

SAVE STRAWBERRY CANYON

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Jeff Philliber, Environmental Planner
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hard copy to follow

Re: Draft Environmental Impact Report (DEIR) for Solar Energy Research Center (SERC) at Lawrence Berkeley National Laboratory (LBNL), Issues for Adequate Review and Federal Review in Compliance with National Environmental Policy Act (NEPA)

"When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context the proponent of an activity, rather than the public, should bear the burden of proof. The process of applying the precautionary principle must be open, informed and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action."

Wingspread Statement on the Precautionary Principle, January 1998

Dear Mr. Philliber:

This letter is being written to request further environmental review of the proposed SERC project *vis-à-vis* significant unaddressed impacts and to request immediate environmental review in compliance with NEPA. While the DEIR discusses many aspects of the project, important questions appear to be left unanswered. Save Strawberry Canyon (SSC) remains concerned regarding matters of environmental impacts such as site ground water, site geology, soils instability, seismic safety, public safety, and alternative project sites. SSC is also concerned that federal responsibility for the project is being sidestepped without legal merit.

SSC, a non-profit 501(c)3 organization with some 300 members, is dedicated to preserving and protecting the hills and valleys that define the cultural landscape surrounding Strawberry Canyon and its Strawberry Creek Watershed. SSC first formed upon learning of LBNL's 2006 Long Range Development Plan (LRDP) to build up to one million gross sq. ft. of new facilities for the Department of Energy (DOE) to implement its mission and programs in Blackberry and Strawberry Canyons. Since then, the ongoing discussions that have occurred within the context of environmental review for the various

environmental impact studies (CRT, Helios, BELLA, and Seismic Safety II), each, have been illuminating. While SSC disputes the conclusions of the SERC EIR, minimizing the degradation to the natural landscape and the visual character of the sloping hillsides, SSC understands that a new community awareness and concern for the value of the area has grown, including concern for the landscape as both an impaired resource and as a geologically unstable site for further development.

The DEIR clearly attempts to exempt SERC from NEPA review. Such an exemption does not appear to be legitimate. The hundreds of millions of dollars of federal funds flowing into LBNL are driven by the federal contract between DOE and the University of California (UC) establishing a National Laboratory to find new sources of energy through science. DOE's Office of Science "Business Plan," July 2010, specifies that LBNL "hosts" SERC as one of its two sustainable-energy research centers. Regardless of the fact that the land proposed for SERC is owned by UC and not intended to be leased to DOE, the operation of SERC's scientific research is acclaimed to be a function of LBNL, in whole or in part. It is not plausible to claim that SERC is independent of LBNL's infrastructure, network, operational oversight, and, thus, its duty to comply with NEPA.

In light of the question of compliance with NEPA, the DEIR raises another question regarding the adequacy of the 2006 LBNL LRDP EIR from which SERC is tiered-off. Indeed, there are responsibilities of UC ownership and long-range programmatic development that mandate California Environmental Quality Act (CEQA) review. However, the research at LBNL's 200 acres of hillside and canyon terrain is federally funded, driven by a national goal. It is entirely relevant that increasing concerns are mounting regarding the suitability of this location for further federal investment by the American Recovery and Investment Act (ARRA), or any other federal monies. Because of pressing questions regarding federal risk management and financial responsibility surrounding the LBNL site, it would seem prudent that a Site-wide Environmental Impact Statement (Site-wide EIS) be undertaken in accordance with NEPA. It is pro forma for both Los Alamos and Livermore Labs, other UC National Laboratory sites, to undertake Site-wide EIS review. For reasons of equal concern, it would seem timely that a Site-wide EIS be undertaken to review programmatic development at LBNL.

NEPA is specifically urgent at this time in regards to its provisions that provide for a process for federal decision-makers to weigh alternatives and to influence best-practice environmental outcomes. SSC urges the University, LBNL, and DOE to undertake such federal review, due not only to questions regarding SERC, but due also to questions of risk that may adversely impact LBNL's long-range research program if fully developed on the unstable hillsides above the UC, having the potential to "...significantly affect the quality of the human environment."

