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Panel Review Agenda

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Presented to the

Engineering Sciences External Review Panel
Sandia National Laboratories

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Sandia is a Multiprogram Laboratory Operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy Under Contract DE-ACO4-94AL85000.

NNSA National Nuclear Security Administration

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Developing an Engineering Sciences external panel review agenda

- Starting in 2008, we have increased scope from the Engineering Sciences Research Foundation to all of Engineering Sciences
- With a ~$150M portfolio, assessing a reasonable fraction of the breadth requires ~3+ years
- Use an agenda structure that focuses on a few themed areas of work which are microcosms of Engineering Sciences (simulation, experiment, etc.)
- Have a few additional talks on specific topics (e.g. Sierra Mechanics, large-scale testing, etc.)
- Show breadth and diversity through posters
- New faces representing the breadth of our staff

Summary of Engineering Science Reviews

	2009	2010	2011
Themed sections	• Predictive Reentry S&T • Predictive Safety S&T	• AF&F Components S&T • Gas Transfer System S&T	• LDRD Program Overview • Engineering Sciences LDRD projects
Special topics	• Strategic Planning Update • Experimental Infrastructure Stewardship • Nuclear Weapons Integrated Planning	• ES Code Overview • Predictive EM • Computational Geomechanics • Computer-aided Nanoengineering	• Tour of Lightning Facility and Thermal Test Complex • B61 LEP Engagement • DOI S&T Engagement • Sierra Mechanics Update
Posters	9 total – 2 LDRD projects	7 total – no LDRD projects	9 total – 3.5 LDRD projects

Reviewing the LDRD program is a departure from the usual Engineering Sciences review!

2011 Review Agenda (1)

Wednesday, April 13th					
6:30	1:30	-	8:00		Reception with SMs and Directors
8:00	0:30	-	8:30		Review Panel Organization Meeting
Thursday, April 14th					
7:00	0:30	-	7:30		Pick-up; badging; security brief enroute to SNL
7:30	0:15	-	7:45		Continental breakfast
7:45	0:15	-	8:00		Welcome - Duane Dimos
8:00	**1:20**	**-**	**9:20**		**SNL Update / ES Overview - Duane Dimos**
9:20	**0:20**	**-**	**9:40**		**Response to Last Review / Panel Charge - Mary Gonzales**
9:40	**0:20**	**-**	**10:00**		**Review Agenda - Joel Lash**
10:00	0:15	-	10:15		Break
10:15	**0:50**	**-**	**11:05**		**LDRD Introduction - Joel Lash**
11:05	**0:40**	**-**	**11:45**		**Engineering Science and LDRD**
					• Multiphase Shock Tube - Justin Wagner (20 min)
					• Development of a novel epoxy foam for encapsulation of electronics - Lisa Mondy (20 min)
11:45	0:15	-	12:00		Wrap-up; General Q&A; Buffer
12:00	1:00	-	13:00		Working Lunch - split into manager group and 2 staff groups
13:00	**1:20**	**-**	**14:20**		**Engineering Science and LDRD (cont'd)**
					• Mesoscale to Plant-Scale Models of Nuclear Waste Reprocessing - Rekha Rao (20 min)
					• Long-Timescale Atomistic Simulation Methods for Solid Materials - Greg Wagner (20 min)
					• First-Principles Flocculation as the Key to Low Energy Algal Biofuels Processing- John Hewson (20 min)
					• Interfacial Thermal Transport in Nanomaterials - Patrick Hopkins (20 min)
14:20	**0:10**	**-**	**14:30**		**Test Tour Overview - Dennis Miller**
14:30	0:10	-	14:40		Break and walk to van
14:40	**1:20**	**-**	**16:00**		**Tour of Lightning Facility (Michele Caldwell) and TTC (Dennis Miller)**
16:00	0:45	-	16:45		Executive Session in AIII Conf. Room
16:45	0:30	-	17:15		Panel to Hotel
17:15	**0:45**	**-**	**18:00**		**Panel free time**
18:00	0:30	-	18:30		Depart to Restaurant (TBD)
18:30	2:30	-	21:00		Dinner - VP/Directors/Panel

2011 Review Agenda (2)

Friday, April 15th					
7:00	0:30	-	7:30		Pick-up; travel to SNL
7:30	0:15	-	7:45		Continental breakfast - get food for poster viewing
7:45	**0:15**	**-**	**8:00**		**Recap of Day 1 and Overview for Day 2 - Dimos/Lash**
8:00	**1:00**	**-**	**9:00**		**Poster Session**
					• Pool Fire Modeling of Liquefied Natural Gas - Anay Luketa
					• Predictive Modeling for GTS Forgings - Arthur Brown
					• Void Kinematics - Alejandro Mota
					• Microparticle Adhesion - Josh Hubbard
					• Laboratory for Computational Mechanics - Jake Ostien
					• Lagrangian Parallel Mesh Generation - Steve Owen
					• Multiscale Multiphysics Models of CO2 Sequestration - Joe Bishop
					• Thermal Transport - Ed Piekos
					• Field and Charge Penetration by Lightning Burnthrough - Larry Warne
9:00	0:15	-	9:15		break
9:15	**1:00**	**-**	**10:15**		**B61 Life Extension Program Engagement**
					• Introduction - Pete Wilson (10 min)
					• Project Context - Brad Boswell (10 min)
					• Design and Qualification to Environmental Requirements - Tim Edwards (20 min)
					• Development of Structural Mechanics Models for DOI Flash Lamp Response - Mike Starr (20 min)
10:15	**0:30**	**-**	**10:45**		**Sierra Mechanics Update**
					• Introduction - David Womble (10 min)
					• Sierra Infrastructure Update - Mike Glass (20 min)
10:45	0:15	-	11:00		Wrap-up; General Q&A; Buffer
11:00	1:00	-	12:00		Executive Session
12:00	1:00	-	13:00		Outbrief - Working Lunch
13:00	0:30	-	13:30		Depart for airport or hotel