

ACSCOLI Meeting Notes, 1/12/11

Present: Glenn Mara, Eugene Haller, Mary Croughan, Dan Simmons, Michael Todd, Jim Chalfant, Michael Colvin, Harry Powell, Robert Powell, Phokion Kolaitis, Clare Yu, Todd Giedt, John Birely, Harry Tom, Robert Van Ness, Robert Anderson, Bruce Darling, Elaine Stamman, Anita Gursahani, Bill Eklund, and Kathleen Erwin

I. Welcome

No notes taken.

II. Executive Session

No notes taken.

III. UC Office of the President Update – UCOP Consultants

- A. New START Treaty:** The New START treaty was signed by President Obama in April 2010, and the Senate ratified it on December 22, 2010. It is expected that the Russian Parliament will ratify the treaty by the end of January.¹ In response to letters from the leadership of the Senate Foreign Relations Committee, the directors of the three NNSA national security laboratories stated that if enacted, the administration's proposed funding profile for the nuclear weapons program for the next decade would be adequate to sustain the safety, security, reliability and effectiveness of the U.S. nuclear deterrent within the New START limits with adequate confidence and acceptable risk. A significant issue that is not addressed within New START is the large number of theater weapons that each side possesses.
- B. Budget:** The federal government has imposed a two-year salary freeze for its civil servants, and Secretary Chu has asked for a two-year salary freeze at the Department of Energy (DOE) contractors. Science programs are also likely to see some budgetary pressure. Any increased funding will likely be directed primarily at issues related to national security programs, and fundamental science will not experience as robust budget increases as the Directors would like. EVP Darling reported that the projected budget increments for the National Laboratories are as follows: An 8 percent increase for LBNL; a 12 percent increase for LANL; and a 7 percent increase for LLNL.
- C. LBNL Second Campus:** The RFQ has been released with a return date of March 4, 2011. In addition, a project structure has been developed. Six working groups are now in place. Some near-term actions include a project charter and a stakeholder communication plan. Project objectives are also being developed and will be complete by the end of January. LBNL plans to co-locate all bioscience functions (approximately 1,000 staff members) at its second campus. The current cost of the leases is about \$15M (which expires in 2015 or so). The total costs would probably be in the range of \$500M, which could take the form of UC debt service, DOE funds, and/or third-party financing. Phase 1 is scheduled to take place by 2014, and construction would probably start in the 2012-13 fiscal year. The second campus must be within a 20 to 25 minute drive of LBNL. Kem Robinson of LBNL will be leading this project. Any potential site must be cleaned to at least an industrial level and address seismic issues.
- D. Anastasio Retirement (LANL):** Michael Anastasio will step down as the LANL Director on June 1, 2011. Michael served as director at LLNL for four years and in his fifth year as director of LANL for five years.

¹ The Russian Parliament subsequently ratified the START treaty on January 25, 2011.

- E. **Regents' Policy on the Appointment of Lab Directors/Senior Lab Salaries:** This policy was last updated in 1972, and the search process outlined in the policy is no longer appropriate for LLNL and LANL, which are now managed by the LLCs. Specifically, the LBNL policy will be amended in the following ways: 1) Inclusion of succession planning; 2) addition of an Academic Senate representative to the search committee; and 3) assuring diversity as an essential component in both the search committee and in the pool of candidates. For the LLNL and LANL policies, the process is slightly different in that the operating agreement now has a different governance model – the Chair of the LLC Board of Governors and the Vice Chair are the two people who have the authority to appoint key management officers, but they must take into account the view(s) of the Board's Executive Committee. The revisions to these policies are as follows: 1) The University will appoint a search committee (Regents, faculty members, others in the University community and outside the University community, and a representative of the Academic Senate); 2) the Chair of the LLC Board will be the convener of this search committee; 3) five final candidates will be interviewed; and 4) both the Chair of the Board of Regents and the President must approve the final appointment, which would be transmitted to the NNSA and the Secretary of Energy. Although Salary and benefits are determined via a market survey of comparable salaries, DOE will reimburse up to the high \$300K range; any difference beyond this would need to be covered by the LLC through the management fee. Regental approval is not needed for the final salary. Senate consultation has already taken place with respect to these proposed policies. In addition to these policies, there are six senior level salaries going to the Regents this month for approval. Although Secretary of Energy Chu has frozen DOE salaries, these increases are moving forward because these individuals' merit plans had already been approved before the salary freeze was enacted.
- F. **LLNL Retiree Health Care Dispute/Lawsuit:** Although this case has been dismissed, the plaintiffs have been given a month to file a new lawsuit. Their allegation is that the quality of their health benefits is less than what they would have received under the UC retiree health plan. It should be noted that a significant portion of LLNL employees are not associated with Medicare. In the original RFP, DOE included a clause that there should be "substantial equivalence" in terms of benefits, but after a certain point in time, the level of these benefits would adjust to market levels.

