

Memorandum and Final Report

**Summarizing Tri-Valley CAREs' analysis of and comments on
the Department of Energy's
"Risk Based End States Vision"
for the
Lawrence Livermore National Laboratory (LLNL)
Superfund Cleanup at the LLNL Main Site and the LLNL Site 300
-- with Attachments --**

**prepared
October 2005**

Introduction

The Final End State Vision documents, released in September 2005 for the Lawrence Livermore National Laboratory (LLNL) Livermore Site and Site 300 compare environmental site conditions and remedial strategies between the current end-state and a "Risk-Based End State (RBES)". Following Tri-Valley CAREs' (TVC) and regulators' comments over the course of the past several years, the Final End State Vision documents recommend that the RBES not be implemented.

Regardless of how DOE portrayed the RBES policy and subsequent documents as having stakeholder involvement and not being decision making documents, these assertions rang hollow. When the first iteration of RBES documents were written, the community at Livermore was not contacted for its input. We have been informed by other communities around DOE sites that they too were not included in the initial framing of the RBES documents. Furthermore, the first paragraph of the RBES Policy ¹ states:

"The purpose of this policy is to focus the Department line management officials on conducting cleanup that is aimed at, and achieves, clearly defined, risk-based end states."

This is an unequivocal statement of policy that would clearly undermine most, if not all, prior DOE agreements with federal and state regulatory agencies, as well as commitments that were made to community members. Therefore, TVC and other grassroots organizations made the decision that the policy and its implementation should be strongly questioned and objected to unless there was full recognition of regulatory and community obligations. As was the case with LLNL Livermore Site and Site 300,

¹ DOE P 455.1, 7-17-03

implementation of an RBES strategy was so opposed to these obligations that reconciliation could not occur. Below I have provided a brief summary of the history of RBES and its predecessor initiatives, actions that TVC has undertaken to oppose the DOE policy of imposing a RBES vision on LLNL managed properties and to make sure that the discussion was brought to a national level, and concluding thoughts.

History

In December 2002, the Department of Energy embarked on an effort to focus management officials on conducting cleanup that is aimed at, and achieves, clearly defined, risk-based end states (RBES). The initiative built on previous departmental efforts to cut the cost of cleanup at the sites. These initiatives began with Assistant Secretary Al Alm's 10 Year Plan Guidance, which called for each site to assume "maximum regulatory flexibility". This was followed by Accelerating Cleanup: Focus on 2006. The first version of this plan for the LLNL main site including hot button statements such as:

- *We intend to negotiate cleanup levels that are established by using risk management strategies and employ natural attenuation processes wherever possible."*
- *"Assuming that the regulatory agencies will grant Containment Zone status at those concentrations for the on-site parts of the plumes..."*
- *Models indicate that "ground water cleanup of the distal plumes to 25 ppb can be accomplished in 10 to 15 years after complete buildout (expected by the year 2003" and "we anticipate that ground water cleanup of the source areas to 25 ppb might be accomplished in approximately 23 years after complete buildout...". [Important because the current standard is 5 ppb].*
- *"As ground water is remediated to a negotiated cleanup level..." [Here again, there may be the assumption for budgetary purposes that there will be a negotiated cleanup level less stringent than the ROD].*
- *Remediation strategy is to allow contamination in the distal plume margins to "slowly decline as a result of dispersion and other hydrogeological processes."*
- *"DOE/OAK will propose to the public and the regulatory agencies a risk management based strategy for the two LLNL sites".*
- *For on-site plumes, DOE will propose cleanup levels based on "preventing the contaminant plumes from leaving the site boundary at concentrations above MCLs".*

TVC and the regulators at the LLNL sites strongly objected to these positions. To the best of our knowledge they had been dropped from consideration. However, these nearly identical positions were written into the initial RBES Implementation for the two Livermore sites – some 5 years later.

As stated previously, in December 2002, DOE initiated an effort to conduct cleanup that was to be aimed at achieving clearly defined, risk-based end states. In 2002, DOE met with EPA to discuss the implications DOE's recently completed "Top to Bottom Review". The top to bottom review was initiated to design cleanup plans across the

complex that will reduce the environmental management budget.² One of the goals of the review was to move Environmental Management (EM) to an accelerated, risk-based cleanup strategy by emphasizing risk prioritization and by reviewing current DOE orders and other regulatory agreements. By July 2003, DOE issued “Policy 455.1: Use of Risk Based End States”. By August, it produced a “predecisional” draft guidance for the implementation of DOE Policy 455.1. The Department’s goal was to develop a risk reduction strategy “that evaluates the total risks associated with both the existing contamination and with the processes involved in cleanup.” In September 2003, the Assistant Secretary of EM directed the development of site-specific RBES visions.

By October 2003, DOE released its Draft RBES Visions for LLNL Main Site and Site 300. Unfortunately, these documents were prepared without consultation of the Livermore and Tracy communities, or organizations such as TVC. A revised version was released the following December. The final document was released in September 2005.

Activities

As soon as TVC became aware of the Draft RBES Visions, it took several actions at the local level and organized at the national level. At the local level, we provided analysis and comments on two iterations of the RBES visions. Essentially we were concerned with the same issues that we were concerned with during the Ten Year Review and Accelerated Cleanup proposals. Our objections were strenuous: that the RBES strategy, if implemented, would abrogate cleanup agreements under CERCLA and the commitments that were made to the community. As we said in our comments (see **Attachment 1**) on the revised version of the RBES vision:

We reiterate from our previous comments that there is no doubt that, if implemented, the RBES strategy would change the very nature of the cleanup strategy, including cleanup levels, the point of compliance and the continued search for new and more effective cleanup technology. Further, RBES would dramatically alter long-term stewardship responsibilities at the two LLNL sites.

Our objections on the first version were more severe (see **Attachment 2**). We stated the following:

In the strongest possible terms, Tri-Valley CAREs rejects the so called Risk-Based End State (RBES) Vision for the two Department of Energy (DOE) Superfund sites at the Lawrence Livermore National Laboratory (LLNL). We believe that the RBES Vision documents for both sites are a disgrace. If implemented, the RBES for the LLNL Livermore Site and the LLNL Site 300 would violate federal and state environmental law and guidelines, violate the Federal Facility Agreements for both sites, violate Records of Decision (ROD) for both sites and renege on firm commitments that were made by DOE during the public hearing process that resulted in a ROD.

For more than a decade, stakeholders and regulators at the LLNL sites have been working with DOE to craft an efficient and effective clean-up strategy. We at Tri-Valley CAREs believe in that process and have participated in it actively and in

² Meeting notes, 2/05/02

good faith. Many of our members are close neighbors of the LLNL Livermore Site and Site 300. Some live on top of off-site contaminant plumes. We believed, and still believe, that final agreements memorialized in the Superfund Records of Decision are final - and that they can only be modified as per a prescribed process in the National Contingency Plan and applicable federal and state laws.

