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Used Fuel Disposition Campaign

GDSA Planning for FY2017

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Used Fuel Disposition

GDSA Planning for FY2017

- **Basic Code Needs**
  - Add/upgrade basic GDSA processes and capabilities
  - Improve code efficiency, convergence, gridding techniques
- **Applications**
  - Upgrade GDSA reference case models in the various host rocks
  - Expand and improve uncertainty and sensitivity analyses
  - Design and perform additional analyses to address questions of repository design and prioritization of UFD campaign research
- **Integration**
  - Integrate subsystem conceptual models, developed under other disposal research work packages, into the GDSA-PA system model architecture
  - Discussion continued in the GDSA Integration Session

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GDSA To Do List

- **Basic Code Needs (SNL)**
  - Processes and capabilities
    - *Canister performance after breach*
    - *Comprehensive decay and ingrowth*
    - *Control variate method for PA*
    - *Dual or multi continuum*
    - ***Grid refinement (e.g. Octree)***
    - *Optimization (e.g., FMDM)*
    - *Pitzer equations*
    - ***Solute property temperature dependence***
    - *Withdrawal well*
  - V&V documentation (workflow)

- **Application (SNL)**
  - Climate
  - **Continued fractured media development**
    - *Revisit engineered barrier needs*
  - Disruptive events
  - **Multiphase**
    - *Re-saturation, gas generation, ventilation*
  - Reactive transport in near field
  - Reference biospheres
    - *Topography, surface morphology, infiltration, pumping wells*
  - Updated salt and clay generic repository models
    - *Add heterogeneities*

- **Integration**
  - Process models
    - *Biosphere pathways*
    - *Canister degradation, various*
    - *Clay deformation*
    - ***Colloid stability/transport***
    - *Discrete fracture network enhancements*
    - *Early WP failure*
    - *Flow through WPs*
    - *FMDM enhancements*
    - *Glass dissolution*
    - *Neutron activation*
    - *Non-Darcy flow*
    - *Solid solution model*
    - *THM for buffer materials*
    - *THM for salt repository*
    - *THMC with clay illitization*
  - Data
    - *Process model input parameters*
    - *Properties of solutes, phases, materials, and formations*

*Items in **bold** are currently at the top of the list for FY2017*