

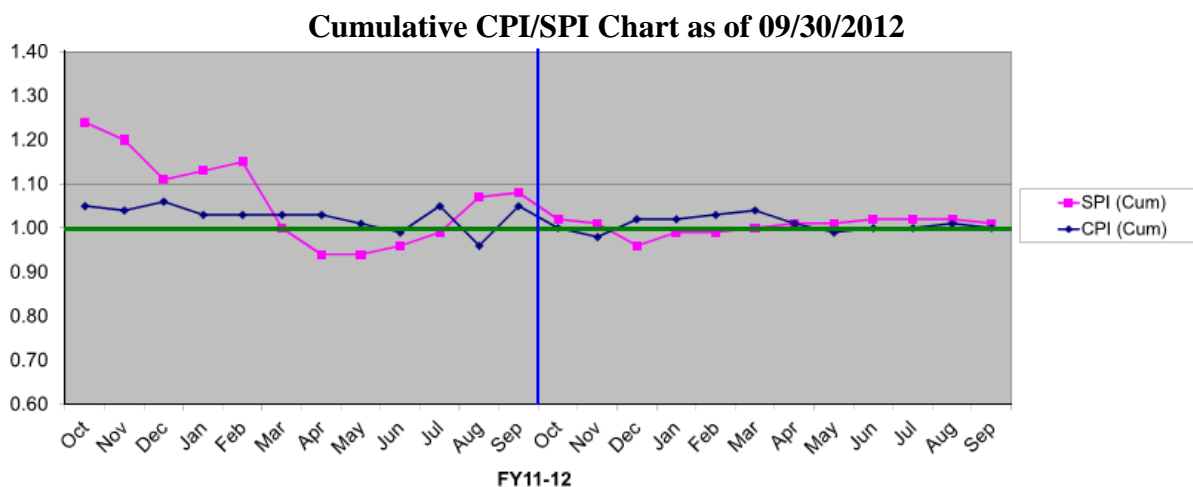
OPA (SC-28) Mini-Review Report

Department of Energy/Office of Science Review of the Technology and Engineering Development Facility (TEDF) Project

REVIEW DATE: October 23, 2012
LOCATION OF PROJECT: TJNAF
PROGRAM MANAGER: Chris Ackerman
FEDERAL PROJECT DIRECTOR: Rick Korynta
ACQUISITION EXECUTIVE: Marc Jones
CURRENT CRITICAL DECISION: CD-4a
COMMITTEE: 5 committee members / 4 observers

PROJECT STATUS as of 9/30/12		
Project Type	Line Item	
CD-1	Planned: 4Q08	Actual: 09/08
CD-2	Planned: 1Q10	Actual: 11/09
CD-3A (Sitework/Early Procurement)	Baseline: 2Q10	Actual: 03/10
CD-3B (General Construction)	Baseline: 4Q10	Actual: 08/10
CD-4A (New Construction)	Baseline: 2Q12	Actual: 03/12
CD-4B (TL Renovation)	Baseline: 2Q14	Forecast: 10/13
TPC Percent Complete	Planned: 87.8%	Actual: 88.8%
TPC Cost to Date	\$63,435M	
TPC Committed to Date	\$70.943M	
TPC	\$73.1M	
TEC	\$72.1M	
Contingency Cost (w/Mgmt Reserve)	\$1.996M	25.9% to go
Contingency Schedule on CD-4b	7 months*	58% to go
CPI Cumulative	1.00	
SPI Cumulative	1.01	

**Note: Includes two-month buffer in Test Lab Renovation Schedule*



Cumulative
BCWS: \$62,453

Cumulative
BCWP: \$63,153

Cumulative
ACWP: \$63,435

	FY08	FY09	FY10	FY11	FY12	Total
DOE	\$300	\$4,400	\$27,687	\$28,419	\$12,337	\$73,143

