Idaho Cleanup Project

Tank Farm Closure Overview

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Tank Farm Closure

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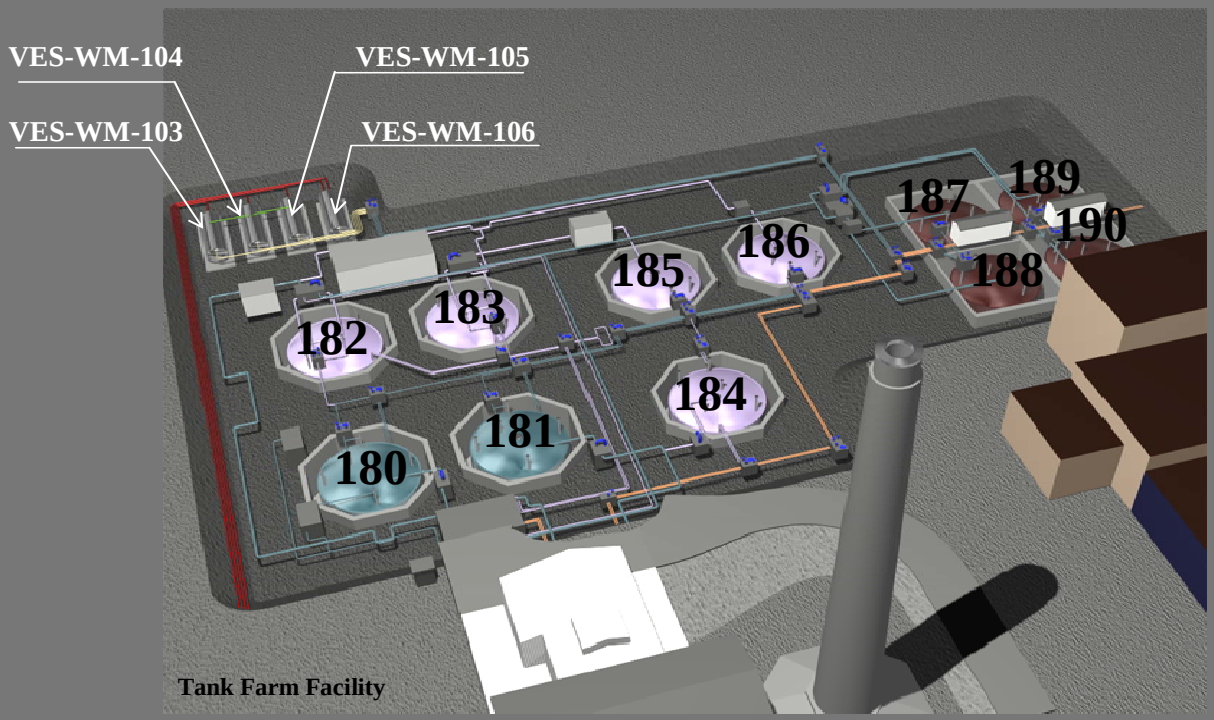
Topics/Agenda

- Closure Progress Summary
- Tank Farm Overview
- Summary of Cleaning Experience
- Summary of Grouting Experience

Closure Progress - Summary

- Seven large (300,000-gal) tanks and four small (30,000-gal) tanks cleaned/sampled 2002- 2005
- RCRA Closure Plans issued for all tanks at the INL
- “Authorization Basis” documents (3116, ROD, DOE Closure Plans) approved November 2006
- Grouting has been completed in the four small tanks and in seven large tanks and vaults
- Over seven miles of process and cooling coil piping was grouted in 2008 along with numerous valve boxes, tank risers and vault risers

INTEC TANK FARM CLOSURE



- Octagon Vaults: WM-180, WM-181
- Pillar and Panel Vaults: WM-182, WM-183, WM-184, WM-185, WM-186
- Square Vaults: WM-187, WM-188, WM-189, WM-190