During the same time period, we undertook several additional activities. First, in a quarterly meeting that we and our Technical Advisor have with regulators, DOE staff, and LLNL staff, we made vigorous arguments that the RBES, if implemented, would violate state and federal regulatory agreements. We requested that each of the Remedial Project Managers (RPMs) from the various regulatory agencies write letters to DOE spelling out their objections. Letters that the EPA and the Regional Water Control Board wrote are included in **Attachment 3**. Cogent comments from the EPA letter are stated below:

- *DOE's Vision proposes a groundwater cleanup alternative which has been previously rejected by DOE, EPA, and the State regulatory agencies.*
- *DOE's Vision sacrifices Long-Term Effectiveness and may pose a long-term liability for NNSA.*
- *DOE's Vision rejects Applicable or Relevant and Appropriate Requirements (ARARs) as threshold criteria for cleanup decisions.*
- *Perception of DOE's commitment to cleanup may be adversely affected.*

We also organized the general community through our monthly newsletter. We wrote an article and inserted into our newsletter a suggested a comment letter (see **Attachment 4**). This letter carried the same general theme as our general comments. We also requested that the City of Livermore write a letter in opposition of RBES.

On a national level, our activities focused on organizing with colleague organizations in the Alliance for Nuclear Accountability (ANA) on this issue. TVC worked individually and collectively within ANA to obtain a seat at the table at national DOE fora, hold a press conference, and generally coordinate the efforts among the various ANA and other community organizations. For example, TVC obtained and distributed RBES proposals for all sites that were available (23 RBES documents), followed their progress, and obtained and distributed all letters from any agency or organization commenting on the site specific RBES proposals. TVC participated as an ANA member group in the DOE Intergovernmental Groups Risk-Based End States Next Steps Workshop in October 2004, along with ANA staff and other stakeholder groups. A memo from our representative sums up the meeting the following way:

Five of us attended from ANA. We...were clearly opposed to RBES in our comments on the first day of the workshop. We told DOE how we had been systematically excluded from this whole process, how the DOE was trying to circumvent CERCLA, and how the process [used at the meeting]...was a manipulative way for the DOE to say they had a stakeholder meeting and were now going to move forward on RBES, [despite] ... the fact that the majority of regulators, state reps, citizen activists who spoke were opposed.

It was also noted that one of the DOE site representatives stated that without the regulators and citizens supporting RBES, it was impossible to move forward and

preparing the RBES documents was taking time and money away from cleanup. One of the outcomes of that meeting was the establishment of the End-States Working Group, in which ANA and a number of other groups were asked to participate.

Conclusions

After months of official silence on the part of DOE, despite some veiled indications that the RBES Vision for the Livermore Sites would be rejected, DOE published its final RBES Vision for the sites. In sum, the documents stated that because of two key factors ***DOE Livermore recommended that RBES be rejected at the LLNL Livermore Site and Site 300.*** The two key factors were: (1) strong stakeholder and regulatory objections to the RBES strategy at LLNL and Site 300, and (2) the fact that implementation of RBES would be more expensive in the final analysis than the DOE's current approach.

The final RBES documents for the LLNL Livermore Site and Site 300 contained cost analyses that were lacking in the prior drafts. While the cost estimates included were not as detailed as we might have liked, we believe that DOE's financial analysis is essentially correct. The primary assumption used to generate the cost and duration of cleanup under the RBES strategy is that regulatory agencies would require increases in contaminant monitoring frequency and in contaminant monitoring duration under RBES, as compared to the current cleanup scenario. Put simply, this is because under RBES more contamination would have been left in the soil and groundwater -- hence the needed additional monitoring frequency and duration. For purposes of conducting the cost analysis, the total duration of cleanup is defined as the point when all monitoring can be discontinued. Extra monitoring costs would more than offset savings from the premature shutdown of the soil and groundwater treatment facilities under the RBES approach. This assumption is in both RBES documents (Livermore Site and Site 300).

We have enough history with DOE to know that a RBES-like strategy may morph into something that we again will have to fight. The final RBES documents do not contain detailed financial variances. We expect that as financial pressures continue to be placed on DOE, as they inevitably will be under current national fiscal policies, DOE may take another bite at the apple. We just don't know what it will be called. So it seems like a "victory" right now -- but continued vigilance on this issue is important.

On a national level, we are waiting for all of the final RBES plans to be submitted and tallied. We do know, however, that DOE continues to pursue RBES at some sites.

FINAL NOTE: This report covers the overall RBES Vision for LLNL Livermore Site and Site 300. A second report, summarizing the RBES issues that are specific to the cleanup of the Pit 7 Complex of unlined dump sites at LLNL Site 300 will follow in November 2005, along with the relevant background materials and TVC technical analyses and comments.

**ATTACHMENT 1: TVC COMMENT LETTER ON REVISED RBES
STRATEGY FOR SITE 300 AND THE LLNL LIVERMORE SITE
FEBRUARY 27, 2004**

February 27, 2004

Jessie Roberson, Assistant Secretary for
Environmental Management,
U.S. Department of Energy
1000 Independence Ave., SW
Washington, DC 20585

Roy Kearns, Deputy Director
U.S. Department of Energy, Livermore Site Office,
Environmental Stewardship Division
PO Box 808, Mail Code L-574
Livermore, CA 94551

**Subject: Tri-Valley CAREs' Comments on the Dept. of Energy's February 2004
Draft Risk-Based End State Vision for Lawrence Livermore National
Laboratory, Livermore Site and Lawrence Livermore National Laboratory, Site
300, Version 2.**

Dear Ms. Roberson and Mr. Kearns:

The revised versions of the so called Risk-Based End State (RBES) Vision for the two Department of Energy (DOE) Superfund sites at the Lawrence Livermore National Laboratory (LLNL) makes little change. The only substantive change that clarified the RBES pertained to the 20-year timeframe. Therefore, Tri-Valley CAREs stands by our original comments, with that one exception.

We believe that the RBES Vision documents for both sites are at their very core out of touch with community and local and state governments' desires and values. The RBES, if implemented, would cause DOE to disobey current laws and regulations, as well as dishonor past commitments. These have been pointed out in our previous letter, as well as the letters from state and local officials. EPA has weighed in as well in incontrovertibly disagreeing with the RBES approach.