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SUMMARY

A Department of Energy (DOE)/Office of Science (SC) independent project review of the Technology and Engineering Development Facility (TEDF) project was chaired by Ray Won. The purpose of the review was to review all aspects of the project to assess overall progress and readiness for successful completion. **Overall performance is considered to be on-track. The project is nearly complete and prepared to construct and renovate more space than required, within budget and ahead of the Critical Decision (CD) 4b schedule. Unknown facility conditions continue to be managed as project risks.**

1. TECHNICAL

Technical performance is on-track. CD-4a was approved on March 22, 2012 for 78% of the project's construction scope and current progress is at 90%. Production equipment is installed in the new Test Lab Addition, and assembly of the final 12 GeV cryomodule is in process. Test Lab demolition is nearing completion, and a complex renovation phase is beginning. The final design and approved changes for renovation are sound for known conditions and consistent with approved performance requirements. Cumulative errors and omissions are low at 1% of construction cost, and the project is prepared to deliver about 35% more constructed/and renovated space than required to meet the minimum Key Performance Parameter. The project has responded to recommendations from prior reviews. Remaining risks include: unreliable as-built drawings and hidden conditions. All major utility systems will be exposed during demolition and are included in the renovation scope of work.

Recommendation: None

2. ENVIRONMENT, SAFETY AND HEALTH

The project team responded appropriately to recommendations from prior reviews, and the three recommendations were addressed prior to the CD-4a in March 2012. The project team is properly addressing environment, safety and health (ES&H) aspects and following Integrated Safety Management (ISM) principles, but implementation has been slow. As a consequence, ISM implementation has not been as effective as it should have been.

The ES&H reviews for CD-2 and CD-3 established that ISM Systems were in place for the project during 2009-2010. TJNAF had assigned subject matter experts for 0.75 Full Time Equivalents per year, who were properly engaged in design review and oversight activities. However during FY 2012, there were several ES&H events, including striking gas and electrical lines. There were also three recurring silica exposure events across several months where the General Contractor (GC) was slow to develop a silica management plan and implement corrective actions to protect personnel at the construction site.

The major ES&H comment by the Committee is that ISMS implementation needs to improve its effectiveness and become more consistent. Safety improvements to the ISM System should begin more quickly. Such improvements should be possible within the existing schedule. The next review should assess whether the ISM System has improved in its effectiveness and consistency.

Recommendation: None

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3. COST, SCHEDULE, and FUNDING

Cost, schedule, and project controls performance is satisfactory with CPI and SPI values of 1.0 and 1.01, respectively. The TEDF project is approximately 90% complete at this time. The remaining scopes of work include the Test Lab Renovation (approximately 51% complete) and Test Lab Renovation Furniture and Equipment (approximately 9% complete). The total value of the “to-go” construction work is \$8.02M. To date, the Test Lab Renovation work has proceeded slightly ahead of schedule. Cost and Schedule contingency (\$1.932M, approximately 7 months) appears adequate to address the remaining risks.

The project team adopted the GC (Mortenson) critical path construction schedule to track the to-go work. The project team has also developed a list of upcoming activities for tracking the status of the Test Lab Renovation work. Progress on these activities is part of the weekly walk-through assessment. Presently, the Test Lab Bulk Demolition is complete (Milestone 1). The status tracking activities are unrelated to the Mortenson critical path construction schedule and are developed separately to provide management with a tool to gauge progress toward CD-4b, currently forecast to be complete by October 2013, five months ahead of the Level 1 CD-4b milestone of March 2014. The TEDF project team continues to use a third-party independent schedule consultant to evaluate critical path and near critical path activities.

The development of an upcoming activities list to provide management with a tool to gauge progress toward CD-4b appears appropriate given the current level of project completion (approximately 90%). The Committee suggests that the list continue to be refined and updated as the project proceeds to CD-4b to ensure the status of the most significant, i.e., most technically challenging and/or highest risk (shear wall construction, silica cleanup), activities are tracked and reported on a monthly basis. The TEDF project team is updating the project risk registry monthly. Facility commissioning and transition to operations risks are subject to change as the project progresses. Monthly evaluation of these and remaining risks are necessary to accurately forecast contingency requirements.