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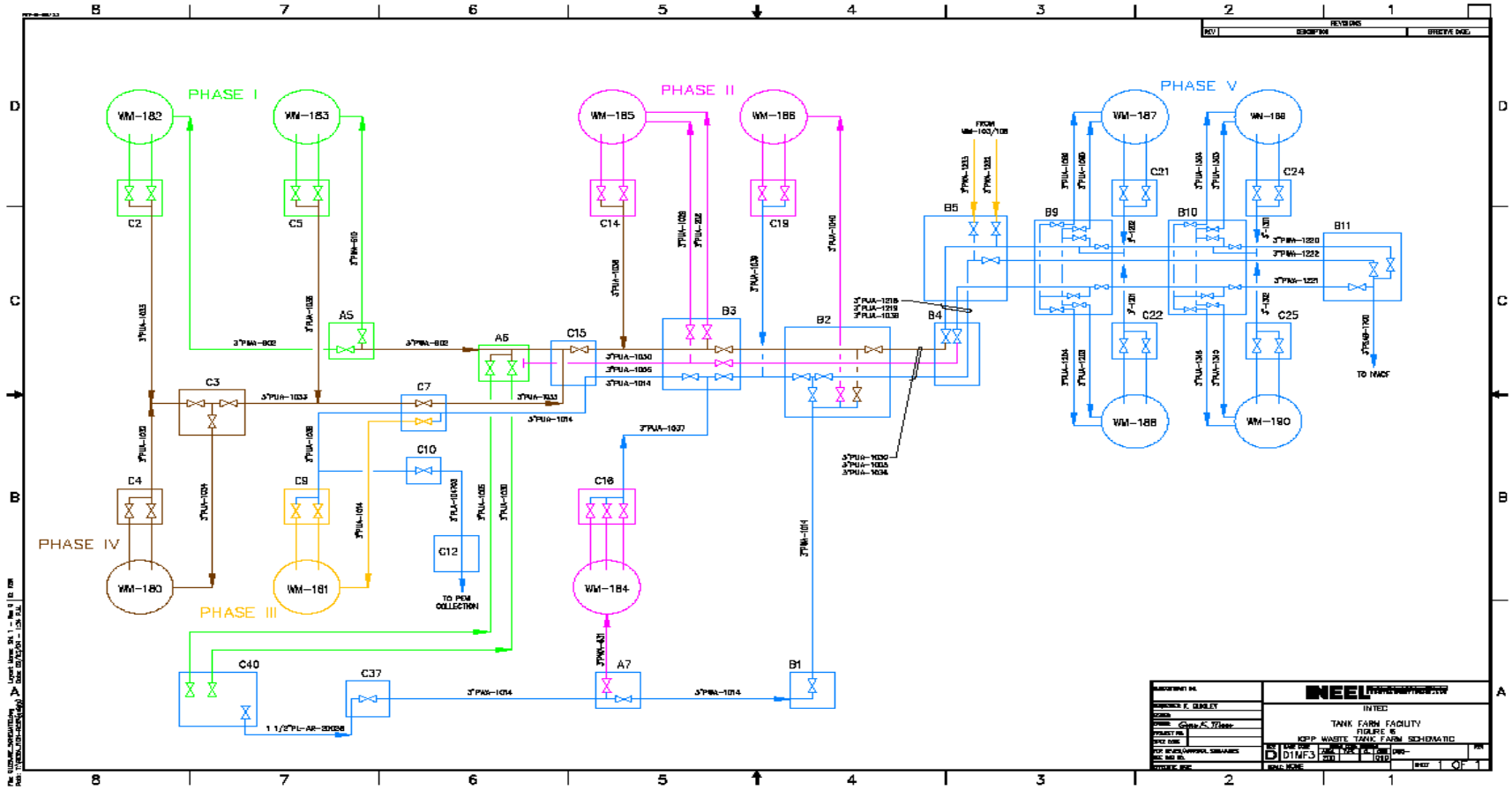
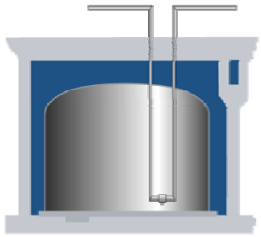
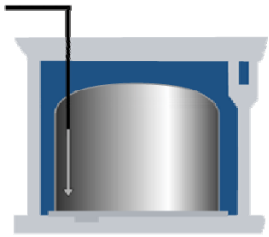
Phase approach for Tank Farm Closure



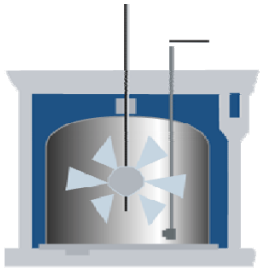
Tank Closure Sequence



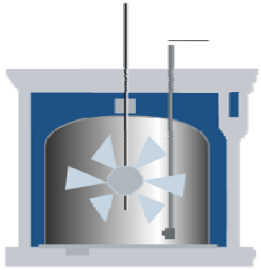
Empty to heel with existing jets



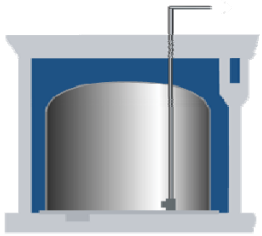
Flush piping into tanks



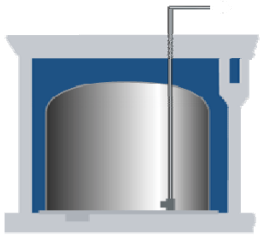
Install new steam jet and wash equipment