IV. Research Fees Competition – Vice President Steven Beckwith

ISSUE: The UC Lab Fees Research Grant (Lab Fees) is a very rigorous and successful program. That said, there is a question as to whether the Lab Fees program will be fully funded for the next call, which is scheduled for the spring. With respect to the existing program, the Office of Research and Graduate Studies (ORGS) would like to improve upon campus-Lab collaboration. Although LANL submitted proposal(s) in the last call for the funding of its four Institutes that are joint with UC campuses (See Section VII below), and which are set up to encourage UC graduate students to work at LANL, these proposals did not compete very well and subsequently were not funded. In the meantime, ORGS has continued to fund them, but this cannot continue indefinitely. LLNL is pursuing a similar set-up with its Open Campus initiative. ORGS plans to devote some funding in the competition for these kinds of initiatives in which they would be considered somewhat differently than a typical PI grant. ORGS would also like to facilitate a much closer integration of Lab researchers with UC faculty by adding a special category to the competition. Although the Proposal Central software program for submitting proposals was problematic in the last cycle, significant improvements have been made. Also, if ORGS were to go with a different system, then it would be at least three years from now until its implementation. The costs for Proposal Central are minimal – only a \$20,000 annual fee to the University; \$1,000 for each new call and \$135 per each proposal. The total fee for Proposal Central was

about \$70,000, and comparable systems would run about \$250,000. It is anticipated that the final RFP will be ready by March 4.

DISCUSSION: One member raised the issue of increasing the number of adjuncts from the National Labs on the campuses, asking about the value to the campus and whether DOE should be paying for these adjuncts. VP Beckwith responded that with the transition to the LLCs, DOE is no longer responsible for this function. From the campus perspective, these adjuncts do not impose additional costs related to instruction. Also, there should be a relationship between the department and the scope of expertise that the adjuncts have. In addition to teaching courses, there should be a colloquium series and/or research associated with these adjunct appointments, which would build relationships and presumably increase collaboration between the campus and the Lab. The intent from the Lab's perspective is that it does indeed enrich the University with respect to a specific skill set that may only be found at the National Laboratories. A single call could be issued with the following conditions: PI-initiated research, strategic collaboration proposal, and visiting appointments (which would be initiated by the campus). Members also asked if consideration would be given to PIs who received awards in the last competition. VP Beckwith replied that as this competition is merit-based, eliminating PIs simply because they received a grant in the prior cycle would not be appropriate. He added that there are two types of funding -- continuation funding and other new projects/proposals. With respect to overhead, as this funding is non-state in nature, it is appropriate for the Labs and the campuses to charge overhead (like NIH). So there would be an opportunity for the campuses to charge the federally-approved indirect cost rates. There is also not a huge gross disparity between the indirect cost rates of the campuses and the Labs. VP Beckwith added that the biggest problem is that when UC under-recovers its facilities' costs, it has to make this up in other areas, and this puts additional pressure on the budget. Members also debated whether the money currently allocated for this research program could be used for other purposes, such as back-filling the proposed \$500M cut in state funding for UC. VP Beckwith responded that the fee money is awarded at the discretion of the Regents, and there are no contractual obligations associated with this fee. Another option is simply to use this money as a replacement to cuts to general research funding. VP Beckwith cautioned that once the University begins to use this money for other purposes, then there could be potential conflicts in advising the DoE on issues with respect to the national interest. Another issue is that once this funding is taken for other purposes, the chances that it will be restored are very small.