Recommendation: None

4. MANAGEMENT

Management performance is acceptable for this phase of the project. An Integrated Project Team (IPT) is in place and staffed at the appropriate level. The IPT developed a transition to operations plan, with quantifiable milestones established to track progress. The TJNAF Management Team has taken several proactive steps to ensure that the remaining scope of the project can be delivered on cost and schedule. Specifically, the TJNAF Management Team recently assigned a TEDF Safety Manager who will be directly responsible for supporting the safety performance of the renovation efforts in the Test Laboratory. Additional support has also been provided to the TEDF Project Director, with the assignment of a technical representative to review upcoming renovation work to insure it is adequately de-conflicted with programmatic requirements (such as 12 GeV and SRF cryomodule testing). Finally, the General Contractor (Mortenson) also replaced their GC Project Manager to provide a new, focused approach to the complex renovation efforts. The project has the full support of the TJNAF Management and the Thomas Jefferson Site Office.

Recommendation: None

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APPENDIX A: CHARGE LETTER



Department of Energy
Office of Science
Washington, DC 20585

AUG 14 2012

MEMORANDUM FOR DANIEL R. LEHMAN
DIRECTOR
OFFICE OF PROJECT ASSESSMENT

FROM: MARCUS E. JONES 
ASSOCIATE DIRECTOR OF SCIENCE FOR
SAFETY, SECURITY AND INFRASTRUCTURE

SUBJECT: Annual Peer Review of the Technology and Engineering
Development Facility (TEDF) Project at Thomas Jefferson
National Accelerator Facility (TJNAF)

I request that you organize an Annual Peer Review of the Technology and Engineering Development Facility (TEDF) not later than October 31, 2012. The purpose is to review the technical, cost, schedule, management, and environmental, safety and health aspects of the project to assess overall progress and readiness for successful completion.

As you know, the TEDF project was granted approval of CD-0 on September 18, 2007, CD-1 on September 28, 2008, and CD-2 on November 12, 2009. In an effort to expedite the construction schedule, CD-3, Approve Start of Construction, was divided into two phases. The first phase (CD-3a) included early construction and long lead procurement of site work, and the second phase (CD-3b) included general construction for new and renovated space. The project received approval for CD-3a on March 26, 2010, and CD-3b on August 4, 2010. The project achieved CD-4a, Approve Start of Operation – New Construction, on March 22, 2012, and is forecasted to achieve CD-4b, Approve Start of Operation – Renovation, in October 2013.

In carrying out its charge, the peer review committee is requested to consider the following questions:

1. Technical: Are the final design and approved changes technically sound and consistent with the approved performance requirements? Are plans in place for resolving technical issues to meet CD-4b, Approve Start of Operation – Renovation?
2. Cost, Schedule, Risk, and Contingency: Are resources adequate to complete the project within the approved cost and schedule performance baseline? Is there adequate cost and schedule contingency to address the remaining risks?
3. Environment, Safety and Health (ES&H): Are ES&H aspects being properly addressed? Are Integrated Safety Management principles being followed?



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4. Management: Is the project properly organized, staffed, and managed for successful execution? Are plans being developed for the transition to operations following project completion?
5. Prior Reviews: Has the project responded appropriately to recommendations from prior reviews?

