EXHUMATION WORKING GROUP UPDATE

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West Valley Demonstration Project
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ACTIVE TASKS

Study 1 – Waste Inventory: Analysis and Application

- *Task 1.1: Comparison of Previous Inventories*

Study 2 – Correlation Study: Waste Inventories vs. Field Study Results

- *Task 2.1: Evaluation of Previous Surveys and Modeling*
- *Task 2.2: Geophysics Study*

Study 3 – Review of Precedent Projects: Application to West Valley

- *Task 3.1: Review of Seven Selected Sites*

Path Forward

Questions and Answers

STUDY 1 , TASK 1: COMPARISON OF PREVIOUS INVENTORIES

Purpose:

- Evaluate previous inventory estimates prepared for the NDA, SDA, and WTF
- Identify significant differences between available inventories and evaluate root causes of any differences
- Determine if and how any identified differences should be addressed to improve the inventories selected for use in the Phase 1 studies.

Status:

- Final report under development

INVENTORIES EVALUATED

SDA: URS Corporation, 2002

1. Kelleher and Michael, 1973
2. O'Connell and Holcomb, 1974
3. U.S. Environmental Protection Agency (EPA), 1977
4. Duckworth, 1981
5. Prudic, 1986
6. Envirosphere, 1986
7. West Valley Nuclear Services Company, Inc. (WVNS), 1995a

NDA: URS Corporation, 2000

1. Kelleher and Michael, 1973
2. Duckworth, 1981
3. Nicholson and Hurt, 1985
4. Ryan, 1992
5. West Valley Nuclear Services Company, 1995b

Waste Tank Farm: WVNS & Gemini Consulting Company, 2005

1. West Valley Nuclear Services Company, 1986 (Rykken Report)
2. West Valley Nuclear Services Company, 2002

STUDY 1 , TASK 1: COMPARISON OF PREVIOUS INVENTORIES

Key Findings: State-Licensed Disposal Area

- Waste Volume
  - *Total waste volumes differed by 3.5% across the inventories*
  - *Waste volume differences within a given trench are caused primarily by differences in adjoining 50-foot sections*
- Waste Activity
  - *Differences driven by assumed waste profiles assigned to each waste shipment*
  - *URS (2002) most refined with respect to waste profiles*
  - *URS (2002) Sr-90 inventory in Trench 4 was underestimated based on the assigned waste profile, which has been corrected*
  - *Corrected URS (2002) inventory considered best for use going forward*

STUDY 1 , TASK 1: COMPARISON OF PREVIOUS INVENTORIES

Key Findings: NRC-Licensed Disposal Area

- Waste Volume
  - *Good agreement between the URS (2000) inventory and earlier inventories*
- Waste Activity
  - *Basis and methods of inventory estimates varied considerably over the years*
  - *Two key outliers: Total inventory reported in WVNS (1995) and Pu value in DOE and NYSERDA (1996)*
    - *WVNS (1995) had waste profile deficiencies*
    - *Material balances and ORIGEN2 computer modeling results do not support the Pu estimate in DOE and NYSERDA (1996)*
  - *Study results support continued use of the URS (2000) inventory*

STUDY 1 , TASK 1: COMPARISON OF PREVIOUS INVENTORIES

Key Findings: Waste Tank Farm

- *Two primary inventories evaluated – WVNS (2002) and the supplementary WVNS (2005)*
  - *Revised I-129 values using 2003 sampling data*
  - *Revised Pu values based on improved calculation methodology*
  - *Increased Cs-137 values based on more conservative Monte-Carlo simulation results*
- *WVNS (2005) recommended for inventories in Tanks 8D-1 and 8D-2*
- *CH2MHILL-B&W West Valley (2012) recommended for inventory in Tank 8D 4*

STUDY 2 , TASK 1: EVALUATION OF PREVIOUS SURVEYS AND MODELING

Purpose:

- Evaluate previous gamma surveys to determine if they can support planning for Study 2 field program
- Identify locations for boreholes and use Microshield modeling to predict the level of activity at those locations
- Support the planning of field studies to be conducted in Task 2.3

Status:

- Initial evaluation completed
- Task on hold pending potential revisions to path forward based on results of initial evaluation

STUDY 2 , TASK 1: EVALUATION OF PREVIOUS SURVEYS AND MODELING

Key Findings: Previous Gamma Surveys

- Gamma radiation levels on the surface of the SDA and NDA were indistinguishable from ambient background.
- Results could not be used to locate radioactive inventory.

