July 25, 2007

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Subject: Comments from Tri-Valley CAREs on the Site-Wide Proposed Plan for the Superfund Cleanup at the Livermore Lab Site 300

Dear Claire:

Below are Tri-Valley CAREs' comments that address the Lawrence Livermore National Laboratory's (LLNL) Site-Wide Proposed Plan for the Superfund cleanup at Site 300 between Tracy and Livermore, CA. We have organized our comments into the following categories: Public Outreach and Access to Information, Cleanup Standards, Land-Use Assumptions, Process-Related Issues, Funding Priorities, Remediation, Specific Issues on Proposed Plan, and the Community Acceptance Criteria.

Tri-Valley CAREs solicited input from a broad community, particularly although not exclusively from folks who live in and around Tracy and Livermore, to define what constitutes “community acceptance” -- one of the nine criteria with which the lead agency is required under the National Contingency Plan (NCP) to evaluate proposed remedies. We have correlated all of our comments that follow, where appropriate, to these nine criteria, including community acceptance.

Additionally, the Community Acceptance Criteria are listed at the end of our comment.

Moreover, we are submitting via postal mail 223 individually signed public comment letters reiterating the Community Acceptance Criteria (i.e., what community members say must be incorporated into the final Proposed Plan and the Record of Decision on the Site 300 cleanup for it to be deemed "acceptable").

These 223 new letters join the scores of Community Acceptance Criteria comment letters that have already been sent to the Dept. of Energy (DOE) and to the Environmental Protection Agency (EPA) as part of this Superfund process. Please carefully consider all of these comments in making your final decisions.

Yours very truly,
Marylia Kelley, Tri-Valley CAREs Peter Strauss, PM Strauss & Associates

cc: Kathy Setian, US EPA
Jacinto Soto, DTSC
Susan Timm, CVRWQCB
Leslie Ferry, LLNL

PUBLIC COMMENT REGARDING THE
SITE-WIDE PROPOSED PLAN
FOR THE
LAWRENCE LIVERMORE NATIONAL LABORATORY
SITE 300 SUPERFUND CLEANUP

BY

PETER STRAUSS
PM STRAUSS & ASSOCIATES

AND

MARYLIA KELLEY
EXECUTIVE DIRECTOR, TRI-VALLEY CAREs

ON BEHALF OF

TRI-VALLEY CAREs'
5,600 MEMBERS

JULY 25, 2007

1. Public Outreach and Access to Information. In general, Public Outreach and access to information has been less than adequate. We therefore find that this is in conflict with Community Acceptance Criteria 11 (The public should be involved in cleanup decisions.) Below are the reasons for reaching this conclusion.

   - There has been little public outreach for the public meeting on the Proposed Plan (held on June 20, 2007). Tri-Valley CAREs (TVC) has tried to publicize it, but this is the responsibility of the DOE. We note that the public received the rewritten notice of this meeting (approximately June 9) with information regarding the location of the repository. TVC was granted a 30-day extension for written comments on behalf of the community. These two things are appreciated, but, overall, the public outreach has been insufficient.

   - Proposed Plan should contain a table delineating DOE's analysis of the remedy(ies) against the nine EPA evaluation criteria. This analysis is not included, and it is difficult for the community to comment on how DOE and the regulators are evaluating the remedy. These criteria are: Overall Protection of Human Health and the Environment; Compliance with ARARs; Long-term Effectiveness and Permanence; Reduction of Toxicity, Mobility and Volume; Short-term Effectiveness; Implementability; Cost; State Acceptance; and, Community Acceptance.

- Information regarding Pits 2, 8, and 9, contained in Operational Unit (OU) 8 has not been made available to TVC. As such, we cannot fully evaluate the remedy. A presentation on monitoring the pits was given to the Remedial Project Managers (RPMs). The date of the presentation is not known, although on June 7, 2007, EPA sent a letter to DOE expressing some concerns. In an e-mail to Claire Holtzapple dated June 8, Peter Strauss requested that materials on the monitoring of the Pits be send to him and TVC. Ms. Holtzapple responded that discussions between DOE and the regulators regarding the monitoring plans for the pits are in the early stages, and therefore the request was denied. As there is no further action proposed for these Pits, monitoring is an essential part of the remedy.

2. Cleanup Standards. TVC believes that the proposed cleanup standards do not satisfy Evaluation Criteria 1 (Overall protection of human health and the environment, Criteria 2 (Compliance with ARARs), and Criteria 3 (Long-term effectiveness and permanence). They also fail to meet Community Acceptance Criteria 2 (Cleanup levels should support multiple uses of the property), and 3 (the strictest state and federal government cleanup levels should be used). Below are the reasons for reaching this conclusion.

