

August 1, 2008

Mr. Alfred Wong
DTSC Project Manager
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Re: Initial comments on the LLNL Site 300 draft Permit Renewal and draft Negative Declaration

Dear Mr. Wong:

Tri-Valley CAREs (TVC) is a non-profit organization founded in 1983 by Livermore, California area residents to research and conduct public education and advocacy regarding the potential environmental, health, and proliferation impacts of the Department of Energy's (DOE) Lawrence Livermore National Laboratory (LLNL or Livermore Lab). On behalf of our 5,600 members, Tri-Valley CAREs submits the following comments on the LLNL Site 300 draft Hazardous Waste Facility Permit Renewal and draft Negative Declaration under the California Environmental Quality Act (CEQA).

The draft Permit Renewal concerns the continued operation of the Building B883 Container Storage Area (B883 CSA), Explosive Waste Storage Facility (EWSF), and Explosive Waste Treatment Facility (EWTF) (collectively, Facilities), which includes a Burn Cage, Burn Pan, and Detonation Pad. If the draft Permit is approved, B883 CSA would increase liquid waste storage capacity from 3,300 to 5,500 gallons, the treatment capacity for the EWTF Burn Pan would be reduced from 150 pounds per event or day to 100 pounds per event or day, and the overall EWSF storage capacity for explosives waste would be reduced to 15,836 pounds. Therefore, the approval action under consideration appears to be a permit modification, rather than a permit renewal.

The Department of Toxic Substances Control (DTSC) claims to have evaluated any potential environmental impacts associated with the continued operation of the Facilities. On the basis of this analysis, DTSC prepared the draft Negative Declaration, which states that "this project will have no substantial significant impact on human health and the environment." For the reasons detailed below, the analysis contained in the Initial Study is inadequate and unsupported. As such, this analysis cannot be used to support the issuance of the draft Negative Declaration. On the contrary, the potentially significant environmental impacts associated with the project activities necessitate the preparation of an Environmental Impact Report (EIR).

To begin, the public comment period on the draft Permit Renewal and draft Negative Declaration is insufficient. Livermore Lab's permit application is nearly 1,000 pages and includes many documents of a highly technical nature. Similarly, the depth and complexity of the issues covered in the Initial Study preclude cursory review and analysis. As such, DTSC should extend the public comment period to ninety (90) days in order to allow for greater and more informed public participation.

I. The Burn Cage meets the definition of an incinerator

The Burn Cage meets the definition of an incinerator under California law. Pursuant to the California Code of Regulations, incinerator “means any enclosed device that . . . [u]ses controlled flame combustion and neither meets the criteria for classification as a boiler, sludge dryer, or carbon regeneration unit, nor is listed as an industrial furnace[.]”¹ As noted on page 9 of the Initial Study, when ready for treatment, the Burn Cage operator closes the access door for the unit “in order to secure the waste inside the cage, and then starts the burning process by igniting the propane burners from a remote location (Building 845A).” Thus, the Burn Cage is plainly an enclosed device that uses controlled flame combustion, and it does not meet any of the above-listed criteria for exclusion from the incinerator definition.²

Moreover, the Burn Cage does not meet the definition for open burning under California law. Pursuant to the California Code of Regulations, open burning “means the combustion of any material without the following characteristics: (a) control of combustion air to maintain adequate temperature for efficient combustion; (b) containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; *and* (c) control of emission of the gaseous combustion products.”³ According to page 9 of the Initial Study, the Burn Cage “consists of a ventilated metal enclosure that is eight feet in diameter and eight feet high, with a refractory liner. . . . Propane fuel from a protected supply tank is piped to the Unit and is used to aid in the combustion process.” The Burn Cage's ventilated metal enclosure, refractory liner, and propane burners are clearly used to provide sufficient residence time and mixing to allow for complete combustion of the explosives waste. Accordingly, the Burn Cage meets the second criteria for exclusion from the open burning definition.