We remind you that for more than a decade, stakeholders and regulators at the LLNL sites have been working with DOE to craft an efficient and effective clean-up strategy. We at Tri-Valley CAREs believe in that process and have participated in it actively and in good faith. Many of our members are close neighbors of the LLNL Livermore Site and Site 300. Some live on top of off-site contaminant plumes. We believed, and still believe, that final agreements memorialized in the Superfund Records of Decision are final - and that they can only be modified as per a prescribed process in the National Contingency Plan and applicable federal and state laws.

Furthermore, the cleanup strategies that were crafted, have, in many cases proved successful and will continue to do so if properly funded. We reiterate from our previous comments that there is no doubt that, if implemented, the RBES strategy would change the very nature of the cleanup strategy, including cleanup levels, the point of compliance and the continued search for new and more effective cleanup technology. Further, RBES would dramatically alter long-term stewardship responsibilities at the two LLNL sites.

DOE now states that the RBES Vision is not a decision document. If not a decision document, what is it? We think of it as a trial balloon that may have some political value in the future, or more importantly, a strategy that will lie in wait and be implemented when DOE thinks it can pass it off to the public. We will remain vigilant. We are strongly opposed to the RBES strategy for both of these sites, and we are appalled that DOE has wasted valuable resources that are in such opposition to community values. We therefore strongly urge you to halt this process and discard these documents.

Below, we have highlighted some of our previous comments, which still stand:

1. The RBES abrogates the agreements set forth in legally binding RODs for the Livermore Site, the Site 300 Site-Wide ROD, and the Site 300 GSA ROD.
2. The RBES violates CERCLA (also known as the Superfund Law). Even if the principles of the RBES were acceptable, implementing the RBES would require significant amendments to the Records of Decision that apply at these sites. (As reflected in letters from state and federal environmental officials, this will be highly unlikely).
3. Using the site boundary as a point of compliance is in violation of State Water Resources Board Resolution 92-49 and Resolution 68-16. Under these Resolutions, contaminated plumes are not allowed to migrate into uncontaminated potential drinking water sources. RBES is in direct contravention of this.

4. The RBES Vision for both sites puts potential drinking water resources at risk in order to obtain short-term savings in budget. Contaminants would be left to migrate to the fence line and be cleaned up only if the plume passes the boundary (and only if contaminants in the now vastly more spread out plume are still above specified concentrations). This will allow contaminants to pollute a much larger area than if the contamination were controlled at the source. This would violate a long held principle of environmental cleanup: that is, it takes much more effort to clean up contaminants spread out over a large area than cleaning them up at the source. In fact, during the 1990's, LLNL's own staff touted this principle, dubbed "Engineered Plume Collapse" as the strategy that helped it to save time and money during cleanup.
5. At the LLNL Livermore Site and Site 300, treatment facilities located at the contamination "hot spots" in the interior of the site are effectively remediating VOCs and other contaminants with a combination of groundwater treatment and, at certain locations, soil vapor extraction. If implemented, RBES would "turn off the keys" and terminate efficient and effective cleanup in favor of allowing the pollutants to migrate through the soil to the groundwater and then through the groundwater toward the site boundary.
6. Applicable or Relevant and Appropriate Requirements (ARARs) were negotiated and ample time was given for DOE to accept or reject these requirements. Hence, they should not be altered except by formal agreements with appropriate regulatory agencies and stakeholders. The RBES Vision statements are based, falsely, on the premise that DOE has often accepted ARARs that do not meet the statutory standard or the National Contingency Plan's (NCP) eight comparison factors at 40 CFR 300.400(g)(2). The Vision documents also state that this practice has at times unnecessarily increased the costs and complexity of response actions and is inconsistent with the CERCLA Section 120 mandate that federal facilities use US Environmental Protection Agency "policies and guidelines" to prevent unnecessarily increasing the costs and complexity of response actions. We strongly disagree with this reasoning.
7. Also of issue is the tritium plume emanating from the Site 300 landfill called the Pit 7 Complex (OU 5) and Building 850. Although we know that tritium has a half-life of approximately 12 years (natural radioactive decay), we know much less about how it is transported. Recently, when the unlined waste pits in the Pit 7 complex were re-characterized, a new hydrologic stratum was found that explains some of the anomalous readings that had been puzzling environmental staff. We highlight this because we do not have confidence

that LLNL understands the complex hydrogeology at Site 300 with enough specificity to predict the direction and velocity of groundwater.

9. The implementation of RBES would not only violate California State policy regarding non-degradation of groundwater; it would violate the trust of the community. During the public hearing on the Site 300 Record of Decision, DOE and LLNL staff made a commitment to Tri-Valley CAREs and the federal and state regulators that groundwater cleanup levels would be at least as stringent as MCLs (Maximum Contaminant Levels), and possibly lower to be consistent with California requirements to clean up to background levels.
10. For environmental protection, the Interim Site-Wide ROD states that it would: Restore water quality to beneficial uses within a reasonable time frame, and "prevent migration of contaminants into pristine waters". This commitment is violated by the RBES Vision.
11. As scientific knowledge about certain substances increases, new chemicals are added to the list of chemicals of concern, and standards may change. For example, perchlorate has been added to the chemicals of concern. It has contaminated large areas of Site 300. Additionally, EPA has reassessed the toxicological profile of trichloroethene (TCE), one of the major contaminants of concern at Site 300. It found that previous studies had understated the risk of TCE to small children by as much as 65 times. It also found evidence at other sites that TCE vapors were entering buildings. Although EPA has not required LLNL to re-evaluate any of the buildings at Site 300, based on the hydrology of the site, it may be a candidate for future study. The Preliminary Remediation Goal (PRG) for tap water, which Region IX of the US EPA has "provisionally" adopted, is 0.028 ppb, three orders of magnitude lower than the MCL.
12. In a Response to Comment in the Interim Site-Wide ROD pertaining to the Precautionary Principle, the Lab responded that "Precautionary principles are built into the procedures and laws governing environmental cleanup." The RBES throws "precaution" to the wind.
13. The Final ROD for the General Services Area states that "the cleanup goal for ground water is to reduce VOC concentrations to MCLs in all impacted ground water in the GSA." This goal would be abrogated if the RBES is implemented.

The Superfund cleanup of the LLNL Livermore Site and Site 300 should focus on carrying out the agreements already in place. The methods, cleanup levels and timetables set forth in those agreements are technically feasible and ethically

responsible. The agreements were negotiated by multiple parties - DOE, LLNL, the US Environmental Protection Agency (EPA), the California State Department of Toxic Substances Control, the state's Regional Water Quality Control Board and stakeholder organizations such as Tri-Valley CAREs. These agreements represent the minimum, not the maximum, obligation that DOE has to the communities surrounding the two LLNL sites.