    - The interim ROD did not contain cleanup standards. DOE had committed to cleanup the groundwater to a level between background and levels that are set by EPA in the Safe Water Drinking Act (i.e., the maximum contaminant level or MCL), or the state MCL. Yet, with few exceptions, DOE has opted for groundwater cleanup standards that are MCLs. Most of these MCLs were established It has stated that after it reaches MCLs, it will evaluate whether it can meet a more stringent cleanup level such as the state water quality numeric limits (WQNLs) (formally the water quality objectives). Tri-Valley CAREs (TVC) believes that at the very least the goals for this cleanup should be more stringent; either the WQNLs or background. If they cannot be met, then the ROD can be modified at a later date. We note that in 2000 at the public hearing, we (Peter Strauss) recommended that the most cleanup goals be established (i.e., background), after which DOE can determine at a later date whether it can meet those goals. We believe that this is the correct approach, rather than establishing the most lenient groundwater standard. We believe that the community articulated this point in several of its public comments. It is a fact that there is increasing residential growth in the Bay Area. Combining this fact with the increasing strain on water resources throughout the state, demands that the highest level of cleanup of all potential drinking water supplies be given the highest priority.

    - For soil, industrial cleanup standards were used. Tri-Valley CAREs disagrees that industrial standards should be used for Site 300. As we have stated in our Community Acceptance Criteria for Site 300, the strictest clean-up standards should be applied to the site. We recognize that residential standards may not be feasible in a few small places, but on the whole, residential standards should be used. In the future, this would allow DOE to more easily dispose of the property and limit its liability.

- TVC opposes the use of industrial standards for PCBs, dioxins and furans, based on EPA industrial PRGs. These are long lived contaminants, and will be a continual source of contamination for future users of the site. As such, these standards fail to meet long-term effectiveness and permanence.

- In all cases, we recommend that the cleanup standard for carcinogens be no less stringent than one in one million incremental lifetime cancer risk (10^{-6}) for residential use. This can be done using the PRGs developed by EPA. Without that, we believe that the remedy is not protective of human health and the environment.

- TVC strongly reiterates that State Water Resource Control Board Resolution (SWRCB) 68-16 (i.e., the non-degradation policy) applies to groundwater at this site, not merely to discharges of treated water. This resolution applies to discharges: either underground or above ground discharges as is commonly understood by the general term discharge. Resolution 92-49, paragraph III.G, may be the more stringent of ARARs for setting in-situ cleanup standards. Paragraph III. F states that cleanup and abatement activities (emphasis added) shall conform to the provisions of Resolution 68-16. As such, the migration of a contaminated plume is in opposition to this Resolution and compliance with ARARs.

- We also point out that the in 2001, EPA presented a new health risk assessment of TCE and found considerable evidence that disease occurrence was considerably higher than previously thought. Region 9 of EPA took these results and established a provisional PRG for TCE in the air. It was up to 40 times higher (more stringent) than prior estimates. Because of controversy surrounding the 2001 study, the National Academy of Sciences is evaluating it. Nevertheless, we think that eventually, the TCE MCL will be adjusted downwards, probably to less than the PRG and the California Public Health Goal of 2.3 ppb. Yet the MCL for TCE in groundwater is 5 ppb. We therefore encourage DOE to take this opportunity to set its goals high and be in front of the curve. Without doing so, the remedy is not protective and is not effective in the long-term.

- Regarding the cleanup standard for tritium, TVC recommends using the EPA PRG number for tap water of 144 picoCuries per liter (pCi/L), as opposed to the State and Federal MCL of 20,000 pCi/L. Using the MCL would equate to an incremental cancer risk level of approximately one in ten thousand (10^{-4}). As such, the standards are not protective of human health and the environment, nor do they meet Community Acceptance criteria.

3. Land-Use Assumptions. The land-use assumptions are critical to the remedy selection. We find that these assumptions (i.e., continued stewardship by DOE) contribute to the lack of attainment of Evaluation Criteria 1 (Overall protection of human health and the environment) and 3 (long-term effectiveness and permanence), as well as Community Acceptance Criteria 2 (Cleanup levels should support multiple uses of the property), 3 (the strictest state and federal government cleanup levels should be used), 12 (Cleanup should be given priority over further weapons development), and 13 (Future activities at

Site 300 should be designed to prevent releases). Below are the reasons for reaching this conclusion.

