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Department of Energy

Oak Ridge Office of Chief Counsel

Post Office Box 2001
Oak Ridge, Tennessee 37831

July 27, 2022

VIA E-MAIL

FREEDOM OF INFORMATION ACT REQUEST ORO-2022-00890-F

This letter and the enclosures complete our response to your May 28, 2022, Freedom of Information Act (FOIA) request you submitted to the U.S. Department of Energy (DOE) Office of Science Consolidated Service Center (OSCSC) - Oak Ridge location for a copy of the "meeting minutes and meeting agenda for each meeting of the US ITER Project Advisory Board, between January 1, 2017 and the present."

In response to your request, enclosed are copies of the meeting minutes and agendas for the US ITER Project Advisory Board meetings held on August 15-16, 2017 and October 9-10, 2018. No meetings have been held by the US ITER Project Advisory Board since 2018.

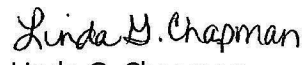
This decision, as well as the adequacy of the search, may be appealed within 90 calendar days from your receipt of this letter pursuant to 10 C.F.R. § 1004.8. Appeals should be addressed to: Director, Office of Hearings and Appeals, U.S. Department of Energy, L'Enfant Plaza, 1000 Independence Avenue, S.W., Washington, D.C. 20585-1615. The written appeal, including the envelope, must clearly indicate that a FOIA appeal is being made. You may also submit your appeal by e-mail to OHA.filings@hq.doe.gov, including the phrase "Freedom of Information Appeal" in the subject line (this is the method preferred by the Office of Hearings and Appeals). The appeal must contain all the elements required by 10 C.F.R. § 1004.8, including a copy of this determination letter. Thereafter, judicial review will be available to you in the Federal District Court either: (1) in the district where you reside; (2) where you have your principal place of business; (3) where DOE's records are situated; or (4) in the District of Columbia. You may contact the DOE Oak Ridge FOIA Public Liaison, Ms. DiAnn Fields-Gilbert at (865) 574-3612 or by writing to the address on the top of this letter for further assistance and to discuss any aspect of your request. Additionally, you may contact the Office of Government Information Services (OGIS) at the National Archives and Records Administration to inquire about the FOIA mediation services they offer. The contact information for OGIS is as follows: Office of Government Information Services, National Archives and Records Administration, 8601 Adelphi Road-OGIS, College Park, Maryland 20740-6001; e-mail at ogis@nara.gov; telephone at (202) 741-5770 or toll free at 1 (877) 684-6448; or facsimile at (202) 741-5769.

July 27, 2022

FREEDOM OF INFORMATION ACT REQUEST ORO-2022-00890-F

If you have any questions about the processing of your request or this letter, you may contact me by telephone at (865) 576-2129, by e-mail at Linda.Chapman@Science.Doe.Gov, or by writing to the address on the top of this letter. I appreciate the opportunity to assist you with this matter. There is no charge for processing this request.

Sincerely,


Linda G. Chapman
Authorizing Official

Enclosures

August 21, 2017

Dr. Thomas Zacharia, Director
Oak Ridge National Laboratory
P. O. Box 2008
Oak Ridge, TN 37831-6255

Dear Dr. Zacharia:

Report of the US ITER Project Advisory Board Meeting, August 15-16, 2017

The US ITER Project Advisory Board (PAB) met in Oak Ridge, Tennessee, on August 15-16, 2017. Prior to the meeting, the Board was given three charges to address during the review and in this report. The charges are addressed below. First, there are several general comments that the PAB has summarized.

The US ITER Project Office (USIPO) manages the United States' contribution to the International ITER Project. Their scope includes project management, development, design, and manufacturing tasks. The US project baseline was approved early in calendar year 2017 and it included annual cost and schedule projections that supported the International ITER Project. However, the appropriated FY17 budget was \$50 million vs. the baseline of \$100 million and the President's Budget Request for FY18 was \$63 million vs. the \$122 million baseline. As a consequence, the USIPO has spent considerable time and effort planning for the reduced budget in addition to continuing their project work to meet commitments and milestones. The PAB commends the USIPO for what has continued to be excellent performance both in modifying the project within the changed budget constraints and continuing to meet USIPO milestones.

The PAB recommends that the USIPO and UT-Battelle continue their strong efforts to find a suitable path forward to maintain the US ITER Team's core competencies and continue as a participant in the International ITER Project. This is critically important both from a scientific point of view in studying burning plasmas in the ITER device and politically in demonstrating the reliability of the US as an international partner.

