at the 10^{-6} risk level may need to be investigated in further detail. NMED’s soil cleanup levels for 133 elements and compounds are based on a target total risk of 10^{-5} for carcinogenic substances. The NMED approach using the EPA screening factors multiplied by 10 would allow areas with a single pollutant with a risk level of less than 10^{-5} to escape further detailed study and characterization.

NMED’s suggested use of the target risk is not consistent. While the target risk for non-radioactive carcinogens is 10^{-5} , radionuclide concentrations in the soil have to be compared to EPA’s preliminary remediation goals for radionuclides in the soil that reflect a 10^{-6} target risk. NMED claims: “*Comparison of individual radionuclide concentrations to the EPA preliminary remediation goals assures that the total excess risk from radionuclides will not exceed the Department total excess risk goal of 10^{-5} .*”

This claim can only be assured if there is no risk from non-radioactive pollutants and if there are less than 10 different radionuclides. To alleviate this shortcoming, we recommend that the target risk for individual pollutants (whether radioactive or non-radioactive) should be 10^{-6} and that the target risk level from all pollutants combined should not exceed 10^{-5} .

4. NMED should establish a collective dose target risk for radioactive and non-radioactive pollutants.

The focus of the NMED approach is on individual risks. While it is important to limit the risk to a given individual, care should be exercised to limit overall potential harm to human health. In radiation protection (and likewise for non-radioactive carcinogens) adverse health effects down to very low lev-

els are prudently assumed. A useful approach to reflect this is to limit cumulative population exposures in addition to the risk to individuals.

This is done, for example, in current regulations for clearance of radioactive metals. The European Commission has established a population dose limit of 100 person-rem per year from an activity (EC-1996). In this context, “activity” is a defined act of clearance in the country. In other words: since the maximum dose from clearance of radioactive materials to an individual is 1 mrem/year, the overall goal is that the collective dose from clearance in any given set of years should not deliver more than 100,000 such doses to the residents of the entire country.

One may (and should) argue about the appropriate population risk target. In the worst case reuse of contaminated property may result in exposures to many individuals. NMED could, for example, set a target collective risk over the next 500 years from all cleanup operations in New Mexico. We recommend that the collective risk to human health in the event of the reuse of SNL property be determined in the course of cleanup activities.

5. NMED should select the most restrictive usage scenario (residential, agricultural or other) for all substances under review.

The Draft SNL Order section VII.C.2.a specifies: *“For human health risk assessments, the conceptual site model shall include unrestricted residential land use as a future land use. In addition to residential, other land uses may also be modeled.”* This language is way too vague. All usage scenarios should be modeled.

For non-radioactive carcinogens, only “residential soil” is specified in EPA Region VI Human Health Medium Specific Screening Levels (HHMSSL). These include the following scenarios (NMED-2000):

- Residential soil (with and without dermal exposure)
- Industrial indoor worker (without dermal exposure)
- Industrial outdoor worker (with and without dermal exposure), and
- Groundwater

With regard to radioactive carcinogens, EPA uses a variety of scenarios for formulating the preliminary remediation goals (PRG) for radionuclides in soil, which include:

- Residential soil
- Agricultural soil
- Indoor worker soil
- Outdoor worker soil, and
- Groundwater

It should be noted that NMED’s Draft LANL Order requires that data be presented for the “agricultural soil” scenario, representing a striking inconsistency in NMED’s approach to the SNL and LANL sites. Because NMED does not require that values for “agricultural soil” be presented, it is more than likely that this will result in the selection of “residential soil” for radioactive pollutants. This is unacceptable on several grounds:

It is inappropriate to ignore the “agricultural soil” scenario for radioactive or non-radioactive pollutants alike.

Out of 845 radionuclides for which PRG values are published by the EPA, the “residential soil” scenario yields the strictest values in only 24 cases (= 2.8%). In contrast, the “agricultural soil” scenario represents the strictest values in 809 cases (= 95.7%). In the remaining 12 cases (= 1.5%), the strictest standard for groundwater protection (DAF = 1) yields the strictest PRG values.

Based on the foregoing, the “agricultural use” is overwhelmingly the most restrictive scenario. The likely selection of “residential use” as a scenario would prejudice cleanup strategies and ignore the most conservative approach.

In conclusion, the NMED Draft SNL Order is too unspecific and inconsistent when compared to the Draft LANL Order. The final SNL order should select the most restrictive usage scenario (residential, agricultural or other) for all substances under review. The NMED should further present a rationale to deal with the existing data situation in case the regional background levels exceed screening values.

6. The Draft SNL Order does not contain a reference to cleanup levels for Polychlorinated Biphenyls (PCBs).

In the Draft LANL Order, NMED has established a default cleanup criterion of 1 mg/kg for PCBs. The lack of a specific value for SNL is surprising because PCBs are present at the SNL site as well. They are specifically mentioned in the Secretary’s September 3, 2002 determination of “an imminent and substantial endangerment to health and the environment.” It should further be noted that the cleanup criterion that was set for the LANL site is too lenient: the EPA Region 6 value for PCB is 0.22 mg/kg, based on a risk target of 10^{-6} . We recommend that the NMED set a specific PCB level for SNL and use the stricter EPA value. This would reflect the already mentioned concept of limiting the risk from individual pollutants and is more protective of human health.

7. The degree of knowledge regarding the risks from radioactive and non-radioactive pollutants should be documented; target values should be continually revised, as more information becomes available.

An overall issue with respect to setting appropriate cleanup standards is the fact that knowledge of exposure data and risk factors is constantly progressing. What appears to be a conservative assumption today may be regarded as too optimistic tomorrow. Setting cleanup standards involves judgment of the effects on generations to come. NMED should outline a process for updating risk information.