Chris Ackerman will serve as the Office of Safety, Security and Infrastructure point of contact for this review. If you have any questions, please call Chris Ackerman at 301-903-0557. I would appreciate receiving your office's report within 60 days of the conclusion of the review.

cc:

R. Won, SC-28
J. Arango, TJSO
R. Korynta, TJSO
R. Sprouse, TJNAF
J. McBrearty, SC-3
G. Fox, SC-31
C. Ackerman, SC-31

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APPENDIX B: REVIEW COMMITTEE

DOE/SC Review of the Technology and Engineering Development Facility (TEDF) Project October 23, 2012

REVIEW COMMITTEE PARTICIPANTS

Department of Energy

Ray Won, DOE/SC, Chairperson

Review Committee

SC-1 Technical

Ray Won, DOE/SC, Chairperson

SC-2 ES&H

Jay Larson, DOE/SC

SC-3 Cost and Schedule

Gary Bloom, ORNL

Ethan Merrill, DOE/SC

SC-4 Management

Tony Indelicato, DOE/PSO

Observers

Gordon Fox, DOE/SC

Chris Ackerman, DOE/SC

Tim Maier, DOE/SC (on detail assignment from BHSO)

Rick Korynta, DOE/TJSO

Tim Maier, DOE/SC

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APPENDIX C: AGENDA

DOE/SC Review of the Technology and Engineering Development Facility (TEDF) Project October 23, 2012

AGENDA

Tuesday, October 23, 2012—VARC Building, Conference Room 53

8:00 am	DOE Executive Session	R. Won
	Review Charge.....	C. Ackerman
	Federal Project Director Perspective	R. Korynta
8:20 am	TJNAF Welcome	M. Dallas
8:30 am	Project Overview and Management.....	R. Sprouse
9:00 am	Technical Status	K. Royston
9:30 am	Break	
9:45 am	Cost and Schedule Performance	K. Royston
10:15 am	Environment, Safety and Health	M. Logue
10:45 am	Project Tour	All
12:00 pm	Lunch in CEBAF Cafeteria	
1:00 pm	Committee Breakout Session 1	A. Indelicato, G. Bloom, J. Larson
1:45 pm	Executive Session	DOE/Committee
2:15 pm	Committee Breakout Session 2.....	A. Indelicato, G. Bloom, J. Larson
2:45 pm	Executive Session	DOE/Committee
3:00 pm	Closeout Writing	DOE/Committee
3:00 pm	Dry Run #1.....	DOE/Committee
4:00 pm	Dry Run #2.....	DOE/Committee
4:30 pm	Closeout Presentation.....	All
5:00 pm	Adjourn	

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APPENDIX D: COST SUMMARY

TEDF Cost Summary by WBS (\$K) September 2012

WBS	Description	Base Line Total
1.1	Project Planning	\$ 1,000
1.1.1	Conceptual Planning	\$ 886
1.1.2	Planning	\$ 114
1.2	Engineering and Design	\$ 3,646
1.2.01	Design Services	\$ 2,975
1.2.02	Pre-Construction Services	\$ 525
1.2.03	Pre-Construction Project Management	\$ 146
1.3	Construction	\$ 66,680
1.3.1	Conventional Facilities Construction	\$ 60,322
1.3.1.1	Civil/Site and Early Procurements	\$ 10,806
1.3.1.2	TED Building Construction	\$ 18,073
1.3.1.3	TL Building Construction	\$ 18,438
1.3.1.4	TL Renovation	\$ 13,005
1.3.2	Furnished Furniture/Equipment	\$ 2,485
1.3.2.1	TED Furniture/Equipment	\$ 1,289
1.3.2.2	TL Furniture/Equipment	\$ 530
1.3.2.3	TL Ren Furniture/Equipment	\$ 693
1.3.3	Construction Management Services	\$ 2,777
1.3.3.1	Construction Management	\$ 1,157
1.3.3.2	Commissioning	\$ 305
1.3.3.3	A/E Support	\$ 1,315
1.3.4	Project Management	\$ 1,096
	TEC Subtotal	\$ 70,326
	PED Contingency	\$ 54
	Construction Contingency (23%)	\$ 1,764
	TEC Contingency (20.9%)	\$ 1,818
	Total TEC	\$ 72,143
	Other Project Costs	\$ 1,000
	Total Project Costs (\$K)	\$ 73,143