- TVC recommends that cleanup be driven by the assumption that most, if not all areas, of Site 300 will be returned to unrestricted land use. Other areas where contaminants cannot be removed should be so designated and used for other compatible purposes, including recreation, ecological preserve, industrial research, and agriculture. TVC also recommends that Site 300 be cleaned up to a level that avoids the need for long-term stewardship. We also recognize that at a few selected areas this may not be possible due to the nature of the contaminants. Where cleanup to such a level is not practical due to current technical constraints, commitments should be inserted into the final remedy decision detailing the stewardship plan and funding.

- Once decisions are made to leave a contaminant in place, it is difficult to continue research on how the contaminant could be safely treated, thereby avoiding or reducing the need for long-term stewardship measures. DOE should to establish a dedicated program that keeps an eye towards the future and continually looks for solutions to these problems.

- Tri-Valley CAREs continues to recommend that a possible mission change or change in ownership of the site should be considered in remedy selection and cleanup goals. The 2007 Fiscal Year Budget Request by DOE contains an evaluation of the test capability of Site 300 to determine shutting down operations by 2011. This presents a substantial change from assumptions used in the interim ROD: that is, DOE maintained that it would control the site indefinitely. The "reasonably expected land-use" for Site 300 is no longer as certain as DOE has portrayed it to be in earlier documents.

- Because the Bay Area is growing so rapidly, and because there has been such high growth in the surrounding and abutting City of Tracy, residential growth is beginning to occur near Site 300. It would be unfortunate if the cleanup levels decided in 2007 (the current timetable for the final ROD) were to dictate how this 11 square mile site will be used in the future. It is our position that the remedies and cleanup levels that are eventually chosen should not limit tomorrow's land-use decisions. The remediation plan detailed in the Record of Decision (ROD) must fully consider the possibility that future residences will be developed up to the boundary of Site 300, as well as within the site boundary.

4. Process-Related Issues. The process used to reach the final remedy for Site 300 is flawed. In our opinion, it contributed to not attaining Evaluation Criteria 8 (State Acceptance), and Community Acceptance Criteria 8 (Decisions should not rely on modeling alone), 11 (The public should be involved in cleanup decisions) and 13 (Future activities at Site 300 should be designed to prevent releases). Below are the reasons for reaching this conclusion.

- The Interim ROD stated that it is considered interim for three primary reasons: 1) issues related to groundwater standards remain; 2) DOE/LLNL is continuing to evaluate treatment technologies, and; 3) further characterization is occurring in some areas. The Proposed Plan does not address how these issues have been resolved in the intervening years. Consequently, it is difficult for the community to gauge how these were resolved.

- We also want to point out that the process to arrive at this proposed plan did not include preparation of a Final Feasibility Study. Rather, a Site-Wide Remedial Evaluation Summary Report (RE) was prepared in November 2006. This included many of the elements found in a Feasibility Study; however, much of the effort was focused on modeling the time and cost to meet different cleanup standards. Predictably, the models predicted that meeting the most lenient of the cleanup standards was feasible. This document had no regulatory teeth: some of TVC's comments about critical assumptions, agreed to by the EPA, were not incorporated into the final report. However, as is described below, some of the Remedial Action Objectives (RAOs) were changed in this latter document. It also seems that decisions were reached based on this document, although it was not fully vetted. Furthermore, it was not discussed in the Interim Site-Wide ROD.

- Remedial Action Objectives (RAOs) should be listed in Proposed Plan. If Remedial Action Objectives have changed from the Interim ROD to the present plan, please add a discussion explaining what has changed and why. These should be thoroughly vetted. Without that, the public cannot fully participate in the decision-making process. We note, for example that the RAOs were modified from the Interim ROD to the Remedial Evaluation (RE) under Human Health Protection: to prevent human ingestion of ground water containing contaminant concentrations "above State and Federal MCLs and any more stringent WQNLs" (water quality numeric levels, which are the same as the old water quality objectives). Second, an RAO for environmental protection was changed. The RAO in the RE reads, "Restore water quality, at a minimum, to WQNLs that are protective of beneficial uses within a reasonable timeframe and to prevent plume migration to the extent technically and economically feasible." The former comparable RAO in the Interim ROD was to restore water quality, at a minimum, to protect beneficial uses within a reasonable time frame, and prevent migration of contaminants into pristine waters.

  Also note that previously, Previously, Tri-Valley CAREs suggested (without success) that additional remedial action objectives (RAOs) be incorporated into the remedial action plan:

  a) Attain the preliminary remediation goals (PRGs) set by EPA Region 9 (PRGs are based on an estimated health risk of one in one million additional cancer deaths).