8. NMED’s Draft Order lacks unambiguous definitions for “goals cannot be achieved,” “implementability” and “technical infeasibility” of cleanup.

The Draft SNL Order stipulates that “if the cleanup standards or goals cannot be achieved, approved risk-based cleanup goals established by a risk analysis” (VII.D.3) can be used so that “[t]he remedy shall be evaluated for its implementability” (VII.D.4.b.iv). The Draft Order further states that “[I]f attainment of the established cleanup level is demonstrated to be technically infeasible, the Respondents may perform a risk-based evaluation to establish alternative cleanup levels for specific media at individual corrective action units” (VIII.E). These provisions are too vague in nature and open the door for substantial arbitrariness in their application because of the lack of clear and unambiguous definitions. At which point is it impossible to achieve a cleanup standard or goal? What are

the limits of implementation? And at what point is attainment “technically” infeasible rather than simply “too expensive”?

We strongly recommend that NMED define precise and numerical decision criteria for the above.

9. The NMED position paper on human and ecological risk assessment referred to in Section VII.G is deficient. NMED should consider the agricultural use scenario and require a thorough uncertainty analysis.

If a “risk-based evaluation” is conducted, the Draft SNL Order defines that it should be in accordance with the Department’s “Human Health Risk Position Paper Assessing Human Health Risks Posed by Chemicals: Screening Level Risk Assessment (March 2000)” while using the equations found in the Department’s “Technical Background Document for Development of Soil Screening Levels.”

The above position paper is deficient because it limits the pathway analysis to residential and industrial usage scenarios. Section 6 of the position paper is entitled “Analysis of uncertainties” and merely specifies that the major areas of uncertainty are to be “discussed.” Given the fact that NMED’s cleanup levels, as well as the RPG values, were selected in a deterministic way, there is a significant degree of uncertainty in the values.

We recommend that Section VIII.E and the position paper be revised to address these shortcomings. There is likely significant uncertainty due to sampling and analysis as well as in the variability in model parameters. We recommend that NMED’s final SNL Order require a mandatory, full-scope uncertainty analysis of the risk posed by non-radioactive and radioactive pollutants.

10. The final SNL Order should contain specific requirements for a quality assurance and quality control (QA/QC) with respect to the data and reports that will be generated in response to the Order.

The Order should contain a specific program to ensure quality control of sampling, measurements, record keeping, and model calculations. The data and the conclusions should be fully accessible to members of the public.

11. The requirements for the Long-Term Environmental Stewardship (LTES) Plan in Section IV.H are too vague and need to be specified.

The description in Section IV.H contains only vague specifications for the LTES: The SNL Order should be more specific and should require information with respect to quality control of sampling, measurements, record keeping, assumptions in model calculations, etc.

12. The SNL Order should be amended by a specific plan for public involvement

The present and future impact of SNL on human health and the environment is an issue that affects local residents and all New Mexicans. For appropriate decisions, the input of members of the public is essential. The SNL Order should contain specific information as to the steps to ensure that the information generated is accessible by the affected parties and that public involvement in the decision-making process is maintained.

Summary

We commend NMED for the finding of an imminent and substantial endangerment to health and the environment due to solid waste at the SNL site, which should have been done much earlier. While NMED's overall risk target of 10^{-5} for the sum of all radioactive and non-radioactive pollutants is a reasonable one, the Draft SNL Order contains major inconsistencies and is too vague in a number of cases that were reviewed by us:

NMED's target risk levels allow that the target risk could be exhausted by a single pollutant. This is not standard practice. We recommend that the target risk for individual pollutants (whether radioactive or non-radioactive) should be 10^{-6} and that the target risk level from all pollutants combined should not exceed 10^{-5} .

NMED does not address the issue of collective dose and the overall potential harm of residual contamination to the entire population potentially at risk. We recommend that NMED establish a collective dose target risk for radioactive and non-radioactive pollutants.

The NMED Draft Order is too unspecific with regard to usage scenarios. We recommend that the most restrictive usage scenario (residential, agricultural or other) for all substances under review be selected. NMED should further present a rationale to deal with the existing data situation in light of the fact that the EPA's existing RPG values are already exceeded for some radionuclides.

NMED has not established a specific value for PCBs at SNL while doing so for LANL. This is surprising because PCBs are clearly present at the SNL site and is specifically mentioned in the Secretary's September 3, 2002 determination of "an imminent and substantial endangerment to health and the environment." NMED should establish a default cleanup criterion of 0.22 mg/kg for PCBs as recommended by the EPA.

The knowledge of the risks from radioactive and non-radioactive pollutants is constantly changing. We recommend that NMED's final Order should reflect this and provide for a process of continued revision as more information becomes available.

NMED's Draft Order lacks unambiguous definitions for "goals cannot be achieved," "implementability" and "technical infeasibility" of cleanup. We recommend that NMED define precise and numerical decision criteria for all of these.

There is likely significant uncertainty due to sampling and analysis as well as the variability in model parameters. We recommend that NMED's final Order require a mandatory full-scope uncertainty analysis of the risk posed by non-radioactive and radioactive pollutants.

The final SNL Order should contain specific requirements for a quality assurance and quality control (QA/QC) program with respect to the data and reports that will be generated in response to the Order. The requirements for the Long-Term Environmental Stewardship (LTES) Plan are too vague and need to be specified.

The SNL Order should be amended by a specific plan for public involvement.

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End of Franke's Comments -

Respectfully submitted,

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