V. LANL Special Topic: MaRIE

PRESENTATION: John Sarrao, MaRIE (Matter-Radiation Interactions in Extremes) Project Program Director, opened his presentation by noting that materials research is on the brink of a new era -- LANL is moving from observation of performance to control of properties. However, new capabilities will be needed to realize this vision, which include dynamic measurements of well-controlled and characterized materials in extreme environments, coupled with predictive modeling and simulation. This is now becoming possible due to advancements in nanoscale fabrication, high fidelity characterization, novel in situ diagnostics, generation of realistic extreme environments, the prospect of exascale computing, multiscale, multi-physics simulation tools, and ab initio methods applied to larger, more complex materials. MaRIE builds upon the LANSCE facility by providing unique experimental tools to meet this need (e.g., the Multi-Probe Diagnostic Hall, the Fission and Fusion Materials Facility, and the Making, Measuring & Modeling Materials Facility). There have been challenges in how we steward LANSCE however, but the stewardship model is in quite good shape. The near-term (FY 2011) priorities for MaRIE are: 1) Focusing the message (mission need, science opportunities, and technical approaches); 2) working the acquisition strategy (cultivating sponsorship within the Department and

developing phased approaches and cost models); and 3) defining the path forward (Refining facility functional requirements and balancing MaRIE “program” and MaRIE “project”). MaRIE will address problems central to DOE missions in energy, science, and security (e.g., consequences of materials failure for weapons performance, certification of materials, preventing materials damage, enhanced performance in unprecedented irradiation extremes, predicting and controlling microstructure for designed materials performance, and designing and synthesizing new materials with controlled functionality). In brief, DOE/NNSA has affirmed its commitment to LANSCE for the next decade. LANL has also identified a clear scientific need: prediction and control of materials in extreme environments and a facility concept has been developed. Therefore, the science case and facility concept for MaRIE are nearly complete: the next step is making the case for approval of mission need (CD-0). A working group is assembling the case for the science, mission, institutional value, including cost and process for consideration by Undersecretary Koonin (results due in three months – end of March/beginning of April 2011).

Success in the near term requires enabling R&D for both the MaRIE science program and the MaRIE project. There are two elements to this – the roadmap science and the risk reduction R&D. The roadmap science entails development of intermediate scale capacities, demonstration experiments at peer facilities, success in competitive solicitations, and utilization and strategic alignment of LDRD investments. Risk reduction R&D includes technology demonstration and testbed development, preconceptual point designs and end-to-end simulations, success in competitive solicitations, and utilization and strategic alignment of LDRD investments. The next steps for the MaRIE project are 1) complete 3.0 / 4.0 priority work scope & documentation; 2) complete scope schedule cost estimates and identify initial risks; and 3) preparation of a CD-0 briefing book. In sum, MaRIE will be the first capability with unique co-located tools necessary to revolutionize materials in extremes, and its facility definition is being driven by community-validated performance gaps & functional requirements.

DISCUSSION: Chair Simmons remarked on the progress made on the definition and scope of the project. Members noted that DOE is considering a number of projects -- how does MaRIE fit in? Dr. Sarrao responded that NGLS is the highest priority; NGLS and MaRIE are at comparable stages of development. However, the science missions are very different.

VI. LANL Special Topic: Plutonium Research Strategy

PRESENTATION: David L. Clark, the Plutonium Strategy Leader at LANL, noted that Plutonium (Pu) is at the nexus of significant issues facing society, and that national priorities are currently expanding the Pu mission (e.g., Pit reuse & Pu sustainment (20, 50, 80)), Pit disassembly & conversion mission, Pu-238 mission, materials disposition (includes SNF), environmental cleanup, the future of nuclear power, and nonproliferation & nuclear forensics. However, working with Pu involves significant technical challenges, and will require a diverse and deep set of scientific skills. We have not mounted a Pu science program commensurate with the challenges of NPR, New START, and a smaller stockpile. LANL serves a key role as a consolidated Center of Excellence for Pu research, development, and manufacturing. However, much of our current knowledge base with respect to Pu rests with aging and retired scientists – some skills are endangered. The Nation needs a robust science base to train and retain a plutonium workforce and must develop a fundamental scientific understanding of Pu – one that can be more readily preserved and taught to future generations. It is important to note that the Pu Science Strategy cuts across the following mission elements – nuclear deterrence, sustainable nuclear energy, and reducing global nuclear threats. The response to this challenge is the *Pu Science and Research Strategies*. LANL’s *Strategy* is based on three basic goals. The first of these is rejuvenating,