As an incinerator, the Burn Cage is subject to the hazardous waste incinerator permit regulations under California law.⁴ Pursuant to these regulations, a permit applicant must submit a trial burn plan and conform to other requirements.⁵ These conditions must be met before the permit for the Facilities can proceed.

II. Air quality

According to the Initial Study, treatment via controlled burn/open detonation of explosives waste is likely to create an impact on air quality. This impact, which is potentially significant, must be

¹ CAL. CODE REGS. tit. 22, § 66260.10.

² *See id.*

³ *Id.* (emphasis added).

⁴ *See* CAL. CODE REGS. tit. 22, § 66270.62.

⁵ *Id.*

thoroughly analyzed. As noted on page 10 of the Initial Study, the pollution potential of the San Joaquin Valley is very high. The San Joaquin Valley Air Basin is well-known to have air quality problems associated with ozone and particulate matter. In fact, under both the federal and state Clean Air Acts, the San Joaquin Valley Air Basin is a non-attainment area for ozone, PM₁₀, and PM_{2.5}. The air emissions associated with the project activities contribute to the project region's non-attainment status, and these impacts need to be further studied. Moreover, there are legitimate questions as to whether project activities will create objectionable odors affecting a substantial number of people. The nearby Carnegie State Vehicle Recreation Area and the proposed 5,500 home Tracy Hills development may be impacted by such objectionable odors, which should be subjected to further analysis.

Finally, DTSC needs to provide detailed information regarding the composition and quantities of explosives waste to be treated by controlled burn/open detonation. On page 14, the Initial Study states that combustion products could include compounds such as carbon monoxide, oxides of nitrogen, and dioxins and furans. According to the Environmental Protection Agency, dioxins and furans can enter your body through breathing contaminated air,⁶ which is a particular concern given that treatment of explosives waste by controlled burn/open detonation "normally results in the complete conversion of explosive wastes to gases and inert carbon ash."⁷ Dioxins and furans are known to cause a variety of health effects, including cancer, changes in hormone levels, chloracne (a skin disease), reproductive issues, and suppressed immune system.⁸ As such, treatment of explosives waste by controlled burn/open detonation may result in impacts to human health and the environment.

III. Biological resources

The project activities are likely to create potentially significant impacts to biological resources, and these impacts must be thoroughly analyzed in an EIR, which will help identify mitigation measures and reasonable alternatives to avoid these impacts. Continued operation of the Facilities may have a direct and substantial adverse effect on both western burrowing owls and California red-legged frogs, as well as the San Joaquin Kit fox, Large-Flowered Fiddleneck, and California tiger salamander, three federally-listed endangered species. The mere presence of western burrowing owls and California red-legged frogs is insufficient to substantiate a lack of impacts. Rather, a detailed analysis of any potentially significant impacts to these species must be prepared. Such analysis should include a discussion of any impacts that may result from operator error, equipment malfunction, or other mishap affecting operation of the Burn Pan and Burn Cage. Also, the potential impacts associated with accidents, leaks, and spills at the Facilities, particularly the EWSF and B883 CSA, should be analyzed.

Moreover, the underlying data does not support the conclusion that project activities would have a less than significant impact on biological resources. According to a recent risk assessment prepared for the EWTF, "this analysis cannot determine unequivocally whether or not the EWTF

⁶ Environmental Protection Agency, *Dioxins and Furans Fact Sheet*, <http://www.epa.gov/wastemin/factshts/dioxfura.pdf> (last visited June 20, 2008).

⁷ Lawrence Livermore National Laboratory, *Part B Permit Application, Part IV Facility Design and Operations*, page 11 (October 2007).