Thank you for this opportunity to comment, though we must note our dismay that no public meetings were held on either the LLNL Livermore Site or the Site 300 RBES Vision, though Tri-Valley CAREs requested them. Moreover, we note that the RBES Vision is based in part on the DOE's "top down review," which also lacked broad stakeholder participation. We strongly believe that cleanup of contaminated sites benefits from public participation. Community knowledge and input contribute to both good science and democratic decision-making.

In conclusion, we are very disappointed that the RBES has gone this far. Again, we urge you to stop this process.

Sincerely,

Marylia Kelley
Executive Director,
Tri-Valley CAREs

**ATTACHMENT 2: TVC COMMENT LETTER ON RBES STRATEGY FOR
SITE 300 AND THE LLNL LIVERMORE SITE
JANUARY 11, 2004**

January 11, 2004

Jessie Roberson, Assistant Secretary for
Environmental Management,
U.S. Department of Energy
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Washington, DC 20585

Roy Kearns, Deputy Director
U.S. Department of Energy, Livermore Site Office,
Environmental Stewardship Division
PO Box 808, Mail Code L-574
Livermore, CA 94551

**Subject: Tri-Valley CAREs' Comments on the Dept. of Energy's October 2003
Draft Risk-Based End State Vision for Lawrence Livermore National
Laboratory, Livermore Site and Lawrence Livermore National Laboratory, Site
300.**

Dear Ms. Roberson and Mr. Kearns:

In the strongest possible terms, Tri-Valley CAREs rejects the so called Risk-Based End State (RBES) Vision for the two Department of Energy (DOE) Superfund sites at the Lawrence Livermore National Laboratory (LLNL). We believe that the RBES Vision documents for both sites are a disgrace. If implemented, the RBES for the LLNL Livermore Site and the LLNL Site 300 would violate federal and state environmental law and guidelines, violate the Federal Facility Agreements for both sites, violate Records of Decision (ROD) for both sites and renege on firm commitments that were made by DOE during the public hearing process that resulted in a ROD.

For more than a decade, stakeholders and regulators at the LLNL sites have been working with DOE to craft an efficient and effective clean-up strategy. We at Tri-Valley CAREs believe in that process and have participated in it actively and in

good faith. Many of our members are close neighbors of the LLNL Livermore Site and Site 300. Some live on top of off-site contaminant plumes. We believed, and still believe, that final agreements memorialized in the Superfund Records of Decision are final - and that they can only be modified as per a prescribed process in the National Contingency Plan and applicable federal and state laws.

However, the RBES strategy for both of these sites, if implemented, will change the very nature of the cleanup strategy, including cleanup levels, the point of compliance and the continued search for new and more effective cleanup technology. Further, RBES would dramatically alter long-term stewardship responsibilities at the two LLNL sites.

Instead of RBES, the Superfund cleanup of the LLNL Livermore Site and Site 300 should focus on carrying out the agreements already in place. The methods, cleanup levels and timetables set forth in those agreements are technically feasible and ethically responsible. The agreements were negotiated by multiple parties - DOE, LLNL, the US Environmental Protection Agency (EPA), the California State Department of Toxic Substances Control, the state's Regional Water Quality Control Board and stakeholder organizations such as Tri-Valley CAREs. These agreements represent the minimum, not the maximum, obligation that DOE has to the communities surrounding the two LLNL sites.

The balance of this comment letter is organized into the following sections:

Section 1: General Comments that Apply to Both Sites

Section 2: Specific Comments Regarding the Site 300 RBES

Section 3: Specific Comments Regarding the Livermore Site RBES

Section 1: General Comments that Apply to Both the Livermore Site and Site 300

1. The RBES abrogates the agreements set forth in legally binding RODs for the Livermore Site, the Site 300 Site-Wide ROD, and the Site 300 GSA ROD.
2. The RBES violates CERCLA (also known as the Superfund Law). Even if the principles of the RBES were acceptable, implementing the RBES would require significant amendments to the Records of Decision that apply at these sites.
3. Using the site boundary as a point of compliance is in violation of State Water Resources Board Resolution 92-49 and Resolution 68-16. The former

allows a site to establish a "Containment Zone" only after the operator demonstrates that it is technically and economically impractical to halt contaminants at the source. The policy allows for very limited applications of the containment zones, but the burden of proof is high to have them approved. The State Water Resources Control Board Resolution 68-16 implies a stricter standard than even drinking water standards for "potential drinking water sources". This is known as the non-degradation policy. That is, it is state policy that a polluter cannot degrade groundwater quality. Practically speaking, groundwater should be maintained at background levels if it can be shown that it is technically and economical feasible. Resolution 68-16 allows alternatives if the polluter can show that non-degradation cannot be practically achieved or it is not more protective of human health. While Resolution 68-16 does not apply to existing polluted groundwater, if a plume is allowed to migrate, it degrades water quality downstream, just as if someone were dumping pollutants into the groundwater.

4. The RBES, by relying upon natural attenuation to eventually achieve maximum contaminant levels at the site boundaries, violates EPA Guidance on Monitored Natural Attenuation (MNA). The US EPA guidelines for evaluating MNA require the removal of the source of contamination, substantial analysis, using multiple lines of evidence, to show that natural attenuation occurs in a "reasonable time frame", and a substantial effort in monitoring contaminant levels. The RBES for both sites does not meet this guidance.
5. The RBES Vision for both sites puts potential drinking water resources at risk in order to obtain short-term savings in budget. Contaminants would be left to migrate to the fence line and be cleaned up only if the plume passes the boundary (and only if contaminants in the now vastly more spread out plume are still above specified concentrations). This will allow contaminants to pollute a much larger area than if the contamination were controlled at the source. This would violate a long held principle of environmental cleanup: that is, it takes much more effort to clean up contaminants spread out over a large area than cleaning them up at the source. In fact, during the 1990's, LLNL's own staff touted this principle, dubbed "Engineered Plume Collapse" as the strategy that helped it to save time and money during cleanup.
6. The RBES has a twenty year time frame during which DOE doesn't believe it can "adequately reduce contaminant concentrations" to cleanup levels. Therefore, it seems logical to conclude that DOE will walk away from cleanup at these sites leaving an unknown amount of risk. This is true at both the LLNL Livermore Site and LLNL Site 300.