Key Findings: Microshield Modeling

- Gamma levels would not be discernable in borings at distances of more than 6 feet from even the largest expected activity source in the SDA trenches
- Study Plan for Task 2.3 will be revised to evaluate whether waste inventory may be interpreted at a scale of less than 50 feet

STUDY 2 , TASK 2: GEOPHYSICS INVESTIGATION

Purpose:

- Conduct prove-out study on SDA to determine what methods will provide most value for a full scale investigation
- Complete full-scale geophysical investigation of SDA and NDA
- Support planning of Task 2.3 field studies

Status:

- Site visit held and contractor procurement in progress
- Prove-out study to proceed as scoped

STUDY 3 , TASK 1: REVIEW OF SELECTED SITES

Purpose:

- Conduct research to compile relevant information on projects at seven targeted sites (as listed below)
- Determine state-of-practice in exhumation and treatment technologies; methods for worker, public, and environmental protection; and related costs

Status:

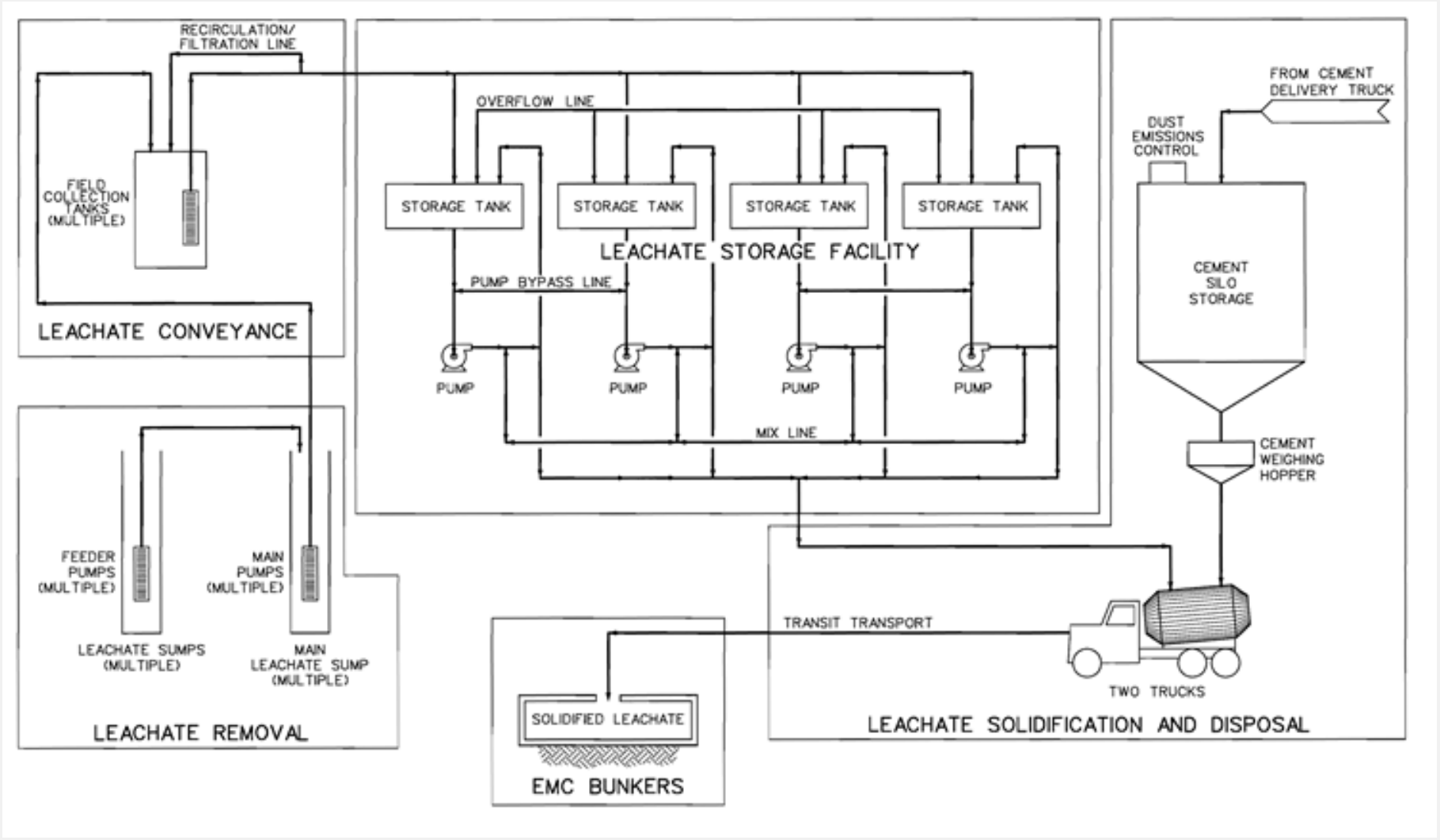
- Draft Maxey Flats and Oak Ridge National Laboratory reports completed
- Draft Savannah River National Laboratory and Hanford Reservation reports under EXWG review
- Draft Idaho National Laboratory, Sellafield, and La Hague reports are in progress