⁸ Environmental Protection Agency, *supra* note 6.

will actually contribute to any future ecological impacts at Site 300[.]”⁹ Yet this same study is cited on page 16 of the Initial Study to bolster the assertion that any impacts to biological resources would be less than significant. The EWTF risk assessment closes with the following statement: “because of the uncertainty concerning the results of the ecological risk analysis, additional soil sampling for the concentrations of [contaminants of potential ecological concern] is warranted.”¹⁰ While it is commendable for DTSC to require implementation of the Soil Sampling Plan for the EWTF as a special condition on the permit, until this soil sampling has been completed and analyzed, there is insufficient data to support the issuance of the draft Negative Declaration, which is premised on the assumption that the project could not have a significant impact on the environment.

Furthermore, project activities may have a substantial adverse effect on federally-protected wetlands, which exist a mere 1,100 meters from the EWTF. Again, the mere presence of California red-legged frogs does not indicate that the continued operation of the Facilities will not have a potentially significant impact on these wetlands. This specious line of reasoning simply does not bear scrutiny. As specified above, an accident—of whatever kind—at any of the units to be covered under the permit may result in impacts to these wetlands. Also, air emissions, which are not analyzed in sufficient detail, may ultimately impact these wetlands. In light of the above, an EIR should be prepared for the continued operation of the Facilities.

IV. Geology and soils

The Initial Study contains an inadequate analysis as to whether project activities would expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault and strong seismic ground shaking. On page 21, the Initial Study acknowledges the presence of two hazardous northwest-trending strike-slip faults at Site 300. The first, the Elk Ravine Fault system, lies approximately 700 feet from the EWTF and approximately 3000 feet from B883 CSA and the EWSF. The second, the Corral Hollow-Carnegie Fault, is considered to be active and is judged capable of generating an earthquake in the range of magnitude 6.3 to 7.1. This fault system lies approximately 3000 feet from the Facilities.

In allegedly analyzing the potential impacts of these faults, the Initial Study states on page 21 that, “[s]hould an earthquake occur, any damage to the waste management facilities would be discovered during regular inspections and maintenance activities, if not sooner. Furthermore, a large earthquake would invoke the procedures in the LLNL Emergency Plan, which includes inspecting waste management facilities.” This analysis is plainly lacking. As an initial matter, inspection of the Facilities is a secondary matter as to whether project activities could cause a potentially significant impact as the result of seismic activity. A magnitude 6.3 to 7.1 earthquake generated by the active Corral Hollow-Carnegie Fault would likely destroy or severely damage the Facilities, thereby exposing both people and the structures themselves to substantial adverse effects. In violation of CEQA, these impacts have not been analyzed.

⁹ Department of Energy, *Human Health and Ecological Risk Assessment for the Operation of the Explosives Waste Treatment Facility at Site 300 of the Lawrence Livermore National Laboratory*, UCRL-TR-216940, Volume 1: Report of Results, page 48 (October 2007).

¹⁰ *Id.*

Moreover, the analysis of seismic ground shaking is also grossly inadequate. According to page 21 of the Initial Study, “[a]lthough seismic shaking is possible at Site 300, none of the hazardous waste management units are located within 200 feet of active fault.” The Initial Study then goes on to list a number of seismic sources that may cause earthquake shaking at Site 300, including a “major earthquake on a principal Bay Region fault.” Although this analysis clearly indicates the possibility of potentially significant impacts, those impacts were not analyzed. Recently, the 2007 Working Group on California Earthquake Probabilities prepared *The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2)*. This report indicates a total probability of 0.63 (63%) for a magnitude 6.7 or greater event in the Bay Area in the next 30 years.¹¹ Such an event would be very likely to cause strong seismic ground shaking at Site 300. In addition, U.S. Geological Survey scientists have described the Hayward Fault, which is located in the East Bay not too distant from Site 300, as a ticking time bomb, due anytime for another magnitude 6.8 to 7.0 earthquake.¹² The substantial likelihood of such an event occurring necessitates a thorough analysis of the potentially significant impacts that may result.

V. Hazards and hazardous materials

According to the Initial Study, the storage of hazardous and explosives wastes and treatment via controlled burn/open detonation of explosives waste are likely to create an impact. However, without adequate support, the Initial Study concludes that such impacts are likely to be less than significant.