Although there have been numerous projections as to what the US ITER budget will be in FY18 and beyond, the uncertainty continues and there is a chance that highly constrained annual budgets may persist several years into the future. As a result of this uncertainty, several budget cases have been analyzed ranging from (1) funding that would allow a return toward the baseline, to (2) a dramatically lower budget case. In the lower case, the PAB recommends that one critical component (Central Solenoid (CS) Magnet System) be selected as the key deliverable and fully funded rather than continuing progress on numerous deliverables that all would be advanced but at a greatly reduced rate, i.e., with a prohibitive impact on schedule. This "critical component" scenario will require considerable negotiation with the ITER Organization (IO) and partners to determine how the rest of the US scope will be handled. Nonetheless, in the severely constrained budget case, it is the PAB's judgement that this is the preferred path forward.

An additional area that is discussed further below is the support of ITER within the new Administration. ITER has suffered in the past from the lack of an ITER champion. Now, particularly at a time when science budgets are constrained and projects are competing for available funds, it is critically important that the ITER Project has advocates throughout the relevant government agencies, Congress, and the Administration in general. Actions should be taken now to identify and put in place champions. There is further discussion below that suggests actions that the PAB believes can be taken to improve this situation.

The remainder of this letter addresses the PAB Charges directly.

Charge 1: Is the USIPO making suitable hardware progress, including risk management and baselining activities?

Yes, the USIPO showed data that demonstrated the progress against the new FY17 budget in SP-1 hardware needed for First-Plasma and SP-2 Post-First-Plasma hardware. The overall progress for SP-1 shows a 49% complete and one (of 12) system completed (TF conductor) in FY17 and another (Steady State Electrical Network) scheduled to be completed in FY17. The critical CS magnet modules, including the structures and assembly tooling, has an earned value of 64% and the Tokamak Cooling Water System has an earned value of 50%. These four elements comprise about 25% of the SP-1 project.

The USIPO has identified risks for all the major systems and has put mitigation plans in place to address them.

Charge 2: Is the USIPO taking appropriate actions considering the recently constrained FY17 budget and the uncertainties in the budgets for FY18 and beyond?

Yes. The USIPO has developed plans and is taking action to implement the very constrained FY17 budget as well as a possible range of future budgets from continued very constrained yearly budgets to possibly increased future annual budgets which would allow the project to proceed with the baseline budgets and schedules. These plans comprise the following:

- Enable completion of the most critical component (CS Magnet System) in time to support the present IO schedule, or alternatively determine the impact on that schedule, if budgets are even lower than anticipated.
- Suspend different portions of work, depending on the actual budget and priorities jointly established with the IO.
- Reduce staff in correspondence with such budgets and priorities. If reductions occur, examine other fusion energy activities where these skills could be utilized. These plans attempt to retain the critical skills required to restart any suspended or delayed ITER activities if budgets are restored to higher levels.
- Transition the remaining US work to other parties, if the US were to exit ITER.

The most likely scenario is flat and low budgets for several more years. As a result, the USIPO should focus on what few parts of its scope that it can deliver, e.g., central solenoid, to minimize UT-Battelle's risk. This allows USIPO to make real progress, under difficult budget times, while waiting for better times. This list should be based on progress to date, critical path activities, core competencies that will persist at ORNL, etc. USIPO should think about what parts of its scope of work could be transferred to other members and have them ready in case the reduced funding persists.

Based on these considerations, the USIPO is making plans for several funding scenarios. The PAB recommends that these include:

- Currently projected funding this year and next (\$50M, \$50M) followed by recovery in FY19. This should include a realistic estimate of how fast the effort could be ramped up after two years of low funding.
- Flat funding around \$50M/year for the foreseeable future, in which effort is concentrated on achieving one (or more) significant deliverable, e.g., the CS Magnet System. Achieving full completion of the CS as currently planned could be in conflict with the goal of maintaining core competencies, but the PAB recommends putting priority in this scenario on successful completion of a major deliverable.
- More effort is required to define what constitutes the minimum core competency and the associated budgets to maintain it.
- Scenarios in which the USIPO scope is reduced, including shutdown. In this case the USIPO should work actively with the IO to make an orderly transfer of responsibility to other Domestic Agencies and position itself to be able to continue to provide support to ITER to the extent possible.

