

AGENDA
UFD Annual Working Group Meeting
June 7 - 9, 2016
UNLV

TUE 6/7		Location	Activity
8:00	8:30	SEB Foyer	Obtain name badge and sign in
8:30	8:35	Auditorium	Welcome from UNLV
8:35	8:45	Auditorium	Welcome and management comments (Boyle)
8:45	9:30	Auditorium	Meeting Objectives and Approach Summary of UFD Campaign (Swift)
9:30	10:00	Auditorium	ST Activities (Larson)
10:00	10:20	Break	
10:20	10:50	Auditorium	DR Activities (Gunter)
10:50	11:20	Auditorium	NFSTPP Overview and relationship to UFD (Carter)
11:20	11:30	Auditorium	Quality Assurance Update (Murthy)
11:30	11:45	Auditorium	NEUP Program Introduction (De La Garza)
11:45	1:15	Lunch on your own	
1:30	3:10	Auditorium	NEUP Topical Sessions (See Tab Entitled NEUP Details for Abstracts) 1:30 - 1:50 Thermal-mechanical-hydrologic behavior of consolidating granular salt (Stormont, UNM) 1:50 - 2:10 Multi-Sensor Inspection and Robotic Systems for Dry Storage Casks (Lissenden, Penn State) 2:10 - 2:30 Electrochemical Testing to Support Alloy Corrosion Models (Ebert (ANL lab employee) on behalf of University of Illinois at Chicago and ANL (NU-13-IL-UIC-0203-02) 2:30 - 2:50 Multifunctional Concrete with Ultra-High Damage Tolerance and Self-Sensing Capacity for Extended Nuclear Fuel Storage Systems (Irvine, UC Irvine) 2:50 - 3:10 Overview and progress on the laboratory experiments of canister life predication from pitting to cracking, IRP\NEUP research project (Liu, Colorado School of Mines)
3:10	3:30	Break	
3:30	5:20	#1240	OPEN
		#1242	Storage and Transportation (Sorenson) Transportation Update (Saltzstein) ENSA/SNL/PNNL/SRNL Rail Test Plan (Ross) Structural Analysis (Klymshyn) Discussion (All)
		#1243	DOE Managed HLW & SNF Research (aka Defense Repository, Sevougian) 3:30 – 3:40: Introduction to Defense Repository R&D – Sevougian/McMahon 3:40 – 4:00: Overview of Inventory and Waste Characterization – Sassani 4:00 – 4:25: On-Line Waste Library (OWL) Database and Capabilities – Walkow 4:25 – 5:00: Decay Heat and Inventory of DOE-Managed Waste – Carter 5:00 – 5:20: OWL Hands-on Database Demo – Walkow

AGENDA
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#1245	OPEN
#2251	OPEN

AGENDA
UFD Annual Working Group Meeting
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UNLV