7. The RBES Vision documents encourage LLNL to make assumptions about future land-use well into the future. That is, all land would have to be controlled by the DOE. Tri-Valley CAREs has long argued against this assumption, particularly for Site 300. Neighboring land in Livermore and near Tracy would be adjacent to contaminated lands that would not be cleaned up under the RBES Visions. RBES essentially means DOE sites, including the LLNL Livermore site and Site 300, will become national "sacrifice zones."
8. At the LLNL Livermore Site and Site 300, treatment facilities located at the contamination "hot spots" in the interior of the site are effectively remediating VOCs and other contaminants with a combination of groundwater treatment and, at certain locations, soil vapor extraction. If implemented, RBES would "turn off the keys" and terminate efficient and effective cleanup in favor of allowing the pollutants to migrate through the soil to the groundwater and then through the groundwater toward the site boundary. This would violate the existing Federal Facility Agreements as well as other legally binding agreements. Further, as these groundwater and soil vapor extraction facilities are among the few successes that DOE can point to across the complex, it defies common sense as well as law to pursue an RBES path that will lead to their premature termination.
9. Applicable or Relevant and Appropriate Requirements (ARARs) were negotiated and ample time was given for DOE to accept or reject these requirements. Hence, they should not be altered except by formal agreements with appropriate regulatory agencies and stakeholders. The RBES Vision statements are based, falsely, on the premise that DOE has often accepted ARARs that do not meet the statutory standard or the National Contingency Plan's (NCP) eight comparison factors at 40 CFR 300.400(g)(2). The Vision documents also state that this practice has at times unnecessarily increased the costs and complexity of response actions and is inconsistent with the CERCLA Section 120 mandate that federal facilities use US Environmental Protection Agency "policies and guidelines" to prevent unnecessarily increasing the costs and complexity of response actions. We strongly disagree with this reasoning.

Section 2: Specific Comments Regarding the LLNL Site 300 RBES

1. One of the key questions raised by the Risk-Based End State Vision is whether Monitored Natural Attenuation will be effective at Site 300. At several isolated areas (such as Site 300's landfill at Pit 6), LLNL's current remediation

strategy assumes that TCE will undergo natural attenuation prior to it reaching the site boundary, and therefore will not present a risk to public health. If TCE is degraded by chemical or biological factors, we would expect to see fairly high concentrations of vinyl chloride, as TCE has been in the ground and groundwater for some time. Vinyl chloride, a known human carcinogen, is a natural breakdown product of TCE in many groundwater environments. TCE has been found at extremely high concentrations at the LLNL Site 300 Operable Units 1 and 2, and is present in many other locations at the site. The baseline health risk assessment does not include an assessment of vinyl chloride because it has not been found at Site 300. Interestingly, natural attenuation was evaluated as a remedy for the Site 300 Building 815 Operable Unit. It was rejected as a potential remedy in part because of "the absence of detectable concentrations of TCE degradation products, such as 1,2-DCE and vinyl chloride."¹ In short, RBES is inappropriately optimistic regarding the potential for Monitored Natural Attenuation to ameliorate the VOC contamination problems at the site. Moreover, as mentioned, it violates EPA guidelines for MNA.

Also of issue is the tritium plume emanating from the site 300 landfill called the Pit 7 Complex (OU 5) and Building 850. Although we know that tritium has a half-life of approximately 12 years (natural radioactive decay), we know much less about how it is transported. Recently, when the unlined waste pits in the Pit 7 complex were re-characterized, a new hydrologic stratum was found that explains some of the anomalous readings that had been puzzling environmental staff. We highlight this because we do not have confidence that LLNL understands the complex hydrogeology at Site 300 with enough specificity to predict the direction and velocity of groundwater.

Further, it is one of the basic principles of environmental management in the U.S. that dilution cannot and should not be used as a solution to contamination problems. Therefore, where natural attenuation occurs at Site 300 only because of physical processes such as dilution, it should not be included as a potential remedy.

The RBES plan will encourage adoption of monitored natural attenuation as a remedy for most sites. DOE argues that "a significant portion of DOE's groundwater cleanup costs are associated with operation of pump-and-treat systems, yet it has long been recognized that pump-and-treat remedies may not achieve restoration within a reasonable time frame in many settings typical at DOE sites." We take exception to this view, especially considering the substantial success of pump-and-treat at the Site 300 GSA Operable Unit, and significant reduction in contaminant mass at Building 834 due to aggressive groundwater extraction and treatment and soil vapor extraction.

2. The implementation of RBES would not only violate California State policy regarding non-degradation of groundwater, it would violate the trust of the community. During the public hearing on the Site 300 Record of Decision, DOE and LLNL staff made a commitment to Tri-Valley CAREs and the federal and state regulators that groundwater cleanup levels would be at least as stringent as MCLs (Maximum Contaminant Levels), and possibly lower to be consistent with California requirements to clean up to background levels.
3. The Site Wide Interim ROD established cleanup objectives without specifying numerical cleanup levels. However, again, DOE made a commitment to Tri-Valley CAREs and the regulators that for groundwater, cleanup levels would be at least as stringent as MCLs (Maximum Contaminant Levels), and possibly lower to be consistent with California requirements to clean up to background levels.² Interim remedies were instituted to determine if the strictest levels of cleanup could be attained.
4. For environmental protection, the Interim Site-Wide ROD states that it would: Restore water quality to beneficial uses within a reasonable time frame, and "prevent migration of contaminants into pristine waters".³ This commitment is violated by the RBES Vision.
5. As scientific knowledge about certain substances increases, new chemicals are added to the list of chemicals of concern, and standards may change. For example, perchlorate has been added to the chemicals of concern. It has contaminated large areas of Site 300. Used primarily used as a rocket propellant, it was also used in explosives. The major health concern regarding perchlorate is that it blocks iodide uptake in thyroid. Iodide is critical in regulating growth and metabolism, especially in fetuses and young children. In leafy food crops such as lettuce, 90% of the perchlorate is absorbed within four weeks. In hydroponic cultivation of soybeans, after 9 weeks in water at 20 ppb, leaf had 21,000 ppb. EPA's provisional reference dose is 4-18 ppb in groundwater, although some states have developed their own standards. Massachusetts and Maryland have developed a standard of 1 ppb. California adopted a 4-ppb action level, requiring that wells testing above 4 ppb be removed from service. This compound is being studied further at the national level. Additionally, EPA has reassessed the toxicological profile of trichloroethene (TCE), one of the major contaminants of concern at Site 300. It found that previous studies had understated the risk of TCE to small children by as much as 65 times. It also found evidence at other sites that TCE vapors were entering buildings. Although EPA has not required LLNL to re-evaluate any of the buildings at Site 300, based on the hydrology of the site, it may be a candidate for future study. The Preliminary Remediation Goal

(PRG) for tap water, which Region IX of the US EPA has "provisionally" adopted, is 0.028 ppb, three orders of magnitude lower than the MCL.

