

Questions from the TJNAF Site Orientation

1. As you face the challenge of building the 12 GeV upgrade, what are the greatest challenges facing the Lab?

A: The primary challenge is financial. The President's proposed FY2006 budget reduces operating time by 9%; but does provide funding for R&D and preparation of a Conceptual Design Report for the upgrade. The primary financial challenge will be identifying funding for the upgrade while maintaining the ongoing research program. Among the technical challenges will be completing the development of the new SRF cryomodule and finalizing the upgrade design for the three existing halls.

2. How is all of the different outreach to different audiences coordinated and managed? What are the challenges?

A: TJNAF Laboratory management determines the level of and coordinates outreach activities under the requirements of the DOE contract and under broad guidance from DOE. This includes technology transfer, education activities, small business outreach, other stakeholders, etc.

3. What type of outreach is typical for the small business community?

A: DOE sets small business goals for the contractor in the contract. In the past the Lab has exceeded the Department's stated goals for small businesses.

4. Is there cost recovery associated with use of the residence facility?

A: It is owned and operated by SURA who makes it available to guests, visitors, users, and students associated with the laboratory and they are charged for lodging. Refer to Clause H.36, "Advance Understanding on Costs," of the existing contract for an understanding of current allowable costs.

5. How (does) the charge get through the cavity? (Electromagnetic oscillator through cavity frequency stable)

A: See web site: <http://education.jlab.org/sitetour/guidedtour05.html>

6. Leased space: Will there be less (illegible) ARC?

A: All space currently leased will be transferred with award of the new M&O contract.

7. Are any buildings LEED certified?

A: Some of the buildings would qualify for L.E.E.D. certification but none of them have gone through the L.E.E.D. certification process.

8. Is any work at the FEL classified?

A: No

9. What is (the) backlog of experiments in Hall B?

A: The current backlog of experiments is a little more than 4 years.

10. Is a backlog of experiments a good thing?

A: A user facility like TJNAF normally has a backlog of experiments that have been reviewed and approved by a Program Advisory Committee (PAC). A backlog of several years is considered typical and efficient for scheduling purposes. If the backlog becomes longer than this, then it can have a negative impact on the university researchers who are funded to execute their experiments and educate students. It can preclude some good experiments that would otherwise have been run and it can excessively delay the graduation of students.

11. How are experiments funded?

A: DOE provides funds for operating the accelerator and experimental support for setting up and running the experiments in the different halls, and equipment funds which can be used to fabricate experimental instrumentation. DOE, the National Science Foundation (NSF) and other countries also provide funds to university research groups to propose, build and run a suite of experiments that have been reviewed and approved by the PAC (see question 10.)

12. What will happen in Hall A with the 12 GeV upgrade?

A: The total scope of the 12 GeV upgrade project has not been defined yet. A key technical challenge is determining the optimal detector technologies to deploy. The outcome of that selection will determine what will happen in Hall A. For more information concerning technical information for the 12 GeV upgrade, including upgrades to the different halls, go to:
http://www.jlab.org/div_dept/physics_division/GeV/collaboration.html
This website links several pdf files pertaining to the pre-Conceptual Design Report (pCDR) for the upgrade project.

13. What do the research scientists do?

The research scientists consist of lab personnel and university personnel. These scientists devise, build and run the experiments at the laboratory. They design and build the detector equipment located in the various halls. They also analyze the experimental data and develop the theoretical interpretation of the experimental

results. Accelerator research scientists also continue to develop the accelerator technology required by ever more demanding experiments.

14. What is the process for getting, scheduling and managing requests to use TJNAF for research?

A: The laboratory management selects a Program Advisory Committee (PAC) consisting of internationally-respected scientists having expertise in the different areas of research relevant to the laboratory. Also, some of the committee members are from other countries. They evaluate every proposed experiment according to its scientific merit and feasibility of success in order to determine approval and priority for running. The PAC membership undergoes periodic rotation to insure that the process is independent and objective. See the following link for further information: http://www.jlab.org/exp_prog/PACpage/index.html.

15. Who is the present incumbent contactor?

A: Southeastern Universities Research Association (SURA)

16. What is the superconductor material for the RF cavity sections?

A: Niobium

17. Is there a list of orientation visit attendees?

A: Yes – it will be posted on web site

18. What small business component will be in the RFP?

A: Each offeror will be required to prepare a small business subcontracting plan as part of the proposal.

19. When will the draft RFP be issued?

A: In the next couple of months depending on the length of time taken for DOE internal review.