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APPENDIX E: KEY MILESTONES

TEDF Current Key Milestones

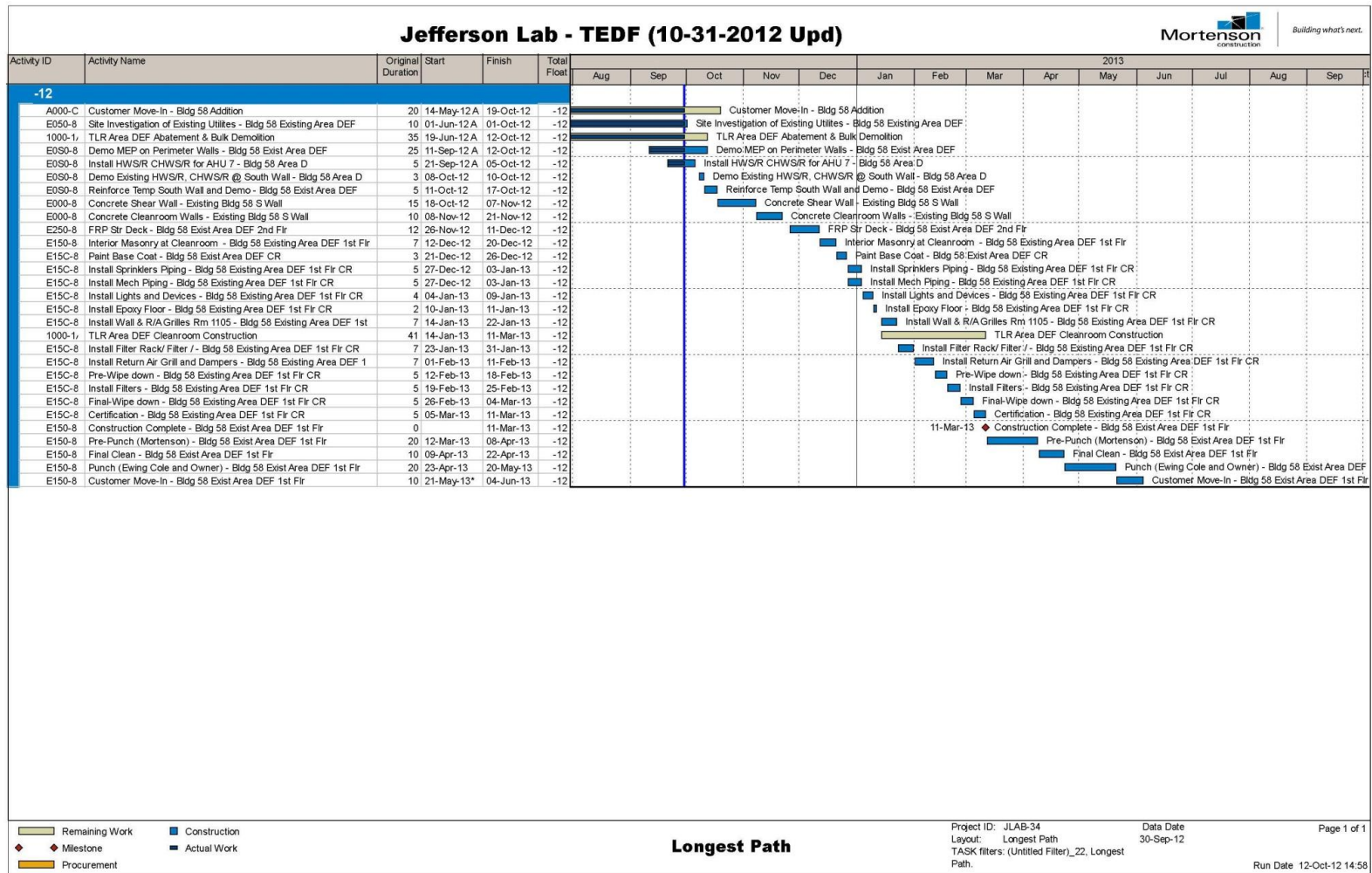
Level	Milestone Description	Date
1	CD-0, Approve Mission Need	9/18/2007 (actual)
1	CD-1, Approve Alternate Selection and Cost Range	9/23/2008 (actual)
3	Award Design A/E Subcontract	9/08/2008 (actual)
3	Preliminary Design Notice to Proceed (NTP)	4/15/2009 (actual)
2	National Environmental Policy Act (NEPA) Document Approved	05/29/2009 (actual)
2	DOE Approve CM/GC Solicitation	06/26/2009 (actual)
2	DOE Approve CM/GC Subcontract	10/16/2009 (actual)
3	Award CM/GC Subcontract	10/29/2009 (actual)
1	CD-2, Approve Performance Baseline	11/12/2009 (actual)
3	100% Early Procurement Package (EPP) Design Submission	1/8/2010 (actual)
3	100% EPP Design Complete	1/20/2010 (actual)
2	Complete Early Procurement Package Design	2/12/2010 (actual)
3	CM/GC – Start EPP Bid & Evaluate	2/13/2010 (actual)
3	100% Design Submission	3/5/2010 (actual)
3	Start TEDF Final Design Effort	04/01/2010 (actual)
1	CD-3a, Approve Start of Early Procurement Package	3/26/2010 (actual)
2	Start Early Procurement Package Construction	04/16/2010 (actual)
3	Site Clearing & Grading	5/28/2010 (actual)
2	Complete Final Design	6/1/2010 (actual)
1	CD-3b, Approve Start of General Construction	8/4/2010 (actual)
2	Start New Construction	8/4/2010 (actual)
3	TED Startup & System Checkout	4/30/2012 (actual)
3	TL Addition Startup & System Checkout	6/29/2012 (actual)
2	New Construction Beneficial Occupancy	3/16/2012 (actual)
2	Start Renovation Construction	9/15/2011 (actual)
2	Approve Start of Operation – New Construction	3/16/2012 (actual)
1	CD-4a, Approve Start of Operation - New Construction	3/24/2012 (actual)
3	TL Ren Startup & System Checkout	June 2012
2	Building Renovation Complete	July 2012
1	CD-4b, Approve Start of Operation – Renovation	March 2014