WED 6/8	Location	Activity
8:00	9:50 #1240	Salt modelers meeting (Hansen) 08:00 - 08:05 Introduction(Nair/Hansen) 08:05 - 09:05 LANL(Lead- Phil Stauffer) 09:05 - 09:50 LBNL(Lead - Jonny Rutqvist)
	#1242	S&T Meetings (Saltzstein, Sorenson) Spent Fuel Ratio and Respirable Release Fraction (Durbin) Security of Storage Facilities (Durbin) Discussion (All) Environmental Sampling, Crack Growth Modeling and Experimental Plans (Bryan) Status of Mockup Residual Stress Measurements (Enos) NDE Solutions (Ulrich) Chloride Detection and Life Prediction of Dry Storage Casks Using PGAA and NAA Techniques (Shayer) Discussion (All)
	#1243	DBD Discussions (Freeze) 08:00 - 08:10 DBFT Overview and Status (Gunter) DBD Safety Case Framework (Freeze) DBFT Site Evaluation and Site Selection (Sassani) Geologic Framework Model (Perry) Regional Geology Web Map Application (Russell) DBD PA Model (Stein) DBFT Borehole Characterization (Kuhlman) Monitoring and Characterization (Nihei) Group Discussion (All)
	#1245	Argillite/Crystalline (Jove-Colon, Wang) UNF disposition in argillite: EBS reactive transport modeling with decay heat (Jove-Colon) Comparison of Discrete Fracture Network and Fractured Continuum Modeling Approaches for simulating flow and transport through fractured rock (Viswanathan) Fracture Continuum model (Hadgu) Uranium(VI) Sorption and Diffusion in Montmorillonite and Bentonite: Experiments and Modeling (Tinnacher) Update on Np diffusion as function of temperature (Zavarin) EBS experimental update: aluminosilicate phase transformations, corrosion of copper and steel (Caporuscio)
	#2251	Transportation (McConnell)
9:50	10:10	Break
10:10	12:00 #1240	Salt modelers meeting (Hansen) 10:10 - 11:10 SNL (Lead - Ben Reedlunn) 11:10 - 12:00 Discussion of Model Presentations (Nair-facilitator)
	#1242	S&T Meetings (Saltzstein, Sorenson) Spent Fuel Ratio and Respirable Release Fraction (Durbin) Security of Storage Facilities (Durbin) Discussion (All)

AGENDA
UFD Annual Working Group Meeting
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Environmental Sampling, Crack Growth Modeling and Experimental Plans (Bryan)
Status of Mockup Residual Stress Measurements (Enos)
NDE Solutions (Ulrich)
Chloride Detection and Life Prediction of Dry Storage Casks Using PGAA and NAA
Techniques (Shayer)
Discussion (All)

#1243 **DBD Discussions (Freeze)**
DBFT Engineering Overview (Hardin)
Surface Handling and Transfer Cask Concept (Peretz)
Emplacement Zone Completion Options (Cochran)
Engineering (Group Discussion)
DRZ Modeling and Testing (Rutqvist)
Swedish Deep Borehole R&D (Dobson)
Laboratory Testing of Sealing Materials (Caporuscio)
DRZ and Fracture Detection (Ulrich)
Stresses and Breakouts (Delorey)

#1245 **Argillite/Crystalline (Jove-Colon, Wang)**

#2251 **Transportation (McConnell)**

12:00 **1:30** Lunch on your own

1:30 **3:20** #1240 **Salt modelers meeting (Hansen)**
01:30 - 02:00 Review of Safety Functions(Sevougian/Kuhlman, Nair/Hansen)
02:00 - 03:20 Progress to Date & Future R&D Direction(Nair - facilitator)

#1242 **S&T Meetings (Saltzstein, Sorenson)**
Cladding Overview (closing the cladding Gap, (a refinement of the TRB talk about
how everything fits together) (Hanson)

CIRFT (New results and future plans, and integration with NRC work) (Bevard)
Ring Compression Tests (Billone)
Demo Overview and Siste test Plan Overview (stress external reviews) (Sorenson,
Saltzstein)
ORNL Sister Pin Test Plan (focus on individual tests and the data obtained from
them) (Montgomery)
PNNL Sister Pin Test Plan (focus on individual tests and the data obtained from
them) (Hanson/Lavendar)
Demo Thermal Analysis (Hanson)
Discussion (All)

#1243 **Generic Disposal Systems Analysis, GDSA (Mariner)**
1:30 - 1:45 GDSA Overview: Objectives, Work, and FY16 Accomplishments
(Mariner)
1:45 - 2:00 GDSA Simulation Framework: PFLOTRAN (Hammond)
2:00 - 2:15 Isotope Chemistry and Source Term (Mariner)

AGENDA
UFD Annual Working Group Meeting
June 7 - 9, 2016
UNLV

2:15 - 2:30 Source Term Implementation and Demonstration (Frederick)

2:30 - 2:35 GDSA Process Model Integration (Sevougian)

2:35 - 2:55 GDSA Mined Repository in Crystalline Rock (Stein)

3:00 - 3:15 GDSA Planning for FY17 (Mariner)