20. When will the actual (final) RFP be issued?

A: We are targeting for less than a month after receiving comments on the draft.

21. Given the interest in the accelerator community in the FEL, is there any expectation that DOE will support the FEL directly with DOE funds in the future?

A: Currently this facility is being supported by the Department of Defense (DOD) and there is no immediate plan for DOE to directly support the FEL.

22. What arrangements does DOE have with SURA for the use of the SURA Residence Facility and for the future use of other SURA property adjoining the DOE property?

A: There is no arrangement for use of the residence facility. Currently we are in the process of transferring approximately 10 acres of SURA property to DOE for use by the 12 GeV project.

23. Please explain the process the user group uses to set priorities for experiments.

A: The user group is a semi-formal organization of the non-laboratory scientists who use the facility. This group does not set experimental priorities. The Program Advisory Committee (PAC) sets priorities based on (see question 14 above for a discussion of how the PAC sets priorities).

24. What is the composition of this (user) group?

A: The user group consists of the non-laboratory scientists who are mostly university scientists who are conducting research at TJNAF.

25. Will you please provide both the original registration and the final attendance (for the site orientation)?

A: Both will be posted on this web site.

26. Will you provide the text (scripts) used by each tour guide?

A: All available DOE scripts are posted on this web site.

27. Will you make the orientation presentation available electronically?

A: It is posted on this web site.

28. Is the low conductivity water handled as controlled pure water once it leaves the radiation area?

A: The low conductivity water is circulated in a closed loop system with water added from the city water supply to replace the water lost through evaporation in the cooling towers (this water is not activated). Activated cooling water from the beam dump buildings is held in storage on site until activity levels fall below release standards. It is then released to the storm drainage system in accordance with an environmental permit with the Hampton Roads Sanitation District (HRSD).

29. Has an EA or EIS been completed for the accelerator expansion and Hall D? If not, will it be done under the new contract?

A: An Environmental Assessment Determination (EAD) is expected by March 2005. Completion of the Environmental Assessment (EA) is likely to occur after award of the new contract.

30. How will construction of Hall D be funded? Commonwealth of VA? Commonwealth of VA and DOE?

A: It will be funded as part of the 12 GeV upgrade project. The scope of the 12 GeV upgrade project, including Hall D has not been finalized. Funding is anticipated to come from the DOE, the NSF and international sources.

31. How many volumes does the ARC library hold?

A: The library has roughly 10,000 monograph books and 28,000 bound journals.

32. Is the CEBAF Center Addition design L.E.E.D. (energy efficiency criteria) certified/accredited?

A: The CEBAF Center Addition design has enough points for L.E.E.D. certification however we do not expect to go through the certification process.

33. Can you explain a little about the injection energy?

A: The electrons leave the photo-cathode and are accelerated to 100,000 electron volts (100 keV) in a very short distance. The beam is transported through a number of copper (normal, not superconducting) radio frequency (RF) cavities to “bunch” the electrons into individual beam packets. These cavities accelerate the electrons up to 500 keV in less than a meter. Then the electrons pass through the first superconducting RF cavities and are accelerated to 5 million electron volts (MeV). The final acceleration, before entering the North Linac, takes place as the electrons pass through the first two full cryomodules. The electron energy is taken from 5 MeV up to between 45 MeV and 67 MeV, depending on the machine setup.

34. Can you explain a little about the klystrons?

A: A klystron is essentially a small electron accelerator of its own which is used to produce high power radio frequency (RF) electromagnetic waves. An electron gun produces a flow of electrons which are bunched together and accelerated towards an output cavity. As the electrons pass by the output cavity, they excite microwaves (similar in frequency to your microwave oven at home) which exit the klystron at the output cavity. These waves then travel inside metal wave guides which transport the

waves to the accelerating cavities. The accelerated electrons inside the klystron are stopped in a beam stop once they pass the output cavity.

35. The Office of Nuclear Physics presentation at the Site Orientation Meeting described priorities for both the CEBAF Upgrade and RIA and outlined a specific sequential scientific progression from RHIC to CEBAF to RIA. The RIA procurement was recently cancelled, apparently due to lack of funding to proceed beyond CD-0. Is the CEBAF Upgrade similarly at risk and have the priorities for the physics program changed?

A: The FY2006 President's Budget Request includes R&D funding for the 12 GeV upgrade. The cancellation of the RIA procurement will not impact the ONP physics program priorities for TJNAF. The Nuclear Science Advisory Committee (NSAC) will soon be asked to evaluate the future nuclear physics research program in light of future budget constraints.