11. Conduct cleanup in such a way as to minimize time for remediation.

- The plan should contain milestones by which the success of the subsequent cleanup can be evaluated. The remedies and the accompanying plan should contain measurable goals. It is important that the plan contain a measurable schedule and performance standards which can be verified. The interim ROD also stated that DOE/LLNL will evaluate compliance with SWRCB Resolution 92-49, "including the feasibility of achieving background ground water quality or some concentration between background and the applicable water quality objectives." This was to be done in by modeling the time and cost it would take to achieve background, WQNLs, and MCLs in a Remediation Evaluation Summary (RE) that was finalized in November 2006. The model that accompanies each OU is a good place to begin to develop milestones. Without doing this, the public will have difficulty measuring progress at the site.

- The document does not include basic information such as the Applicable or Relevant and Appropriate Requirements (ARARs). We note that without this information, the general public cannot make reasonable judgment about the remedy.

- Risk assessment and modeling are imperfect sciences. Risk assessment defines the pathways through which contaminants may reach human populations. For example, the risk assessment will define how contaminants (i.e., chemicals of concern) are mobilized in the environment, and how humans can be exposed. Therefore, when using health-based risk assessments in cleanup decision-making, the future use of the site is either implicitly or explicitly assumed. If the site is assumed to be used for purposes similar to current uses, risks may fail to provide a sound basis for long-term environmental cleanup. For example, because groundwater is not currently used at the site for drinking water, the risk assessment fails to identify it as a risk, even though drinking groundwater may pose a risk to a future resident.

- Risk assessment methods are based on limited information: based on a snapshot in time and by limited data. Even if we had good and representative data, our limitation of knowledge about toxicity is a major deficiency in risk assessment. We advocate using the Precautionary Principle (which states in part, that when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically).

- The Remedial Evaluation report suggested that at B-834, DOE "may" submit a Technical/Economic Impractability (TI) Waiver for the perched HSU, because it may not be able to clean it up, and it is isolated from the regional aquifer. This is not mentioned in the Proposed Plan. TVC opposes a TI Waiver for this site; however, if it is being considered it requires discussion in the Proposed Plan.

5. Funding Priorities. We are concerned that funding for the remediation is well below what would be optimal, if LLNL were free to deal with cleanup unrestricted by DOE's weapons programs. This would violate Community Acceptance Criteria 12 (Cleanup

should be given priority over further weapons development). Below is the reason for reaching this conclusion.

- The budget for remediation of pollution at Site 300 should be adequate, stable and assured over the many decades it will take to actually complete this momentous task. The DOE must not renege on its obligation to the community to clean up its mess. Currently, the money for cleanup of Site 300 hovers at 1% of Livermore Lab's annual budget.

6. Remediation. The remedy that has been selected contributes to not attaining Evaluation Criteria 1 (Overall protection of human health and the environment) and 3 (long-term effectiveness and permanence), and Community Acceptance Criteria 1 (Complete the Site 300 cleanup project in a timely manner), 2 (Cleanup levels should support multiple uses of the property), 3 (the strictest state and federal government cleanup levels should be used), 5 (The tritium source and plume at Site 300 should be controlled), 9 (The ecosystem should be protected in the cleanup remedy) and 11 (The public should be involved in cleanup decisions). Below are the reasons for reaching this conclusion.

- Where MNA is chosen for any OU, we feel very strongly that a reasonable time frame for cleanup that is acceptable to stakeholders must be established prior to the signing of the ROD. DOE responded to our question in the Interim ROD regarding how a reasonable time frame would be established by stating that it would be established in the Site 300 ROD (we assumed final ROD) and subsequent contingency plan, "in consort with the regulatory agencies". We believe that DOE must speak to this issue and receive input directly from the community. Furthermore, MNA as a remedy is controversial, and the time frame in which it is accomplished is one of the most important facets of it. Establishing it in the post interim ROD contingency plan is not acceptable to us. We recommended that this Proposed Plan lay out the guidelines of how an acceptable time frame will be established so that there is room for public debate. TVC re-iterates from previous comments that if MNA is selected, most of the contaminant mass must be reduced through degradation. We propose that an objective for any remedy that uses MNA have at least 75 percent of the reduction take place through biological, chemical or radiological degradation. Additionally, we propose that if MNA is selected, a reasonable timeframe should be no more than the smaller of the following options:

  a) 50 years, or;

  b) 125% of the time it would take to achieve cleanup goals through an active technology.