6. For several contaminants there is no MCL. These include RDX (used to make explosives) and perchlorate. For the former, there is a Preliminary Remediation Goal established by Region IX of the USEPA. The PRGs are levels of chemicals found in soil, drinking water, or air that the EPA recommend be used as preliminary screening number or initial cleanup goals to determine whether a chemical presents an unacceptable risk. "Unacceptable risk" is defined two ways: first, exposure cannot exceed one in one million increased cancer risk, and second, for non-cancer health risks, acceptable levels of risk are based on a hazard index (HI). For planning purposes, and in some cases for implementation, the PRGs are good action levels.
7. State Water Resources Control Board Resolution 92-49⁴ is explicitly noted in the Site 300 ROD. As part of the Interim ROD, DOE/LLNL agreed to conduct a Basin Plan Compliance Evaluation by 2005. This evaluation would analyze various scenarios for cleaning up the groundwater, including cleanup to background, hydraulically capturing the plumes and allowing MNA to occur, cleaning up TCE to levels of 2.3 ppb (one in one-million cancer risk), and maximizing mass removal to reduce levels to background. This evaluation would never be made under the RBES.
8. At Site 300, there is further characterization needed to determine the extent of the contamination at the site. The RBES would fail to follow through on this.
9. In a Response to Comment in the Interim Site-Wide ROD pertaining to the Precautionary Principle, the Lab responded that "Precautionary principles are built into the procedures and laws governing environmental cleanup."⁵ The RBES throws "precaution" to the wind.
10. The Final ROD for the General Services Area states that "the cleanup goal for ground water is to reduce VOC concentrations to MCLs in all impacted ground water in the GSA."⁶ This goal would be abrogated if the RBES is implemented.

Section 3: Specific Comments Regarding the LLNL Livermore Site RBES

1. One of the key questions raised by the Risk-Based End State Vision is whether monitored natural attenuation will be effective at the LLNL Livermore Site. We take note that studies have not indicated degradation of VOCs in the

subsurface and there is no indication that it will occur in a "reasonable amount of time." We also take note that there has been significant progress and achievement through the groundwater extraction/pump and treat combined with soil vapor extraction applications at LLNL Livermore Site, and we reject the notion that these active remediation methods do not work at this site. There is ample evidence they are working effectively. We also repeat that one of the basic principles of environmental management in the U.S. is that dilution cannot and should not be used as a solution to contamination problems. Therefore, if natural attenuation occurs at the Livermore Site only because of physical processes such as dilution of contaminant plumes as they migrate and spread through the environment, it should not be included as a potential remedy.

2. EPA has reassessed the toxicological profile of trichloroethene (TCE), one of the major contaminants of concern at the Livermore Site. As mentioned, it was found that previous studies had understated the risk of TCE to small children by as much as 65 times. EPA also found evidence at other sites that TCE vapors were entering buildings. Although EPA has not required LLNL to re-evaluate any of the buildings at the Livermore Site, based on the hydrology of the site, it may be a candidate for future study. The PRG for tap water, which Region IX of the US EPA has "provisionally" adopted, is 0.028 ppb, three orders of magnitude lower than the MCL. It would be unfortunate indeed if LLNL were to shut down treatment facilities at the source only to find that stricter levels for TCE would be enforced, and the only means would be to go back and recapture the plumes. Allowing contaminant plumes to migrate and spread out at the LLNL Livermore Site may well prove "penny wise and pound foolish."
3. The RBES is not clear as to whether tritium cleanup at Livermore Site's Trailer 5475 area would continue or be halted. If it were not continued, this would be a clear violation of the ROD, as well as being economically impractical.
4. It is at the LLNL Livermore Site that the aforementioned "Engineered Plume Collapse" is being successfully pursued. Engineered plume collapse involves capturing and pulling back the off-site leading edge of a contaminant plume while simultaneously and vigorously remediating soil and groundwater at its source, the "hot spots" located in the interior of the Livermore Site. RBES, if implemented, would mean these interior soil and groundwater treatment facilities would be abandoned. This is because RBES would move the point of compliance from the contamination source to the site boundary.

5. The Livermore Site RBES Vision would violate the ROD which mandates cleanup of contaminated groundwater on-site and off-site.

Thank you for this opportunity to comment, though we must note our dismay that no public meetings were held on either the LLNL Livermore Site or the Site 300 RBES Vision, though Tri-Valley CAREs requested them. Moreover, we note that the RBES Vision is based in part on the DOE's "top down review," which also lacked broad stakeholder participation. We would argue that cleanup of contaminated sites benefits from public participation. Community knowledge and input contribute to both good science and democratic decision-making.

In conclusion, we quote the DOE memo from Assistant Secretary for Environmental Management Jessie Roberson to DOE field managers. It reads: "Once RBES visions are developed, we will evaluate our cleanup activities and strategic approaches to determine if it is appropriate to pursue changes in site baseline documents."

We emphasize that the implementation of the RBES Vision at the LLNL Livermore Site and Site 300 would require DOE to violate existing state and federal law and legally binding cleanup agreements. Tri-Valley CAREs objects strenuously to DOE's pursuit of "changes in site baseline documents," which is a polite way of saying "obtain variances to the existing laws because we will be violating them." We urge DOE to, instead, comply with all "site baseline documents."

RBES at LLNL Livermore Site and Site 300 is a waste of staff and contractor time and energy that could be directed toward remediating toxic and radioactive pollutants in soil and groundwater. Further, it is wasting taxpayer money as the current approach at LLNL is cost effective.

The LLNL Superfund cleanup is reaching and in some cases exceeding its goals and milestones. We ask that DOE support the existing cleanup approach and agreements, not abrogate them.

Sincerely,

Marylia Kelley
Executive Director,
Tri-Valley CAREs

END NOTES

- 1 Draft EE/CA for B815 OU, LLNL Site 300, p. A-4, July, 1997
- 2 For example, pp. 65, 67, 75, 79, 82 and 85 all have the same statement: "The preliminary cleanup levels are set at maximum contaminant levels allowed in drinking water or State Water Quality objectives, whichever is more stringent, or below. These cleanup levels could change once the Final Record of Decision, scheduled to be released in 2007, is completed."
- 3 Page 2-29.
- 4 Policies and Procedures for the Investigation and Cleanup and Abatement Under Section 12204 of the Water Code
- 5 Page 3-16
- 6 P. 2-22

**ATTACHMENT 3: COMMENT LETTERS FROM THE ENVIRONMENTAL
PROTECTION AGENCY AND THE REGIONAL WATER QUALITY
CONTROL BOARD ON RBES STRATEGY**

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 9

**75 Hawthorne Street
San Francisco, CA 94105-3901**

January 13, 2004

Roy Kearns
U.S. Department of Energy
Livermore Environmental Programs Division
Lawrence Livermore National Laboratory
P.O. Box 808, L-574
Livermore, California 94551

Re: Comments on Draft Risk-Based End State Vision for Lawrence Livermore
National Laboratory, Livermore Site and Site 300

Dear Mr. Kearns:

EPA Region 9 has reviewed DOE's draft Risk-Based End State Vision ("Vision") for Lawrence Livermore National Laboratory (LLNL) Livermore Site and LLNL Site 300 dated October 2003. DOE's Vision presents an alternative to cleanup plans that have been selected in Records of Decision (RODs) signed by DOE, EPA, and regulatory agencies of the State of California pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and the Federal Facility Agreements for these sites.

