AGENDA
Fall 2021 Board Meeting
November 3–4, 2021
Virtual Meeting
https://preconvirtual.com/nwtrb-gov-11-03-21/

Wednesday, November 3, 2021

12:00 p.m. EDT  Call to Order and Introductory Statement
Jean Bahr, Board Chair

12:15 p.m. EDT  Update on DOE’s Spent Fuel and Waste Disposition Program, including
Interim Storage Activities
William Boyle and Alisa Trunzo, U.S. DOE, Office of Nuclear Energy

12:30 p.m. EDT  Questions, discussion

12:45 p.m. EDT  Geologic Disposal Safety Assessment (GDSA) Overview
Emily Stein, Sandia National Laboratories

TOPICS/QUESTIONS TO BE ADDRESSED:
- Briefly summarize the evolution of DOE’s GDSA capability.
- What are the specific goals for developing the GDSA Framework and which stages of the repository program do you envision it being used?
- What are the near-term and long-term priorities for GDSA work? How were these initially determined and subsequently updated?
- What are the significant challenges encountered to date in developing the GDSA Framework and how have these been or will be addressed?

1:25 p.m. EDT  Questions, discussion

1:45 p.m. EDT  Break

ADVANCED SIMULATION — FOUNDATIONAL CAPABILITY

2:05 p.m. EDT  GDSA Framework
Paul Mariner, Sandia National Laboratories

TOPICS/QUESTIONS TO BE ADDRESSED:
- Describe the conceptual model framework.
- How do you determine the level of detail necessary to represent a feature, event, or process in the GDSA Framework?

Note: The questions have been provided to the speakers in advance of the meeting to convey the Board’s primary interests in the agenda topics and to aid in focusing the presentations.
- Describe the approaches that have been considered for efficiently integrating complex features, events, and processes into the GDSA Framework.
- How do you take account of complex features, events, and processes that can be addressed by engineering/design features, engineered barrier material properties, or assigned safety functions, which would make redundant their inclusion in the GDSA model?

2:45 p.m. EDT  Questions, discussion

3:05 p.m. EDT  PFLOTRAN
Michael Nole, Sandia National Laboratories

TOPICS/QUESTIONS TO BE ADDRESSED:
- Describe the PFLOTRAN-based computational framework.
- What are the major accomplishments in enhancing the original PFLOTRAN code?
- What are the strengths and limitations of the PFLOTRAN code in the context of GDSA?
- How are uncertainties in models and model parameters quantified?
- What are the plans for verification and validation of the GDSA codes and models?

3:25 p.m. EDT  Questions, discussion

ADVANCED SIMULATION — PROCESS MODEL INTEGRATION

TOPICS/QUESTIONS TO BE ADDRESSED:
- Describe examples of how important features, events, and processes are integrated into the GDSA Framework and the basis for selecting the approach taken to integrate them.
- What future capabilities do you plan to add to these examples and what are the bases/criteria for determining the need to add these capabilities?

3:40 p.m. EDT  a) dfnWorks (preprocessor)
Jeffrey Hyman, Los Alamos National Laboratory

4:00 p.m. EDT  Questions, discussion

4:10 p.m. EDT  b) Integration of the Fuel Matrix Degradation Model (embedded)
Paul Mariner, Sandia National Laboratories

4:30 p.m. EDT  Questions, discussion

4:40 p.m. EDT  Public Comments

5:00 p.m. EDT  Adjourn Day 1
Thursday, November 4, 2021

12:00 p.m. EDT  Call to Order
Jean Bahr, Board Chair

ADVANCED SIMULATION — PROCESS MODEL INTEGRATION (Continued from Day 1)

12:05 p.m. EDT  c) Biosphere Model (postprocessor)
Caitlin Condon, Pacific Northwest National Laboratory

12:25 p.m. EDT  Questions, discussion

12:35 p.m. EDT  NRC’s Development and Use of Performance Assessment
Tim McCartin and David Esh, U.S. Nuclear Regulatory Commission

TOPICS/QUESTIONS TO BE ADDRESSED:
- What are the important aspects that need to be considered in developing a performance assessment model?
- Irrespective of regulations, how do you determine the level of detail necessary to represent features, events, and processes in performance assessment?
- What were the significant challenges encountered in your performance assessment code development work and how were those addressed?
- How were performance assessment development priorities initially determined and subsequently updated?

1:05 p.m. EDT  Questions, discussion

1:25 p.m. EDT  Environmental Safety Case Models Supporting Geological Disposal of the UK’s Radioactive Waste
Sarah Vines, Radioactive Waste Management (U.K.)

TOPICS/QUESTIONS TO BE ADDRESSED:
- What are the objectives of and strategy for performance assessment model development in the U.K.?
- What level of complexity was incorporated into the performance assessment model, and how was this decided?
- What were the significant and unexpected challenges encountered to date in developing the performance assessment model and how have these been or will be addressed?
- What information, if any, from performance assessment work in other countries were taken into account in developing U.K.’s performance assessment model?

1:55 p.m. EDT  Questions, discussion

2:15 p.m. EDT  Break

2:35 p.m. EDT  Uncertainty and Sensitivity Analysis (U/SA)
Laura Swiler, Sandia National Laboratories

TOPICS/QUESTIONS TO BE ADDRESSED:
• What are the objectives and strategy for developing uncertainty and sensitivity analysis tools for GDSA Framework?
• What uncertainty quantification and sensitivity analysis tools have been incorporated into GDSA Framework and what additional uncertainty quantification/sensitivity analysis tools would enhance the uncertainty quantification/sensitivity analysis capability of GDSA Framework?
• Describe examples of how these uncertainty quantification/sensitivity analysis tools have been applied to reference case simulations.

3:05 p.m. EDT  Questions, discussion

3:25 p.m. EDT  Reference Case Simulation
Tara LaForce (w/Emily Stein), Sandia National Laboratories

TOPICS/QUESTIONS TO BE ADDRESSED:
• Describe the reference cases that have been developed and evaluated to date.
• What is the process for features, events, and processes screening for the reference cases?
• What repository and barrier performance metrics are used?
• What is the approach to evaluating sensitivity of model results to model parameters?
• What are the main conclusions from the PA simulations conducted to date using these reference cases?

3:55 p.m. EDT  Questions, discussion

4:15 p.m. EDT  DECOVALEX Task F, A Case Study in Integrating Insight and Experience from the International Community in GDSA
Emily Stein, Sandia National Laboratories

TOPICS/QUESTIONS TO BE ADDRESSED:
• What are the objectives of Decovalex Task F and how will these objectives be accomplished?
• How is DOE’s participation in this task useful in the development of GDSA Framework?

4:35 p.m. EDT  Questions, discussion

4:50 p.m. EDT  Public Comments

5:00 p.m. EDT  Adjourn Public Meeting