- Vapor intrusion is the phenomena whereby contaminants in the groundwater or the soil change phases (in this case liquid to gas), and are emitted into the overlying air. If there is a building above contaminated soil or groundwater, there is a danger that vapor will mix with the air in buildings, either through cracks in

the foundation or from the outside air. This is a growing concern throughout the country, and many Superfund sites with high levels of VOCs such as TCE are now being re-evaluated to understand the risk that this new pathway may pose. In addition, the toxicity of TCE has also been re-evaluated by EPA and its findings are that this chemical poses a much greater risk than previously thought. DOE changed its prior position to conduct air sampling within the vadose zone to ambient air modeling (both indoors and outdoors). The risk assessment for the various buildings is based on old data pertaining to TCE vapors. LLNL should revise its risk assessments using the latest information on this chemical. Therefore, we believe that the remedy is not protective of human health and the environment.

- TVC believes that the remedy for Pit 7 should contain an element of downstream hydraulic control. We have submitted our comments on the proposed plan for the Pit 7 separately, but we wish to repeat them here. Tri-Valley CAREs is still strongly convinced that active hydraulic control of the distal end of the tritium plume should be part of the remedy, at least as a contingency, if the hydraulic diversion does not "prevent migration". (We note the subtle change in remedial action objective in the RAO in the Final Amendment to the Interim Site-Wide ROD for the Pit 7 Complex that adds the words "<u>to the extent technically and economically feasible</u>" after "to prevent plume migration".) TVC does not believe that the remedy is adequate unless the tritium plume is contained. The lack of hydraulic control does satisfy the requirement of Long-Term Effectiveness and Permanence, nor the Community Acceptance Criteria.

- There are ecological receptors of special status and several rare and endangered species at Site 300 that may be affected by the contamination and the remedy selection. (e.g., the flower Amsinckia grandiflora, the California Red-Legged Frog, the Alameda Whipsnake, and the Tiger Salamander). There is virtually no discussion of these species in the Proposed Plan. TVC recommends that a section of this document list the ecological receptors of special status and several rare and endangered species at Site 300, and provide a discussion of potential harm (e.g., drinking from a contaminated spring), and how the remedy will increase or decrease this risk. Without this, the remedy selection may not be protective of the environment, and the general public has difficulty analyzing the effectiveness of the remedy.

7. <u>Specific Comments on the Proposed Plan</u>

- Referring to page 4, the Proposed Plan states that "Risk estimates for most release sites and contaminants were well below the thresholds designated as being protective by the U.S. EPA." Precisely what risk thresholds are being referred to here?

- Referring to page 4, the Proposed Plan states that "There are no past or current offsite exposures to contaminants at Site 300." Is this statement historically correct? There are at least six water supply wells located outside of Site 300 that

are of concern. CDF-1 and CON-1 are active wells located in close proximity to the GSA southern boundary. Two inactive wells, CON-2 and GALLO-2 are also in the area. In the 1990s, TCE was detected in groundwater offsite at 2.85 ppb, measured approximately 200 feet outside of the Site 300 boundary. Additionally, groundwater under the Pit 6 area is present in several water bearing layers throughout the area. Two active water supply wells are located approximately 1,000 feet from the landfill. They provide water for the Carnegie State Vehicle Recreation Area (SVRA) and are monitored monthly.

- Regarding the section on Proposed Final Cleanup Actions, specific actions for each Operable Unit are not included about the proposed final remedy. We find that the description is confusing and difficult to "consume". We suggest that the subsection for each Proposed Remedy be moved to the top of each OU, followed by Extent of Contamination, Interim remedy, etc. Additionally, please be more specific about differences in the remediation approach for various contaminants (e.g., at B-834, distinguish approach for VOCs, nitrate and TBOS).

- Regarding Proposed Final Cleanup Actions, B-850, please be more specific about the proposed final remedy (p.10). Please provide details on the cleanup standards that are being applied for each of the chemicals (HE compounds, uranium, metals, PCBs, dioxins and furans) in **soil** and in groundwater. There appears to be no active remediation, except that which will be included as a non-time critical removal action (i.e., soil contaminated with PCBs, dioxin and furan). Also, specify actions to remediate perchlorate.

- Additionally, as part of the remedy for the Pit 7 Complex is implemented (the groundwater diversion project), monitoring should be located upstream from the B-850 plume to ensure that diverted water does not alter the groundwater hydrology.

- Regarding Proposed Final Cleanup Actions, B-854, please provide details on the cleanup standards that have been applied for each of the chemicals in **soil** and in groundwater (nitrate, perchlorate, HE compounds, tritium, metals, TCE, PCBs, dioxins and furans.)