First, there is no real analysis as to whether project activities would create a significant hazard to the public or the environment throughout the routine disposal of hazardous materials. As the Initial Study acknowledges on page 23, the hazardous and explosives wastes in question include lab packs of expired chemicals and debris; waste solvents; acidic and caustic wastes; fluorescent light bulbs; spent batteries; waste oil; metals; spent filters; pesticide waste; sludge; bulk explosives; pieces or powders from experiments; scraps of explosives from machining operations; explosives-contaminated equipment and packaging; and other residual explosives waste. But there is no analysis as to whether the storage and off-site shipment of these materials, rather than treatment at the EWTF, creates a significant hazard to the public or the environment. Moreover, the list of hazardous wastes provided in the Initial Study is incomplete. According to LLNL’s permit application, some of the common hazardous waste streams at Site 300 also include organic perchlorates, aerosol cans, beryllium wastes, and heavy metals (e.g., lead, cadmium).¹³ Furthermore, although most of the ash generated by controlled burn/open detonation is contained and shipped offsite, there is no indication that these efforts are infallible or analysis of what might result from the lack of containment of any hazardous ash.

Second, the analysis is also lacking as to whether project activities would create a significant hazard to the public or the environment through reasonably foreseeable upset and accident

¹¹ 2007 Working Group on California Earthquake Probabilities, *The Uniform California Earthquake Rupture Forecast, Version 2 (UCERF 2)*, page 66 (2008).

¹² Thomas M. Brocher et al., *The Hayward Fault—Is It Due for a Repeat of the Powerful 1868 Earthquake?*, page 1 (2008).

¹³ Lawrence Livermore National Laboratory, *Waste Analysis Plan for Hazardous Waste Treatment and Storage Facilities, Site 300*, page 6 (October 2007).

conditions involving the release of hazardous materials into the environment. While adherence to safety policies and design specifications is likely to minimize such risk, the hazard is nonetheless real and should be analyzed. As a result of equipment malfunction or other mishap, hazardous and explosives wastes and ash could easily be released into the environment. Moreover, Site 300 is subject to wildfires, which could also create a significant hazard to the public and the environment if a wildfire impacts the Facilities. These environmental effects must be thoroughly analyzed.

Third, as the Initial Study acknowledges on page 24, Site 300 is included on the Cortese List (Government Code Section 65962.5), and emissions or releases from the Facilities could create a significant hazard to the public and the environment. These potentially significant impacts, which have been overlooked, necessitate the preparation of an EIR.

Fourth, DTSC needs to specify how it can be assured that wastes approved for storage and treatment under the permit do not include radioactive, low-level radioactive, or mixed wastes. According to the Final Site-wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement, explosives research and development at Site 300 has included tritium, a radioactive isotope of hydrogen, and it is expected that tritium will continue to be used in these activities.¹⁴ Recently, Livermore Lab applied for an air permit from the San Joaquin Valley Air Pollution Control District (SJVAPCD) to increase the daily and annual maximum detonation limits for explosives testing at Site 300. In its permit application, LLNL indicated that future explosives research at Site 300 will include tritium and depleted uranium, another radioactive substance.¹⁵ Since the remnants of this research comprise a substantial portion of the wastes to be stored or treated at the Facilities, it may be difficult to ensure that these substances will not contaminate the approved waste streams under the permit. Although the air permit is currently on hold, it has not been withdrawn, and it is expected that LLNL will again actively pursue the permit in the near future. Under these circumstances, DTSC should require Livermore Lab to implement a testing plan to verify that no radioactive, low-level radioactive, or mixed wastes will be stored, treated, or managed at the Facilities.

As a related matter, DTSC must consider the indirect effects of the draft Permit Renewal and draft Negative Declaration, which it has not done. If the draft Permit Renewal for the Facilities is approved, it is reasonably foreseeable that Livermore Lab will renew its efforts to seek the air permit from SJVAPCD allowing for increased levels of explosives testing at Site 300. Therefore, in evaluating the significance of the environmental effect of the proposed project activities, DTSC must consider the indirect physical change in the environment that may result from issuance of the air permit by SJVAPCD.