strengthening and integrating plutonium and actinide science as required by national security programmatic needs. Second, LANL needs to recapitalize our scientific infrastructure and capabilities. Finally, LANL must increase its Pu workforce strength. There are 14 specific objectives associated with these goals, which are spread across the categories of electronic structure and phase stability, dynamic behavior and surface interactions, chemical separations and nuclear energy systems, detection & analysis and environmental behavior, scientific infrastructure, special isotopes and classified databases, and increasing Pu workforce strength. The selection of these objectives/scientific themes took time and involved considerable and lengthy discussions with experts in DC. Implementation of the *Strategy* will take considerable effort and will need to include a solid implementation plan, enhancing partnerships with other NNSA and DOE laboratories, transitioning to a NNSA national strategy, and the leveraging existing funding across programs. Going forward, LANL has identified the following priorities for its Pu *Strategy*: 1) Establishing an institutional priority for Pu science; 2) enabling small-scale research using plutonium-242; 3) creating new mechanisms to facilitate plutonium science at TA-55; 4) consolidating publication and material databases; and 5) enhancing partnerships with LANL/LLNL/AWE. Finally, Dr. Clark discussed the effects of manufacturing Pits on Pu R&D, and whether this will hurt Pu efforts overall. He said that there is a beneficial relationship in having a program that brings in \$185M annually; it is like having an anchor tenant in a shopping mall. He stressed that Pit manufacturing is not putting people out of workspaces at TA-55; in fact, workspace is being underutilized.

DISCUSSION: Chair Simmons asked if there is room for joint graduate degree programs in Pu science. Dr. Clark responded that there is – for example, at the Seaborg Institute, students spend a summer at LANL completing a portion of their theses.

VII. LANL Special Topic: LANL-Campus Interactions

PRESENTATION: Nan Sauer, Acting LANL Associate Director for Chemistry, Life and Earth Sciences, noted that the Institutes Office at LANL is an entity that has facilitated much of the interaction between LANL and UC campuses. LANL is very multidisciplinary and naturally has worked well with UC, which has resulted in a large number of relationships. There are 11 Institutes and Centers with a total institutional investment of \$20M. LANL funds its Educational Institutes and Science and Mission Innovation Centers with both UC and New Mexico Universities. The Institutes recruit, retain, and revitalize our national security mission workforce; as well as engaging university collaborators in program development efforts. The Centers foster science, innovation and community within LANL, and foster capability and cross-disciplinary teams to grow programs. The Institutes with a UC focus include the Engineering Institute (EI) with UCSD; the Institute for Multi-Scale Materials Studies (IMMS) with UCSB; the Information Science and Technology Institute (ISTI) with UCSC; the Materials Design Institute (MDI) with UCD; the Institute for Geophysics & Planetary Physics (IGPP) with six UC campuses, and the Seaborg Institute. The Centers include the Center for Non Linear Studies, the Center for Biosecurity Science, the Energy Security Center, and the Information Science and Technology Center. Each Institute has its own leader who ensures alignment with LANL strategic goals, workforce needs, and program opportunities. Educational institutes have counterparts within the aligned campuses to help design and implement joint programs strategic for each partner, which are supported through subcontracts. Each individual Educational Institute focuses on education and research collaborations with students at the hub; offer graduate classes and tutorials in strategic topical areas; and host joint workshops which bring potential collaborators together. Centers also define target areas and then build teams to support to foster science engineering and program development. There is one degree program in the pipeline between LANL and UCSD, and another one that has been in existence for five years.

DISCUSSION: One member was interested in the relationship between the Institutes and the MRUs. Nan Sauer responded that they have always been separate and distinct, as MRUs cannot offer degree programs, but the Institutes can. With respect to IGPP (the oldest Institute), LANL will continue its institutional investment in this Institute.