APPENDIX F: TEDF SCHEDULES

Activity Name	Start Date	Finish Date	FY 08				FY 09				FY 10				FY 11				FY 12				FY 13				FY 14			
			4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3
Critical Decisions	9/18/07	9/18/07																												
	9/23/08	9/23/08																												
	11/12/09	11/12/09																												
	3/26/10	3/26/10																												
	8/4/10	8/4/10																												
	3/30/12	3/30/12																												
	3/31/14	3/31/14																												
Level 2 Milestones																														
National Environmental Policy Act (NEPA) Document Approved	5/29/09	5/29/09																												
DOE Approve CM/GC Solicitation	6/26/09	6/26/09																												
DOE Approve CM/GC Contract	10/29/09	10/29/09																												
Complete Early Procurement Package Design	2/12/10	2/12/10																												
Start EPP Construction	4/16/10	4/16/10																												
Complete Final Design	6/1/10	6/1/10																												
Start New Construction	8/4/10	8/4/10																												
New Construction Beneficial Occupancy	3/19/12	3/19/12																												
Start Renovation	9/1/11	9/1/11																												
Building Renovation Complete	7/31/13	7/31/13																												
Engineering and Design	10/4/08	7/27/10																												
Early Construction	4/1/10	8/4/10																												
TED Building Construction	8/4/10	3/16/12																												
Test Lab Addition Construction	8/4/10	3/30/12																												
Test Lab Renovation	9/1/11	5/3/13																												
TL Bulk Demolition Complete	10/26/12	10/26/12																												
TL MEP Demolition Complete	11/21/12	11/21/12																												
TL Ultra Pure Water System Complete	1/18/13	1/18/13																												

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TEDF Critical Path Schedule



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APPENDIX G: TEDF ORGANIZATION