Charge 3: What actions can the USIPO and UT-Battelle take to

(a) increase the Administration's and Congress's confidence in ITER and garner US commitment to ITER, and

(b) mitigate UT-Battelle's risks?

ITER still lacks a strong and well-placed advocate ("champion") within the United States Government. UT-Battelle should actively help to find such a champion for ITER and fusion in general. The opening for a new head of the FES office (FES-1) presents an opportunity to find a leader with real vision for fusion research and ITER's important role therein. UT-Battelle should work actively to help identify an appropriate leader for this position. In addition, the new DOE Under Secretary for Science (S-4) is looking for a science advisor in this office, which is another opportunity to build support for ITER.

USIPO should support the ITER Director General (DG) in his efforts with the other ITER partners to identify the path forward that is in the best interest of the project.

In addition, UT-Battelle can help communicate the IO's progress to Congress and the Administration. The DG needs a few more years to fully demonstrate that ITER is a well-managed international project. In the meantime, clearly communicating that there is continuous

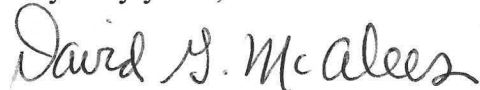
progress in turning ITER into a successful project can build support in the US for staying the course.

UT-Battelle should help facilitate getting much more community support for ITER, but also for a more coherent and consensus plan for fusion research. This is lacking and hurts ITER's chance of survival. The successful process within high-energy physics demonstrates that such community building resulting in a consensus plan can substantially strengthen the support for the corresponding office within the DOE Office of Science. This requires strong leadership from the top (FES-1), but also work at all levels from the "grass roots" up. UT-Battelle and the USIPO should work to facilitate such a process.

So long as the USIPO continues to perform well the PAB sees no particular risks for UT-Battelle.

Finally, the PAB thanks the USIPO management and staff for their preparation of material, presentations, and discussions that supported an efficient and productive meeting. Also, the PAB members appreciate the logistical support afforded us for our visit to Oak Ridge. As always, we appreciate your time.

Very truly yours,

A handwritten signature in dark ink, reading "David G. McAlees". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

David G. McAlees, Chairman

On behalf of the PAB

PAB Members in Attendance:

Charles C. Baker

Robert C. Iotti

Milton D. Johnson

William J. Madia

David G. McAlees

James B. Strait

J. R. Thompson

US ITER Project Advisory Board
1055COM, Room C14
August 15-16, 2017
Agenda



Tuesday, August 15		
7:45 – 8:15 a.m. (30 minutes)	PAB Executive Session (closed session) <i>(Breakfast items available)</i>	PAB members only
8:15 – 8:35 a.m. (20 minutes)	Welcome and Introduction	Thomas Zacharia
8:35 – 8:45 a.m. (10 minutes)	Agenda Review	Ned Sauthoff
8:45 – 9:30 a.m. (45 minutes)	Project Performance and Planning	Suzanne Herron
9:30 – 10:15 a.m. (45 minutes)	Non-nuclear Systems	Graeme Murdoch
10:15 – 10:30 a.m. (15 minutes)	Break	
10:30 – 11:15 a.m. (45 minutes)	Nuclear Systems	Brad Nelson
11:15 a.m. – 12:15 p.m. (1 hour)	Working Lunch Continue discussions of Non-nuclear Systems	
12:15 – 1:45 p.m. (90 minutes)	Situation Synthesis	Ned Sauthoff
1:45 – 2:00 p.m. (15 minutes)	Break	
2:00 – 4:00 p.m. (2 hours)	Discussion	All
4:00 – 5:30 pm (90 minutes)	PAB Executive Session (closed session)	PAB members only
5:30 – 6:00 p.m. (30 minutes)	Networking session	Invitees
6:00 p.m.	Working Dinner Continued discussions from afternoon session	Invitees

US ITER Project Advisory Board
1055COM, Room C14
August 15-16, 2017
Agenda



Wednesday, August 16		
8:30 – 11:00 a.m. (2 hours, 30 minutes)	PAB Executive Session (closed session) <i>(Breakfast items available)</i>	PAB members only
11:00 a.m. – 12:00 p.m. (1 hour)	Working Lunch Discussion of questions from PAB Committee Executive Session	Invitees
12:00 – 1:00 p.m. (1 hour)	Committee Out-brief	Invitees
1:00 p.m.	Adjourn	

October 16, 2018

Dr. Thomas Zacharia, Director
Oak Ridge National Laboratory
P. O. Box 2008
Oak Ridge, TN 37831-6255

Dear Dr. Zacharia:

Report of the US ITER Project Advisory Board Meeting, October 9-10, 2018

The US ITER Project Advisory Board (PAB) met in Oak Ridge, Tennessee, on October 9-10, 2018. Prior to the meeting, the Board was given two charges to address during the review and in this report. The charges are addressed in the narrative that follows. Additionally, there are other areas that the PAB believes are critical to the continuing success of the US ITER Project Office (USIPO) and the International ITER Project. These too are addressed in the paragraphs that follow.