DOE is currently constructing and operating groundwater and soil vapor extraction and treatment systems as selected in the ROD to achieve federal and state cleanup standards. EPA's understanding of the Vision proposal is that DOE plans to shut down these systems at some time in the future, well short of attainment of the standards, and replace the remedy with institutional controls and monitored natural attenuation, or monitoring only. EPA, in consultation with the affected community groups and State agencies, finds DOE's Vision to fall short of the statute and promulgated regulations cited above, as well as EPA's policies and guidances for CERCLA cleanups. The purpose of this letter is to call to your attention some of these shortfalls.

**DOE's Vision proposes a groundwater cleanup alternative which has been
previously rejected by DOE, EPA, and the State regulatory agencies.**

The RODs for both sites selected groundwater cleanup plans that would significantly reduce the volume and mobility of contaminated media by extracting and treating groundwater from the saturated zone and soil vapor from the unsaturated zone where appropriate. DOE's current Remedial Designs present a "Smart Pump and Treat" approach, also known as Engineered Plume Collapse, whereby appropriate actions are taken to remove contaminant mass at source areas, and other appropriate actions are taken to reduce contaminant mobility at distal areas.

EPA's understanding of DOE's Vision is that in 20 years, all groundwater and soil vapor extraction will cease. The Vision assumes that in this timeframe it is both acceptable and technically feasible to achieve MCLs in groundwater offsite while no longer reducing the volume of contamination in source areas. Echoing the findings of the Feasibility Studies and RODs for these sites, DOE's Variance Report indicates that these are highly unlikely assumptions. Source removal is an important component of EPA's groundwater policy because it enables and accelerates the rate of cleanup. It is questionable whether how much cost savings would result from a less than Smart Pump and Treat regime.

DOE's Vision sacrifices Long-Term Effectiveness and may pose a long-term liability for NNSA.

The Feasibility Studies for these Sites indicate that the Vision alternative provides a low degree of effectiveness in the long-term. If the Vision alternative were implemented, it is very possible that high concentrations of contaminants would continue to migrate, potentially impacting local drinking and agricultural water supplies. In such an event, DOE would be required to reevaluate the effectiveness of the remedy and potentially expand it. This burden would fall on DOE's National Nuclear Security Administration which would have inherited the sites and the cleanup liability from DOE's Environmental Management (EM). EM, which currently provides cleanup personnel and expertise for the DOE complex, will have been disbanded. Thus, long-term effectiveness should be a significant consideration of not only the regulators and community, but of NNSA as well.

DOE's Vision rejects Applicable or Relevant and Appropriate Requirements (ARARs) as threshold criteria for cleanup decisions.

The Variance Reports for both sites accurately state that the Vision alternative does not comply with ARARs, particularly those of the California State Water Resources Control Board, which protect beneficial uses of groundwater. The NCP provides circumstances under which ARARs can be waived, and EPA has developed detailed guidance for evaluation of technical impracticability. DOE has reported great success at removing contaminant mass at the LLNL sites through implementation of Engineered Plume Collapse; however, if at some time in the future DOE finds new information which substantially supports the need to significantly alter the response action and waive an ARAR, DOE can request and EPA will provide such consideration.

Perception of DOE's commitment to cleanup may be adversely affected.

In the two months since DOE published the draft Visions for the LLNL sites, EPA understands that DOE has modified the content of the Vision alternative, replacing Monitored Natural Attenuation (MNA) with monitoring only. EPA's understanding is that DOE no longer feels that lines of evidence supporting natural attenuation exist or can be documented. EPA further understands that the Draft Final Vision statement will propose monitoring and institutional controls. The public may question DOE's level of commitment to even these modest measures, which would need to be implemented in perpetuity if the Vision alternatives were to be implemented.

EPA has been flexible with DOE in selecting non-active remedies where appropriate.

EPA worked closely with DOE during development of the Feasibility Studies to identify and evaluate a broad range of response actions in accordance with the NCP. In addition to active remedies such as those discussed above, EPA helped DOE propose and gain acceptance for area-specific remedies such as monitoring only, monitoring with institutional controls, and monitored natural attenuation. These non-active remedy selections are documented in the ROD for Site 300. EPA has demonstrated its capability and willingness to base remedy selection on reason and sound science. EPA Region 9 will continue to work with DOE in this fashion, and hopes that DOE will continue to work with the regulators and members of the community in good faith.

If you have any questions regarding this matter, please call Kathy Setian at (415) 972-3180.

Sincerely,

Sean Hogan
Chief, Private Sites/DOE Section

cc: Jessie Roberson, DOE
Linda Barton, City of Livermore
Bob Ferry, DOE consultant
Ted Parks, DTSC
Mark Piros, DTSC
Naomi Feger, SF RWQCB
Susan Timm, CV RWQCB
Marylia Kelley, Tri-Valley CAREs

Date: 1/12/04
File No: 2199.9026 (NLF)

Roy Kearns
U.S. Department of Energy
Livermore Environmental Programs Division
Lawrence Livermore National Laboratory
P.O. Box 808, L-574
Livermore, California 94551

Via email to distribution list and USPS to Mr. Kearns

Subject: Comments on the Draft Risk-Based End State Vision for Lawrence Livermore
National Laboratory Livermore Site dated October 23, 2003

Dear Mr. Kearns:

San Francisco Bay Regional Water Quality Control Board (Water Board) staff has reviewed the Draft Risk-Based End State Vision (Vision) for Lawrence Livermore National Laboratory Livermore Site dated October 23, 2003, received at the Water Board on November 20, 2003. This document presents a "vision" of cleanup of groundwater at the Laboratory that significantly departs from the existing Record of Decision signed by the Department of Energy (DOE) in 1992 and is in conflict with State policy regarding groundwater cleanup, thus the vision cannot be supported in its entirety by the Water Board. The DOE advised Water Board staff that the Vision document is in the process of being revised and that comments will be solicited on the final version of the document at the end of January. Water Board staff will comment on the final version of the Vision.