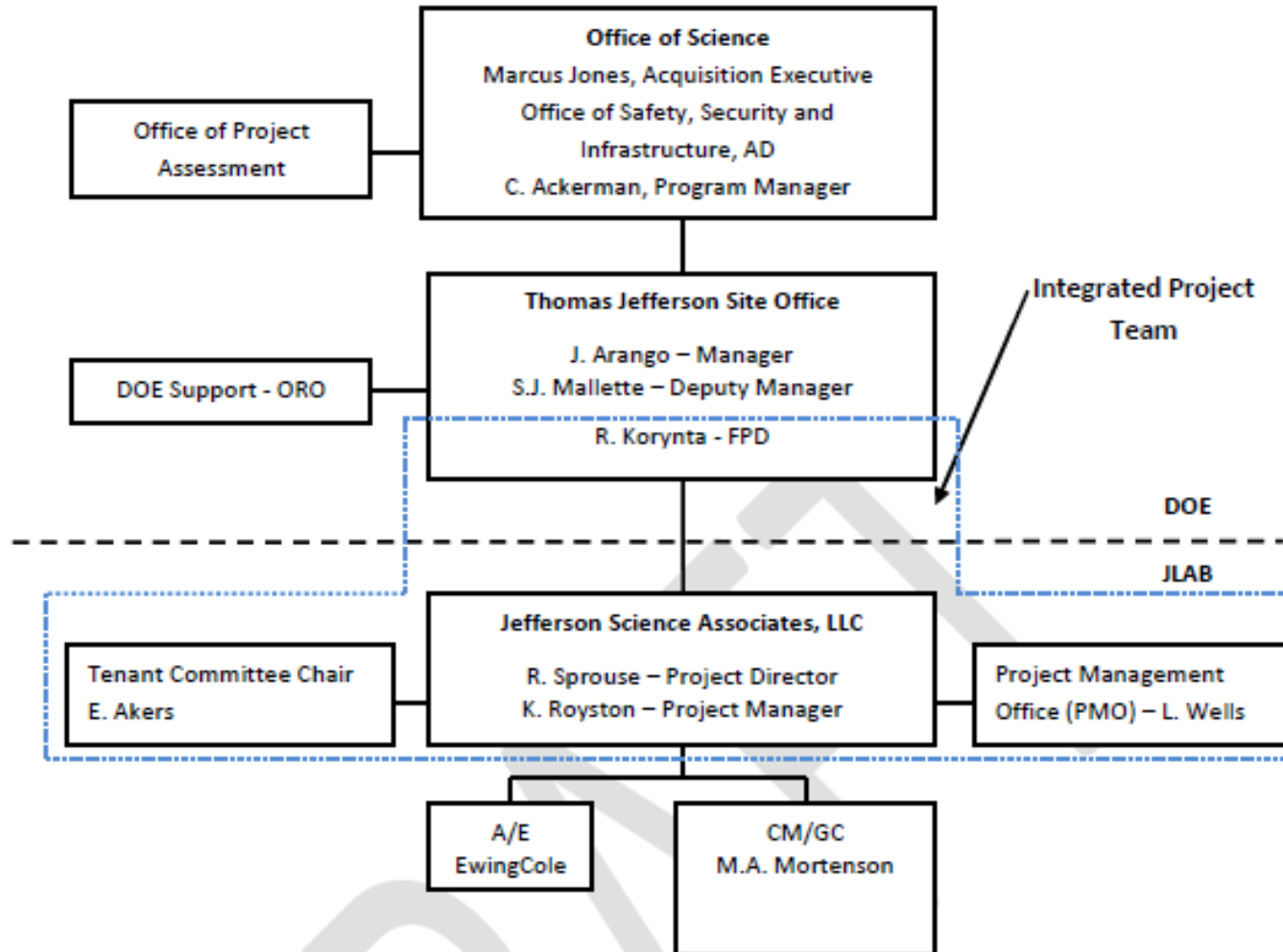


Figure 1 - Organization Chart