STUDY 3 , TASK 1: REVIEW OF SELECTED PROJECTS

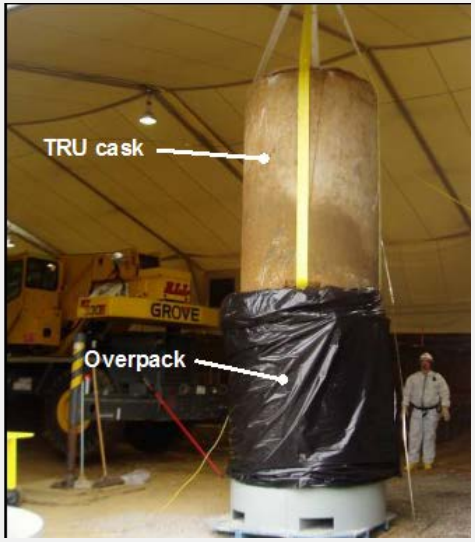
Key Findings to Date: General

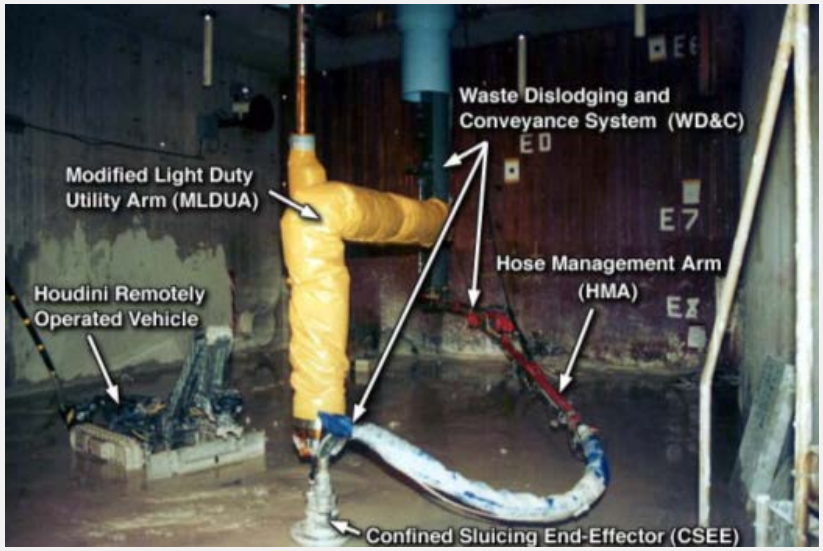
- Standard excavation equipment used to exhume buried waste
- Special technologies used to process exhumed waste
- Remote technologies used to remove tank waste
- Standard excavation equipment used within tent-like structures at some sites; no structure used at most sites

STUDY 3 , TASK 1:
MAXEY FLATS LEACHATE REMOVAL



STUDY 3 , TASK 1:
ORNL TRENCHES and TANKS





STUDY 3 , TASK 1:
HANFORD DRUM RETRIEVAL

PATH FORWARD

Study 1:

- Finalize Task 1.1 Report
- Complete Task 1.2 – Inventory Update

Study 2:

- Finalize revision to Study Plan to evaluate smaller scale of interest
- Finalize Task 2.1 Draft Report for Agency review
- Select Geophysics Contractor and perform prove-out study
- Based on results, finalize scope full-scale geophysics study
- Perform full-scale geophysics study.

Study 3:

- Complete remaining site reviews (Idaho, Sellafield, and La Hauge)
- Finalize individual site reports for eventual incorporation into comprehensive Study 3 Report (Task 3.4)
- Continue evaluation of progressive findings as to relevancy to West Valley waste units in support of Task 3.3.

QUESTIONS?