This summary paragraph is meant to provide the PAB's overall perspective on the US ITER Project and provide a context for the rest of this letter. The USIPO's performance has been excellent given the changes, uncertainties, and operating environment they have faced over the last few years. Baseline budget and schedule issues and associated uncertainties have made it necessary for USIPO to redefine priorities, manage within severely reduced budgets, and endure staff reductions of over 50%. The US ITER Project is not sustainable on its current path; a return toward the hardware baseline budget approved in FY17 is required. Without such return, the US ITER Project could become the critical path for the International ITER Project within 2-to-3 years. To avoid this trend, increased efforts are needed to (1) find a supporting advocate or champion in the US Government, (2) fill senior USIPO staff positions that remain vacant, and (3) increase ORNL and UT-Battelle management support for the Project within the US Government and the fusion community. The spirit of the PAB recommendations that follow is not to criticize efforts that have been underway, but to recognize that the Project is not sustainable on its current path and increased efforts are needed now.

Background. The USIPO manages the United States' contribution to the International ITER Project. Their scope includes project management, development, design, and manufacturing tasks. The US Project baseline was approved early in calendar year 2017 and it includes annual cost and schedule projections that support the International ITER Project up to First Plasma (SP-1). However, the appropriated FY17 budget was \$50 million vs. the baseline of \$100 million and the FY18 budget was \$122 million, which matched the baseline, but the funds came part way through the year making managing FY18 difficult. The FY19 appropriation is \$132 million, which includes a \$15 million cash contribution to the International ITER Office (IO). The remaining \$117 million for hardware is \$46 million below the \$163 million FY19 baseline. Therefore, through FY19 there is a \$96 million shortfall for hardware. This shortfall and associated uncertainties in the Project's future have resulted in a 53% staff reduction. The USIPO performance has been recognized as excellent and the PAB agrees with that evaluation.

The USIPO has been effective in modifying and managing the Project within the changed budget constraints, staff reductions, and uncertainties and continued to meet their milestones with a high-quality work product. However, this performance cannot be sustained without a return to the baseline budget and staffing plan.

Project Priorities. The PAB endorses the basic approach of the USIPO to:

- maximize visible near-term US hardware progress while retaining core competencies.
- continue to rebuild the USIPO team as necessary to support the hardware deliveries.

USIPO Staff Impact. It is essential that the USIPO staff be rebuilt. The first priority is to fill the recently vacated senior leadership positions, in particular but not limited to the Technical Division Director. Without sufficient high-quality staff, it will not be possible to continue to move forward successfully. Although ORNL has taken measures to support USIPO in attempting to retain staff and to recruit replacements, to date these measures have not been successful. Therefore, ORNL, as the host laboratory of this highly visible and important project, needs to do more.

ITER Advocacy. The PAB recommends that the USIPO and ORNL continue their strong efforts to find a suitable path forward to stabilize the US ITER Team's core competencies and continue as a participant in the International ITER Project. This is critically important both from a scientific point of view in studying burning plasmas in the ITER device and politically in demonstrating the reliability of the US as an international partner.

ITER still lacks a strong and well-placed advocate ("champion") within the United States Government. UT-Battelle and ORNL should increase their efforts to find such a champion for ITER. The DOE Program needs a leader with real vision for fusion research and ITER's important role therein. In addition, ORNL should engage with the President's new science advisor as soon as possible and encourage him to be a part of building support for ITER.

In response to the charges, the PAB recommends that:

- The USIPO Director, ORNL and PPPL laboratory directors, General Atomic and other interested parties meet to identify viable candidates for the head of DOE's Office of Fusion Energy Sciences.
- The ORNL Laboratory Director should continue to articulate his and UT-Battelle's priority for ITER and the USIPO.
- ORNL management should do whatever it takes to fill the key USIPO leadership position that is still open.
- USIPO management should encourage the ITER Director General (DG) to come to the US, after the President's Budget Request is released, to brief Congress and DOE on ITER progress and to make the case for baseline funding for the USIPO.