- The inhalation, both outdoor and indoors, needs a thorough evaluation. The discussion on page 15 is incomplete and should be in the appropriate discussion of Cleanup Actions. Furthermore, merely stating that DOE will annually evaluate this pathway by a "model that simulates evaporation of VOC vapor into a building" will lead to an incomplete evaluation.

- In the Proposed Plan, five release sites are included in Operable Unit 8: B-801 Dry well and Pit 8; B-833; B-845 firing table and Pit 9 Landfill, B-851, and Pit 2. However, there is no mention of B-812, B-865, and the Sandia Test Site. We have been informed that these areas will be covered in a ROD Amendment. Please add a brief discussion of these sites and identify their status.

- Although contamination levels at Building 833 have been greatly reduced, they are still above the MCL. Describe the remedial approach that is expected.

- Site 300 is traversed by at least two earthquake faults, the Corral Hollow-Carnegie Fault and the Elk Ravine Fault. In particular, the Corral Hollow-Carnegie Fault is listed as "active" by the USGS. Before selecting a final remedy, additional consideration of potential quake activity at Site 300 is warranted. As Livermore suffered a significant earthquake in 1980 that centered on the Greenville Fault, which had been listed by USGS as "inactive," potential activity on either or both faults should be considered.

The Community Acceptance Criteria
for the Lawrence Livermore National Laboratory Site 300 Superfund Cleanup

NOTE THAT THESE CRITERIA WERE DEVELOPED JOINTLY BY TRI-VALLEY CARES AND VARIOUS LIVERMORE, TRACY AND OTHER COMMUNITY MEMBERS

… I cannot accept the Proposed Plan until it is improved and strengthened so that it will result in a more complete and comprehensive cleanup of pollution at the site.

The Proposed Plan, as it is currently written, does not go far enough in cleaning up the massive amounts of radioactive and toxic contamination that are present in soil, surface water and groundwater at Site 300.

Livermore Lab's Site 300 is one of the most contaminated locations in the country, with radioactive tritium, Uranium-238, volatile organics like TCE, high explosives like RDX, perchlorate, PCBs and other potentially deadly pollutants that must be adequately addressed in the cleanup plan.

Many of these contaminants are already in the groundwater and are migrating -- and are thus polluting pristine water as they travel. In one area of Site 300, there is a 2-mile long underground contaminant plume with radioactive tritium emanating from below a gravel "firing table" where bomb blasts are conducted and the unlined waste pits where the debris from the bomb tests has been dumped. Tritium is the radioactive isotope of hydrogen made in reactors for hydrogen bombs. The Proposed Plan does not commit to preventing its further migration through the environment.

The unlined waste pits also contain Uranium-238 and other contaminants. The City of Tracy recently sent a letter to the Dept. of Energy (DOE), which owns the Livermore Lab Site 300, requesting that these dump sites be excavated so that deadly materials will not continue to leach into the groundwater. Tri-Valley CAREs has long advocated that the DOE undertake "hot spot" removal of contaminants in the unlined dumps. The Proposed Plan does not propose any removal of contaminants from the unlined dumps, even though the dump sites are demonstrably leaking.

I am also disturbed that the Proposed Plan often chooses the most lax cleanup standards for pollutants on the site (e.g., the maximum contaminant levels) rather than the most stringent ones

(e.g. the EPA's remediation goals). The question of "how clean is clean" is a crucial one in any Superfund cleanup -- and this is especially true at Site 300 where there are multiple pollutants mingled together in various media and complex geological features like earthquake faults and regional aquifers.

The next three pages contain "community acceptance criteria" developed by Tri-Valley CAREs in consultation with community members in Tracy, the Central Valley and the Tri-Valley. I ask that the DOE, EPA and state regulatory agencies consider these criteria in making cleanup decisions at Site 300. And, particularly, I request that the EPA use these criteria to determine community acceptance of the Proposed Plan. In short, if the Proposed Plan does not contain these elements, then it is not an acceptable cleanup plan.

1. Complete the Site 300 cleanup project in a timely manner.

Set a schedule for cleanup activities and adhere to it. The goal should be to complete cleanup ten years after the Dept. of Energy's (DOE) last scheduled Record of Decision (ROD), with up to 30 additional years for monitoring of residual contamination. As part of the plan, schedule milestones addressing total mass removal, and trends toward achievement of clean-up goals should be established and committed to by the DOE. Areas that will still be contaminated should be identified. We recognize that cleanup in 10 years after the last ROD will be difficult to achieve in some small areas. Also, because of the nature of tritium, EPA and California drinking water standards will not be attained for that contaminant in the near future.