The Vision acknowledges that the report is not consistent with the State Water Resources Control Board's (State Board) Policies or Resolutions. The Water Board agrees with this conclusion. State Board Resolution 92-49 for groundwater states that the goal of cleanup is to achieve the best quality of water that is reasonable. Any exceptions to this policy are subject to the Water Board's Basin Plan, the beneficial uses of the waters and the maximum benefit to the people of the State of California. Cleanup of groundwater at the Livermore Lab Main Site (Lab) is subject to the jurisdiction of the Water Board. Under Chapter 2, Section 13050, of the California Water Code, any surface water or groundwater within the boundaries of the state are considered "waters of the state," and the quality of those waters are subject to the Water Board's regulations. Any modification to the existing executed Record of Decision must be approved by the State. The Water Board staff takes exception to any attempt by the DOE to unilaterally waive State Applicable, Appropriate or Relevant Requirements (ARARs). As the Vision states, based on the currently available information, it is unlikely that the State will agree to support a remedial strategy that does not result in active groundwater cleanup to MCLs, both onsite and offsite. The DOE suggests in its Vision that the point of compliance for groundwater would be the site boundaries. This concept is counter to State policy. State Board Policy 92-49 allows for consideration of the designation of

containment zones, defined as a specific portion of a water-bearing unit where it is unreasonable to remediate to the level that achieves water quality objectives. The boundary of the containment zone then becomes the point of compliance. Containment zone designation is complex, prohibited in areas designated as critical recharge areas, and must meet the conditions listed in policy 92-49, including an evaluation of technological and economic feasibility of cleanup. The Lab has shown, through its engineered plume collapse and phased source remediation approaches, that it can successfully remove significant quantities of pollutants from the groundwater. This site is therefore not a candidate for a containment zone.

The DOE's definition of risk is short-sighted and short-term. The Vision assumes that there is no potential human health risk from drinking groundwater at the Lab because no municipal wells are currently located within the boundaries of the Lab. However, the Water Board has designated municipal or domestic supply as a beneficial use of the groundwater underlying the boundaries in the vicinity of the Lab. Groundwater within and adjacent to the Lab may be needed for drinking water sometime in the future and therefore potential risks still exist. Staff also disagrees with the statement on page A-1, referring to requirements under Resolution 92-49 not being based on risk. If a water body is designated for use as domestic or municipal supply, then the associated water quality objectives are based on potential human health risk.

In summary, it appears that the draft RBES Vision would abrogate the 1992 Record of Decision mandating cleanup of contaminated water both on-site and off-site, not just beyond the Lab's boundary. Water Board staff strongly recommends against any change in vision for cleanup of groundwater at the Lab until such time as the Lab can demonstrate that cleanup is technologically and economically infeasible. The strategies used to date have been effective. The Vision proposed by the DOE would result in the loss of a resource to the people of the State of California.

If you have any questions or comments, please call my staff person, Naomi Feger at (510) 622-2328.

Sincerely,

Curtis T. Scott
Groundwater Protection Division Chief

cc: Lindee Berg, LLNL
Ted Park, DTSC
Naomi Feger, RWQCB
Peter Strauss, TVC
Kathy Setian, USEPA
Marylia Kelly TriValley CARES

ATTACHMENT 4: SUGGESTED COMMENT LETTER TO DOE ON RBES STRATEGY

Date: _____

Roy Kearns
Livermore Site Office – Environmental Stewardship Division
P.O. Box 808 L574
Livermore, CA 94550

Re: U.S. Department of Energy (DOE) Draft Risk-Based End State (RBES) Vision For Lawrence Livermore National Laboratory (LLNL), Livermore Site and Site 300

Dear Mr. Kearns:

I appreciate the opportunity to comment on the RBES Vision, but request a 30 day extension. An extension would allow me to add to my issues and would provide other community members the opportunity to read the two draft documents and prepare and submit comments, particularly in view of the fact that we are in the middle of the winter holidays. I also request a public meeting in both the Tri-Valley and Tracy areas to offer another forum to comment on these complex problems and this controversial and unpopular Vision.

Both LLNL's Livermore Site and Site 300 are Superfund Sites polluted by many toxic and radioactive contaminants that can be extremely dangerous to employee and public health. The RBES Vision documents do not support state and federal environmental standards and will virtually turn off cleanup technologies currently utilized to remediate unhealthy soil and groundwater at LLNL. I do not support the RBES Vision. Implementation will not only break the law, but limit the progress being made cleaning up the pollutants from LLNL's nuclear weapons design and development work. Natural attenuation, a so-called cleanup method described in your documents, is nothing more than letting the pollutants migrate willy nilly in hopes that they will be diluted to the maximum contaminant level by the time they hit the site boundary. This is unacceptable! By continuing the variety of effective cleanup technologies now employed at LLNL, fewer contaminants can accidentally migrate to unforeseen areas and expose employees or the community.

The DOE claims that this accelerated cleanup methodology saves time and money. However, these savings are achieved by stopping cleanup at LLNL sites. This is a travesty, if not criminal! Regulators and the community have worked hard to gain consensus on methods that we all support and that will prevent, as much as possible, new areas from being contaminated. It is crucial that these cleanup activities continue. At Site 300, DOE and the Lab committed to the community and the regulators that cleanup

standards on-site would be as least as stringent as federal standards and possibly as stringent as the State of California's non-degradation policy. All current efforts to study if this could be attained would be thrown out the window if the RBES comes to pass. And, it would be a sad day if the community can no longer take the word of the public servants who represent our government. At the Livermore Site, for years the Lab has told us of the successes of "Enhanced Plume Collapse". With the RBES Vision, all of this work and money would be thrown out the window.

I have seen what accelerated cleanup means in other areas of our nation. I do not want a wildlife refuge with radioactive pipes under hiking trails. I do not want a small mountain of "safe" radioactive and toxic debris left in my town. Our children have grown up riding bikes in an arroyo, playing in a park, and eating fruit and vegetables from gardens – that have each been contaminated with plutonium from Livermore Lab. A study by the California State Department of Health indicates that a child born in Livermore has a 600% greater chance of contracting malignant melanoma than a child born in another city within Alameda County. At Site 300 in Tracy, nearby rancher's wells have been contaminated by solvents used at the site. Due to cleanup at Site 300 polluted plumes do not extend as far beyond the site boundary as they used to, there is still concern about flooding or wildfires bringing deadly contaminants toward the residential developments that grow closer and closer to Site 300.

I call on you as responsible public servants and good neighbors to obey the law and stop all plans to turn off the cleanup equipment in Livermore and Tracy. I request that you keep me apprised of your plans and actions.

Sincerely,

Name: _____

Address: _____

Personal Comments:

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