#1245

Argillite/Crystalline (Jove-Colon, Wang)

#2251

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3:20

3:50 Break

3:50

5:40 #1240

Salt modelers meeting (Hansen)

03:50 - 05:40 Additional Salt Discussions - if needed

#1242

S&T Meetings (Saltzstein, Sorenson)

Cladding Overview (closing the cladding Gap, (a refinement of the TRB talk about how everything fits together) (Hanson)

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ORNL Sister Pin Test Plan (focus on individual tests and the data obtained from them) (Montgomery)

PNNL Sister Pin Test Plan (focus on individual tests and the data obtained from them) (Hanson/Lavendar)

Demo Thermal Analysis (Hanson)

Discussion (All)

#1243

Process Model Integration (Sevougian, Mariner, Wang, Jove-Colon)

OBJECTIVE: Facilitate the integration of UFD process modeling with the GDSA Performance Assessment Model. During this session we will review information about 14 process models, to be given in a series of five-minute "lightning" talks that encompass:

(1) Integration progress made during FY16

(2) How the process model can be coupled to the GDSA-PA framework in FY17 and beyond. (Response surfaces are NOT the preferred coupling method. Direct coupling or reduced-order mechanistic models (ROMs) are preferred.)

GOAL: The outcome of this session is envisioned to be a tentative scope/timeline for integration of process models with GDSA-PA, with an emphasis on FY17 workscope.

3:50 – 3:55 Introduction and Objectives (Sevougian)

3:55 – 4:15 LIGHTNING Talks on Ongoing FY2015-16 Integration (5 min per talk)

Density dependence on salinity – crystalline (deep borehole) (Hammond)

DFN Model – crystalline (Stein/Makedonska)

Colloid-facilitated transport model (progress and future work) – all media (Reimus)

CSNF degradation model (FMDM) – all media (Jerden)

AGENDA
UFD Annual Working Group Meeting
June 7 - 9, 2016
UNLV

4:15 – 5:20 LIGHTNING Talks on Possible New FY17 Integration Workslope (5 min/talk)

Salt coupled THM processes (TOUGH-FLAC) – salt (Rutqvist)

THC Processes in Salt – salt (Stauffer)

TOUGH-FLAC/BBM/RBSN models – clay and/or crystalline (deep borehole) (Rutqvist)

THMC model (illitization) and THM model (TPHM Hooke's) – clay (Zheng)

DFN enhancements (e.g., fracture intersecting a borehole; heat transport; others) – granite (Viswanathan)

Waste package degradation – all media (Jove-Colon)

Waste package and waste form degradation – all media (Frederick)

Glass degradation – all media (Rieke)

Grid refinement – all media (Alzraiee/Hammond)

ROMs for creep closure – salt (Park/Hammond)

A control variate method for performance assessment – all media (MacKinnon)

Remaining process model gaps – all media (Mariner)

5:20 – 5:40 Integration discussion (All)

Topics will include, but not be limited to:

Timeframe and priorities for integration (order in which to couple process model work; any priorities based on media?)

Methodology for coupling and integration

#1245

DPC Direct Disposal (Scaglione, Banerjee)