2. Cleanup levels should support multiple uses of the property.

Assumptions about land-use need to be altered. As we can see, residential development is beginning to take place up near the site boundary. Any modeling assumptions should assume large residential communities relying on the regional aquifer for drinking water, thus speeding up groundwater movement. Second, we do not believe that Site 300 will necessarily always remain a DOE site. The "need" for testing nuclear weapons and components (particularly of new and modified designs) is a political decision, not a technically necessary mandate, and, in our opinion this testing should cease. We recommend that Site 300 future land use assumptions include mixed residential, recreational, ecological preserve and industrial land uses. Yet as it now stands, DOE assumes that Site 300 will remain in DOE's control in perpetuity. We recommend that Site 300 assume to be mixed residential, recreational, ecological preserve and industrial land uses. Without full cleanup to standards appropriate for residential use, the residual contamination will remain in place and will restrict the future use of the property. The Proposed Plan must commit to cleaning up to residential standards -- this will ensure that a whole new cleanup will not need to be undertaken at a later date to go after the significant residual contamination that industrial standards would leave behind.

3. The strictest state and federal government cleanup levels should be used.

We believe that the strictest cleanup levels should be met in cleaning up the site. Federal and state Maximum Contaminant Levels (MCLs) for all groundwater (on-site and off-site) should be the "bottom line below which the cleanup will not fall." In many cases the technology exists

(and/or can be developed) that will clean up contamination to “background” levels — that is to the level that existed in nature at the site before Livermore Lab took over in 1955 and began polluting it. In such cases where “background” cleanup levels that are more protective of human health and the environment can be achieved, they should be achieved. Moreover, the U.S. EPA has published "preliminary remediation goals" for many contaminants that are more stringent than the Maximum Contaminant Levels. The State of California also has cleanup goals that are more strict than the MCLs. In this regard, Tri-Valley CAREs concurs with a strict interpretation of the California Regional Water Quality Control Board’s non-degradation policy for groundwater. Migration of contaminants into pristine waters should be halted. At a minimum, the standard of 1 in 1 million excess cancer deaths should be adhered to, as well as meeting a hazard index of less than 1 (non-cancer health effects). The Proposed Plan must commit to the strictest cleanup standard promulgated by appropriate state and / or federal regulatory agencies like EPA and the Regional Water Quality Control Board, not the most lax.

4. Remedies that actively destroy contaminants are preferable.

In order of preference, Tri-Valley CAREs recommends the following types of cleanup measures: a) remedies that destroy contaminants (i.e. by breaking them down into non hazardous constituents), such as ultra-violet light/hydrogen peroxide, permeable barriers, or biodegradation; b) active remedies that safely treat or remove contaminants from the contaminated media; c) monitored natural attenuation in so far as it relies on natural degradation (and not further dispersion of the pollution) within a reasonable time frame. What is called “risk and hazard management” (i.e., restrictions on land use, fencing, signs and institutional controls) is not a valid cleanup in our eyes. In no case do we think that “point of use cleanup” (e.g., merely placing filters on off-site drinking water wells) is appropriate. In all cases, hydraulic control should be established to halt migration of contaminant plumes to pristine waters. When soil excavation takes place, it should be properly controlled to minimize releases of contaminated soil into the air, and onto adjacent properties.

5. The tritium source and plume at Site 300 should be controlled.

Continued forward momentum of the tritium plume must be halted. The tritium plume, about two miles long and growing, cannot be cleaned up in the usual sense of the word, since it is not feasible to separate the radioactive hydrogen (tritium) component from the water. Therefore, Tri-Valley CAREs recommends the following: a) isolation of the tritium contaminated wastes in the unlined dumps to prevent further and continuing contamination of the groundwater; b) hydraulic control of the plume to prevent further migration; c) aggressive monitoring to ensure minimal migration while the tritium decays; and, d) a stringent contingency plan in case these methods fail. As it currently stands, groundwater rises into the waste dumps during heavy rainfall and picks up additional tritium. Isolation of the wastes may be accomplished by use of drains, capturing groundwater upstream from the pits before it is inundated, and, where feasible, by removing the tritium-contaminated debris from the pits and storing it above ground in a monitored facility. The Proposed Plan must commit to these actions as needed to prevent further movement of tritium.

6. Radioactive substances should be isolated from the environment.

Contaminants should be removed, where possible, and stored to prevent future leakage. As is the case with tritium, there are several plumes containing Uranium 238, also called depleted uranium. Technology exists to separate this contaminant from the groundwater. Tri-Valley CAREs recommends that this contaminant be stored in above ground monitored facilities after separation from groundwater. This will prevent it from polluting a new location in the future.