¹⁴ National Nuclear Security Administration, *Final Site-wide Environmental Impact Statement for Continued Operation of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement*, page 3-27 (March 2005).

¹⁵ Lawrence Livermore National Laboratory, *Application for Authority to Construct/Permit to Operate Site 300 Open Detonation, Source No. N-472-68-0, N-472-69-0, N-472-70-0 and N-472-71-0, Supplemental Information Required With Each Permit Application*, page 1 (April 2007) (“Occasionally, explosive research will include depleted uranium. Rarely, tests include tritium, though the 2005 SWEIS evaluates the possibility of conducting explosive tests containing up to 20 mg of tritium.”). This document is included as an addendum to this letter.

Finally, DTSC needs to require additional, specific waste information and waste acceptance criteria from Livermore Lab before it can determine the appropriate level of environmental review or issue a final permit. The broad waste streams permitted for storage or treatment under the draft Permit Renewal fall far short of what is required. For example, Livermore Lab's aforementioned air permit application lists approximately 60 hazardous and radioactive materials that will be used in explosives testing at Site 300.¹⁶ It is unclear whether DTSC has fully accounted for the potential presence of these constituents in the waste streams approved under the terms of the draft Permit Renewal.

For example, hydrogen cyanide is a Resource Conservation and Recovery Act (RCRA) listed waste assigned a fire hazard rating of 4 (severe fire hazard) by the National Fire Protection Association.¹⁷ According to the Occupational Safety and Health Administration (OSHA), with hydrogen cyanide, "[e]xplosives hazards can occur on exposure to air, sources of ignition, including heat (polymerizes explosively at 50-60degreesC), or open flame; and when stored for long periods of time."¹⁸ Also, cyanide is a decomposition product of hydrogen cyanide that may be released in a fire. Moreover, hydrogen cyanide is incompatible with other waste streams and constituents that will be stored or treated at the Facilities. According to OSHA, "[c]ontact between hydrogen cyanide and amines; oxidizers such as perchlorates, peroxides, permanganates, chlorates, and nitrates; strong acids such as hydrochloric, sulfuric and nitric; sodium hydroxide, calcium hydroxide, sodium carbonate, water, ammonia, acetaldehyde, and caustics should be avoided."¹⁹ Significantly, hydrogen cyanide is but one example among scores of hazardous constituents in the air permit under consideration by SJVAPCD, and it is not the most dangerous one.

The materials that are used or created in explosives testing at Site 300 will become part of the waste streams for the Facilities. DTSC must be fully aware of, and must fully account for, all of the State of California and RCRA-listed hazardous constituents in the Facilities' reasonably foreseeable waste streams. Additionally, it is important to note that open-air detonations below the higher limit sought in the pending air permit occur regularly at Site 300, as do contained detonations. Tri-Valley CAREs is not confident that DTSC is fully apprised of the total range of hazardous constituents that will or may be in the waste streams permitted for storage or treatment at the Facilities. Certainly, the Initial Study, draft Negative Declaration, and draft Permit Renewal are not sufficiently detailed or informative in this regard.

VI. Hydrology and water quality

The project activities may substantially degrade water quality, and these potentially significant impacts require detailed analysis in an EIR. In the past, explosives operations at Site 300 "resulted in releases of tritium and uranium into the groundwater[.]" and "tritium continues to leach into groundwater."²⁰ Whether these explosives operations were conducted for explosives

¹⁶ *See id.*

¹⁷ Occupational Safety & Health Administration, *Occupational Safety and Health Guideline for Hydrogen Cyanide*, <http://www.osha.gov/SLTC/healthguidelines/hydrogencyanide/recognition.html> (last visited July 31, 2008).