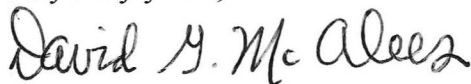
- At the same time ORNL should encourage the DG to extend his contract for an additional 2-3 year term.

ITER's Future Budgeting Process. There has been some discussion whether the US ITER Project should be treated as a Project or a Program. Since the US is a key participant in the International ITER Project, the PAB recommends that the USIPO should continue planning based on the current baseline (approved January 2017). It is important that the IO and Domestic Agencies be aware of changes to US ITER contributions so they can be factored into the International ITER Project cost and schedule.

The PAB believes that any DOE attempt to treat the US ITER Project like a program with three-year funding instead of a project with a defined funding baseline would cause the Project to lose credibility with the ITER IO and the community and lead to lower budgets for the DOE's Fusion Energy Office. In addition, it would break the International Agreement covering ITER with possible long-term implications for future international cooperation.

Finally, the PAB thanks the USIPO management and staff for their preparation of material, presentations, and discussions that supported an efficient and productive meeting. Also, the PAB members appreciate the logistical support afforded us for our visit to Oak Ridge. As always, we appreciate your time.

Very truly yours,



David G. McAlees, Chairman
On behalf of the PAB

PAB Members in Attendance:

Charles C. Baker
Robert C. Iotti
Milton D. Johnson
William J. Madia
David G. McAlees
James B. Strait

c: Dr. Michelle Buchanan, ORNL, Deputy for Science and Technology

US ITER Project Advisory Board
1055COM, Room C14
October 9-10, 2018
Agenda



Tuesday, October 9		
8:00 – 8:30 a.m. (30 minutes)	PAB Executive Session (closed session) <i>(Breakfast items available)</i>	PAB members only
8:30 – 8:45 a.m. (15 minutes)	Welcome and Introduction <i>(Breakfast items available)</i>	Michelle Buchanan
8:45 – 9:45 a.m. (60 minutes)	Situation Summary	Ned Sauthoff
9:45 – 10:00 a.m. (15 minutes)	Situation Summary Discussion	
10:00 – 10:45 a.m. (45 minutes)	U.S. Project Management Overview	Suzanne Herron
10:45 – 11:00 a.m. (15 minutes)	U.S. Project Management Overview Discussion	
11:00 a.m. – 12:30 p.m. (90 minutes)	U.S. Project Situation and Path Forward Guided Discussion	Ned Sauthoff
12:30 – 1:00 p.m. (30 minutes)	Working Lunch Continue discussion of U.S. Project Situation and Path Forward	
1:00 – 1:30 p.m. (30 minutes)	Discussion with the Federal Project Director	Bill Cahill
1:30 – 5:00 p.m. (3 hours, 30 minutes)	PAB Executive Session (closed session) <i>(refreshments available)</i>	PAB members only
5:00 – 5:30 p.m. (30 minutes)	Meeting with the Deputy for Science and Technology	Michelle Buchanan
5:30 – 6:00 p.m. (30 minutes)	Networking session	Invitees
6:00 – 7:30 p.m.	Working Dinner Continued discussions of the U.S. Project Situation and Path Forward	Invitees

US ITER Project Advisory Board
1055COM, Room C14
October 9-10, 2018
Agenda



Wednesday, October 10		
8:00 – 11:00 a.m. (3 hours)	PAB Executive Session (closed session) <i>(Breakfast items available)</i>	PAB members only
11:00 a.m. – 12:00 p.m. (1 hour)	Committee Debrief	Invitees
12:00 – 1:00 p.m. (1 hour)	Working Lunch Discussion of future PAB Committee meeting items	Invitees
1:00 p.m.	Adjourn	

Project Advisory Board members:

David McAlees, Chairman

Charlie Baker, Member

Bob Iotti, Member

Milt Johnson, Member

Bill Madia, Member

Jim Strait, Member

UT-Battelle:

Thomas Zacharia, ORNL Laboratory Director

Michelle Buchanan, ORNL Deputy for Science and Technology

Ned Sauthoff, US ITER Project Manager

Suzanne Herron, US ITER Deputy Project Manager

Frank Casella, US ITER Quality and ES&H Manager

DOE:

Bill Cahill, US ITER Federal Project Director

David Myers, DOE Oak Ridge Site Office