7. The ecosystem should be protected in the cleanup remedy.

Site 300 is home to endangered species and critical habitat. Site 300 sits on 11 square miles of land about 30 miles east of San Francisco. It sits on a series of steep hills and canyons, covered by grasslands. Seven major plant communities occur at Site 300, including: coastal sage scrub, native grassland, introduced grassland, oak woodland and three types of wetland. 20 species of reptiles and amphibians, 70 species of bird, and 25 species of mammals also occur. Special, rare and endangered species may live there, including the burrowing owl, the San Joaquin Kit Fox and the Large-Flowered Fiddleneck. In order to protect the ecosystem, ecological risks should be no greater than those for humans (i.e., a Hazard Index of less than one for selected species, based on recent data). This involves making sure that cleanup activities do not inadvertently destroy unique habitat. This could occur from too quickly pumping groundwater, with the effect of destroying natural springs, or by capping large areas and replacing the vegetation with non-native species. The Proposed Plan must be rewritten to be more protective of endangered species at Site 300.

8. Decisions should not rely on modeling alone.

The Site Wide Feasibility Study for the Site 300 cleanup and other documents point out just how complex the hydrogeology of the site is, and how little is known about it. Given this, Tri-Valley CAREs believes that over-reliance on modeling to predict the fate and transport of contaminants is not a good idea. Computer modeling should be used as a tool only, and continually updated by field testing as that information becomes available. We believe that if it necessary to base decisions primarily on modeling, the most conservative assumptions should be used. The Proposed Plan must include adequate, long-term field testing.

9. Additional site characterization is needed.

Adequate site characterization can ensure that the cleanup technologies built will be the ones needed for the pollutants in that specific area. It is apparent from the cleanup planning documents to date that additional characterization (e.g. of soil, groundwater, waste dumps etc.) is necessary, and will have to be budgeted for many years to come. This should be specified in the Proposed Plan.

10. A contingency plan should be completed and subject to public review.

We recommend that a site wide contingency plan be discussed in the Proposed Plan and fully delineated in the Record of Decision document. This is needed because the cleanup of a few sites are put off until the future, there are many uncertainties, innovative technologies will be used,

and contingent actions should be part of the cleanup plan and thus incorporated into the site wide Record of Decision.

11. The public should be involved in cleanup decisions.

A mechanism for long-term community involvement must be established. As it now stands, public involvement takes place through the Technical Assistance Grant (TAG) with Tri-Valley CAREs and at public meetings and hearings. After the ROD is signed, there are no mandatory public hearings or workshops. Therefore, we would like a commitment from the Lab to find a mechanism for regularly keeping the public informed. A public record of cleanup activities should be updated regularly, maintained and made accessible at a local public library. Public workshops should be held periodically after the last ROD to discuss problems and progress.

12. Cleanup should be given priority over further weapons development.

Perhaps most important of all, Tri-Valley CAREs insists that cleanup of Site 300 be given a priority over further bomb-creating enterprises. Tri-Valley CAREs objects to Livermore Lab increasing its outdoor explosive bomb tests 8-fold, and is participating in an effort to prevent the above-ground blasts with depleted uranium and other contaminants. These new tests will pile additional pollution on top of what is already being cleaned up under the Superfund law. We request, instead of more pollution, that adequate, stable, long-term funding be assured so that the current Superfund cleanup job gets done right. The fiscal year 2007/2008 allocation of about one percent of Livermore Lab's annual budgets to cleanup at Site 300 (and only another 1 percent to cleanup at the Lab's main site) is insufficient.

13. Future activities at Site 300 should be designed to prevent releases.

Releases to soil, air, groundwater and surface water from weapons testing are not acceptable. Any activities, if they must occur, should take all necessary precautions to avoid any releases to the environment of radionuclides and chemical pollutants. Tri-Valley CAREs is leading the struggle to prevent the collocation of "bugs and bombs" at Site 300 by opposing a massive bio-warfare agent research facility that will experiment with deadly biological agents such as live anthrax, plague, mad cow disease and many others.

I ask that you consider these criteria in making cleanup decisions. I want the best and most complete cleanup that is technically possible at Site 300. The on-site workers, nearby residents, the public and the environment deserve no less than our best effort. The Proposed Plan must be revised to include these 13 cleanup elements before being "signed off" by EPA.

Signed individually and sent to Tri-Valley CAREs or directly to DOE or EPA by hundreds of area residents --

NAME: _____
ADDRESS: _____
CITY/ZIP: _____

PHONE/EMAIL (OPTIONAL) ____