#2251

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AGENDA
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THU 6/9	Location	Activity
8:00	9:50 #1240	International (Birkholzer) 08:00 - 0810 - Introduction (10 Min): 8:10 - 8:35 am: DECOVALEX Collaboration (25 min): Overview DECOVALEX 2015 (5 min) (Birkholzer) Heater test modeling highlights (5 min) (Rutqvist) Fracture flow and transport modeling highlights (5 min) (Wang) Outlook and Planning for DECOVALEX 2019 (5 min) (Birkholzer) 5 minutes questions 8:35 - 8:50 am: FEBEX-DP Collaboration (15 min): Overview FEBEX-DP (5 min) (Zheng) UFD R&D activities related to FEBEX-DP (5 min) (Zheng) 5 minutes questions 8:50 - 9:10 am: Mont Terri Collaboration (20 min): Overview Mont Terri Project (5 min) (Birkholzer) FE Heater Test (5 min) (Rutqvist) FS Experiment (5 min) (Birkholzer) 5 minutes questions 9:10 - 9:20 am: Potential HotBENT Collaboration (10 min): Overview HotBENT - High Temperature Field Test (5 min) (Birkholzer) 5 minutes questions 9:20 - 9:50 am: Discussion and next steps (30 min)
	#1242	S&T Meetings (Saltzstein, Sorenson)
	#1243	DOE Managed HLW & SNF Research (aka Defense Repository, Sevougian) 8:00 – 8:10: Introduction to Defense Repository R&D – Sevougian/McMahon 8:10 – 8:30: Overview of EBS Design Concepts – Matteo 8:30 – 8:45: Waste Package Considerations – Rigali 8:45 – 9:15: EBS Design Alternatives – Hardin 9:15 – 9:30: Preliminary Analysis of the Effect of Decay Heat in the Near Field – Hadgu 9:30 – 9:45: Brainstorming on Design Alternatives – All
	#1245	OPEN
	#2251	OPEN
9:50	10:10	Break
10:10	12:00 #1240	International (Birkholzer) 10:10 - 10:35 am: 5KB GWFTS Task Force Collaboration (15 min): Overview GWFTS Task Force (5 min) (Viswanathan) UFD R&D activities related to GWFTS Task Force (5 min) (Viswanathan) 5 minutes questions 10:35 - 10:50 am: 5KB EBS Task Force Collaboration (15 min): Overview EBS Task force (5 min) (Jove-Colon) UFD R&D activities related to EBS Task Force (5 min) (Jove-Colon) 5 minutes questions 10:50 - 11:05 am: KURT Korea Collaboration (15 min): Overview KURT URL Collaboration (5 min) (Wang)

AGENDA
UFD Annual Working Group Meeting
June 7 - 9, 2016
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UFD R&D activities related to KURT (5 min) (Wang)

5 minutes questions

11:05 - 11:30 am: Salt Collaborations with Germany (25 min):

Benchmarking Exercise being conducted under US-German MoU (5 min)
(Redlunn)

Collaboration with Clausthal/Germany on coupled THM modeling (5 min)
(Rutqvist)

KOSINA collaboration (5 min) (Matteo)

Salt FEPs Catalog in the context of Salt Club (5 min) (Freeze)

5 minutes questions

11:30 - 12:00 noon: Discussion and next steps (30 min):

#1242 **S&T Meetings (Saltzstein, Sorenson)**

Time for resolution of any items from above

#1243 **DOE Managed HLW & SNF Research (aka Defense Repository, Sevougian)**

10:10 – 10:30: Overview of D-Repo Safety Analysis R&D – Sevougian

10:30 – 10:50: Regional Geology Investigations – Perry

10:50 – 11:20: D-Repo Repository Reference Case and Preliminary PA Simulations
– Stein

11:20 – 11:35: Draft Program Plan: Organizational and Procedural Frameworks –
Swift

11:35 – 11:50: Wrap-up and Brainstorming on Future Directions – All

#1245 **OPEN**

#2251 **OPEN**

12:00

1:00 Auditorium

Working group de-briefing and closing

12:00-12:05 DOE Managed HLW & SNF (Sevougian)

12:05-12:10 Salt Modelers Meetings (Hansen)

12:10 - 12:15 DBD Discussions (Freeze)

12:15 - 12:20 Argillite/Crystalline Discussions (Jove-Colon, Wang)

12:20 - 12:25 GDSA & Process Model Integration (Mariner)

12:25 - 12:30 International (Birkholzer)

12:30 - 12:45 Storage Discussions (Sorenson, Saltzstein)

12:45 - 12:50 Transportation (McConnell)

12:50 - 1:00 Closing (Boyle, Swift)

NOTE: Scheduled meetings end at 1:00. However, UFD has reserved the break out rooms for the rest of the day. If tea