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ National Nuclear Security Administration, *supra* note 14, at 4.11-28.

research and development or treatment purposes, the impacts to the environment are the same. In addition, hazardous wastes stored at B883 CSA and the EWSF could easily leak, either as the result of accident, oversight, or failure to comply with applicable regulations. Given Site 300's long and detailed history of such mishaps,²¹ an incident of this nature, which could result in impacts to both ground and surface waters, is to be expected. Also, the treatment of explosives waste at the EWTF is certain to result in air emissions that could ultimately impact water quality. Moreover, in the event of a mechanical failure, operator error, or other unforeseen event, the ash created by treatment at the EWTF could be released into the environment, with resultant impacts to ground and surface waters. As a permit condition, secondary and tertiary containment mechanisms need to be constructed at the EWTF, and the impacts to water quality from operation of the Facilities need to be thoroughly analyzed in an EIR.

VII. Land use planning

The project activities are likely to create potentially significant impacts to land use planning. Recently, DOE prepared a draft Supplemental Programmatic Environmental Impact Statement (SPEIS) as part of its planning for the future of the nuclear weapons complex. The plan is entitled Complex Transformation, and a final SPEIS is expected later this year. As part of its preferred alternatives under the Complex Transformation plan, DOE proposes to cease open-air hydrodynamic testing at Site 300 in 2009 and conduct future open-air hydrotesting at the Nevada Test Site.²² Livermore Lab's hydrotesting facilities would then be consolidated in-place.²³ According to the draft SPEIS, the Contained Firing Facility would be closed in 2015, which could enable transfer or closure of Site 300.²⁴ These activities produce much of the explosives waste to be stored and treated in the Facilities. Should Site 300 be closed or transferred, the Facilities may no longer be needed. Separately, Livermore Lab has stated that it would be unlikely to "be successful in receiving approval" for the Facilities at the Livermore Lab Main Site, based on "today's environment."²⁵ If operation of the Facilities will really have no substantial impact on human health and the environment, as stated in the draft Negative Declaration, one wonders why it would not be possible to receive approval for the operation of the Facilities at the LLNL Main Site.

VIII. Noise

According to the Initial Study, the treatment via controlled burn/open detonation of explosives waste is likely to create an impact; however, the analysis, which is sorely lacking, is used to support the conclusion that these impacts will be less than significant. This errant conclusion is based on LLNL's maximum allowable sound pressure level of 126 decibels, which approaches the impulse noise exposure limit of 140 decibels. Because the 126-decibel limit does not appear to be verified through field-testing, and because "blast-forecasting" for open-air detonations at

²¹ See, e.g., *id.* at 7-13 – 7-19 (listing 11 DTSC-related inadvertent events with the potential for environmental impacts between 1998-2002).

²² National Nuclear Security Administration, *Draft Complex Transformation Supplemental Programmatic Environmental Impact Statement*, page S-67 (December 2007).

²³ *Id.*

²⁴ *Id.*

²⁵ Department of Energy, *Lawrence Livermore National Laboratory Readiness in Technical Base and Facilities Site 300 Transition Study*, page 5 (September 21, 2007).

Site 300 may not be precise, there is inadequate support for the assertion that there will not be significant impacts as a result of project activities. Such impacts, which may potentially be significant, necessitate further analysis in an EIR.

IX. Utilities and service systems

This section overlooks impacts associated with changes to the current permit. If the Draft Hazardous Waste Facility Permit is approved, B883 CSA would increase liquid waste storage capacity from 3,300 to 5,500 gallons, a 67% increase. However, according to the Initial Study, no analysis was deemed necessary for the expansion of existing facilities, which could cause significant environmental effects. This oversight needs to be corrected with a detailed analysis of any associated impacts.

X. Conclusion

There is no support for the assertion contained in the Initial Study that the proposed project activities could not have a significant effect on the environment. As such, the issuance of the draft Negative Declaration was not warranted. Instead, the potentially significant environmental impacts associated with continued operation of the Facilities necessitate the preparation of an EIR.

Thank you for your consideration.

Sincerely,

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Enclosure