The DEIR revelation of unresolved questions regarding SERC's nanomaterial research only raises more questions regarding long-term health issues for both the natural and human environments. In fact, there may be a tragic irony to the SERC quest to create and use nanoparticles to discover new sustainable-energy matter — such a

quest may be the cause of uncontrollable destruction and effects to the air, water, plant life, animal life and the human population. Basically, the SERC DEIR claims that no one is responsible: “engineered nanomaterials...is an emerging field and at the present time, there are no federal or state regulations controlling engineered nanomaterials.” The DEIR therefore avoids the outstanding questions of nano risk in its “Impact Summary” and, furthermore, it fails to acknowledge the potential long-term cumulative risk of released nanoparticles from *other hillside LBNL facilities and programs*, including the Molecular Foundry, Advanced Light Source, National Center for Electron Microscopy, and connecting Energy Sciences Network. Adequate federal responsibility and discussion is sorely needed, *especially because* the Environmental Protection Agency (EPA) and other agencies are still in the pursuit of “gathering information” and setting regulatory standards.

The potential for release and harm, or already released and harming, nanoparticles into the environment, unseen, unknown, or undetectable by an instrument yet-to-be-devised, is reminiscent of LBNL’s historic operations, beginning in the mid-century, when toxic and radioactive contamination of the watershed and soils were also considered to be of no consequence. The DEIR statement of fact that hazardous materials exist at the SERC site lacks any background explanation regarding the extent of the contamination (such as is identified at Livermore Lab). Without such information, the described *in-situ* remediation for SERC may or may not be sufficient i.e. there is no “red flag.” In fact, in light of the contaminated waters and soil, SSC has become concerned that proper National Pollutant Discharge Elimination System (NPDES) permits, Army Corps of Engineers (ACE) Section 404 permits, and Environmental Protection Agency (EPA) Total Maximum Daily Limit (TMDL) permits may not have been and/or are not being properly sought at LBNL.

SSC continues to question with alarm the apparent blind eye with which LBNL views the geological threat to any development on its hillside campus. The SERC DEIR is yet another LBNL project that ignores, obscures, or minimizes the inherent risks of the unstable site, a contaminated site continuing to develop risky science. To determine in the “Executive Summary” that the immediately adjacent Hayward Fault, due for the “Big One,” and the multitude of fissures connected with the Wildcat Canyon Fault, are of “less than significant” impact defies a significant risk to the existence of LBNL’s facilities, its community, and the community below. Please take note of the following comments regarding geotechnical observations in the DEIR:

- In the AKA memorandum of May 29, 2009, for the General Purpose Laboratory, summarizing results of a preliminary investigation and a previously-mapped paleo-landslide beneath Building 25, the firm found geologic conditions consistent with a paleo-landslide hypothesis, including sheared bedrock materials that it was permissible to interpret Orinda Formation beneath Lawrence Road as potentially part of the paleo-landslide rather than “in-place” bedrock that slide-plane friction angle of slope stability was 15 degrees, a very low safety factor that to adjust the 15 degrees upward it would be necessary to do lab tests and that slope displacement in a seismic event might be 1.3 to 3.5 feet.

In order to investigate these, AKA proposed trenching. The April 8, 2010 report and its May 27 supplement appended general colored drawings of the single trench well (to the southwest of SERC) but no analysis. The supplement merely stated that no evidence of recent movement was found, leaving one to wonder if AKA had overlooked slickenside evidence of faulting or sheared bedrock, evidence of movement, or whether AKA chose to dig on a site believed to be outside of the slide area. The boring samples have Plasticity indices so high that a huge amount of material will have to be excavated.

- Now there is the SERC report and AKA has done NO trenching at all and only ONE boring! Older borings around 25A are useful to a point but not for moisture content. Moreover, AKA supplied no real analysis of the lot other than to suggest there are different materials underneath different parts of the site.
- AKA-1, under SERC, finds “bedrock,” that is siltstone and then claystone, at 10.5 feet. MW25A-98-6—under SERC--tuffaceous siltstone/ tuffaceous silty sandstone/sandy siltstone/ sandstone/ silty sandstone down to 25 feet. SB25A-96-3 (Preston Jordan)— just south of SERC—tuffaceous siltstone/ tuffaceous silty sandstone/ sandstone to 20 feet.

The latter two are part of slides or deposits of volcanic materials. These will move at a different rate from the “pure” siltstone in a seismic event.

- The Old Town area has suffered a number of landslides ever since the 1940s when the Cyclotron floor subsided. Almost every new grading for road or building resulted in a slide according to Dunn and Goodman’s inventory of 1984. And these landslides extend from the westernmost buildings to those in the east canyon. The worst were probably those of 1973, splitting Bldg. 46, taking out roads and utilities, undermining Centennial Drive, and threatening the Lawrence Hall of Science. But there were more to come. While more recent records were not made available, a recent map labels one huge landslide 41!
- Two maps from 1897, probably made by Lawson, show landslides over the whole hill before the Lab was built. These were not dirt scars but ravines and swellings that characterized the terrain and were clear evidence of slides. This evidence and more recent maps of paleolandslides have been waved away.
- LBNL has chosen to ignore its older consulting reports, which found “depositional” volcanics and vents from the old volcano. The caldera, however, has been traced from the north, 150 yards west of the Brazilian Room in Tilden Park on the Wildcat Fault, along Shasta, where outcrops have been used for walls, down to LBNL just inside the westernmost buildings and where Miocene in the caldera meets Cretaceous strata (erroneously called the “Chicken Creek Fault,” around the Botanical Garden and up Claremont Canyon to join the Wildcat Fault in a giant half circle. Here there are good outcrops of welded and semi-welded tuff, made from volcanic ash deposits (Communication, and tour, from Garniss Curtis). The largest vent is north of the lab, but some consultants have mentioned other vents. The volcano, erupting on the Wildcat Fault, was divided as the right-lateral fault carried part to Sibley Volcanic Preserve where its rhyolite constituents differentiate it from remains of other volcanoes in the preserve.

- The caldera accounts for the presence of “perched water tables,” large pockets where ash was replaced by water in the mud matrix. Borings and trenches find basalt, andesite, and other volcanics mixed with the mudstones made from the sedimentary rock that covered the volcano before its eruptions.
- Mudstones, that is claystone and siltstone, “give rise to many problems in civil engineering because they are weak and shrink or swell on being dried or wetted.”
(*The Oxford Companion to the Earth*, Oxford, 2000, p. 714.) The consultants dub these “bedrock.”

To propose yet another building on these materials, all under the rubric of Seismic Safety, is delusional or hypocritical. Every building adds more weight to the ground pressing on the bowl of the caldera which in turn presses against the steep and unstable hill threatening the dorms and residential neighborhood below, so close to the Hayward Fault.

As for SERC, the geotechnical report, clearly done too fast and under pressure, is wholly inadequate. A trench running north-south as well as one between the GPL and SERC footprints should be made. More borings should be made and their Atterberg Limits recorded. While LBNL may cry at the expense of a delay and new reports, the Lab discounts the huge expense of building on this land rather than on a flat site, and appears to care nothing about the danger to life, instrumentation, buildings, and research. But giving up this site would be the most economical, conscientious, and seismically safe thing to do.

[Geotechnical comments by Georgia S. Wright PhD]

In light of the fact that there will be earth movement(s) in the future potentially causing unknown damage to the built environment, and in light of the fact that climate change may cause unknown periods of rainfall, it seems prudent to re-evaluate and question the danger, cumulatively, posed by continuing to build facilities on the LBNL hillsides that require high levels of electricity consumption and gas consumption. In particular, the SERC DEIR discloses that the PG&E delivery “metering vault” is located above Cyclotron Road from which point it distributes gas to all the buildings at LBNL. The area above Cyclotron Road is both unstable and highly subject to earth movement. Again, whether with regard to SERC or to all of LBNL’s operations and facilities, a Site-wide EIS would seriously consider alternatives.

The discussion in the SERC DEIR on climate change is extensive. However, all the discussion and calculation defy the reality that tons and tons of dirt will be moved and countless trucks will produce gas emissions if SERC, CRT, Seismic Safety II, the Stadium project dirt removal, and the underground Stadium Garage go forward.

For reasons of environmental stewardship, financial wise-practice, and community health and good relationships, SSC urges that UC, LBNL, and DOE seek an alternative site for SERC.

Thank you for your attention.

Sincerely,

Lesley Emmington Jones, for
Save Strawberry Canyon