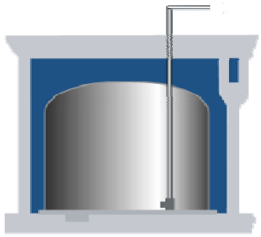
Wash tank and empty with new jet



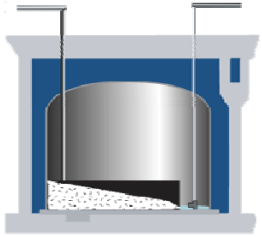
Video and sample tank residuals



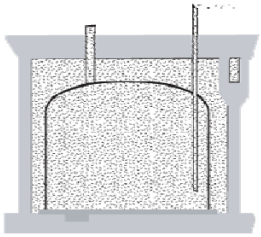
Tank evaluation



Obtain authorization to grout



Displace heel with grout



Fill tank, piping and vault with grout

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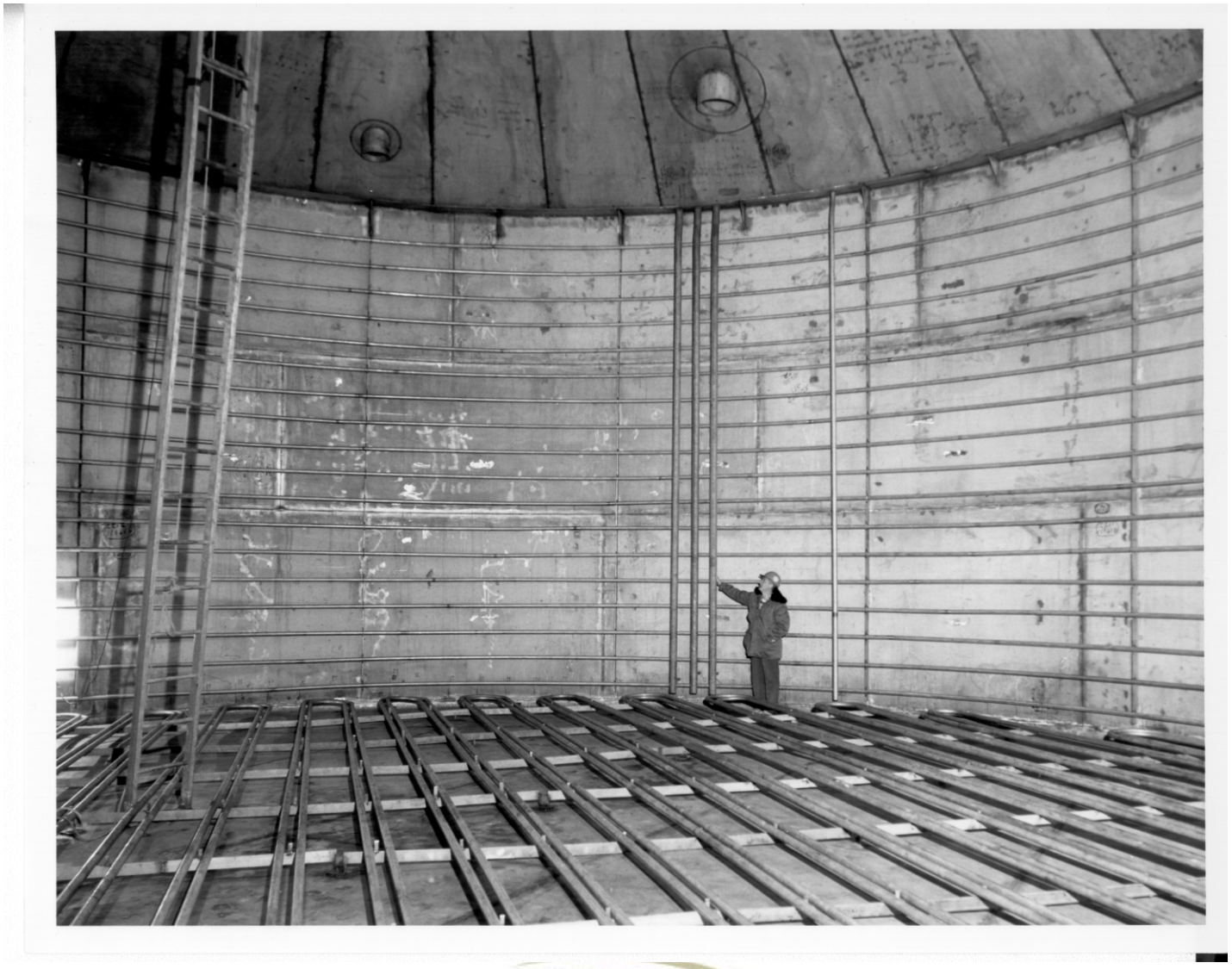
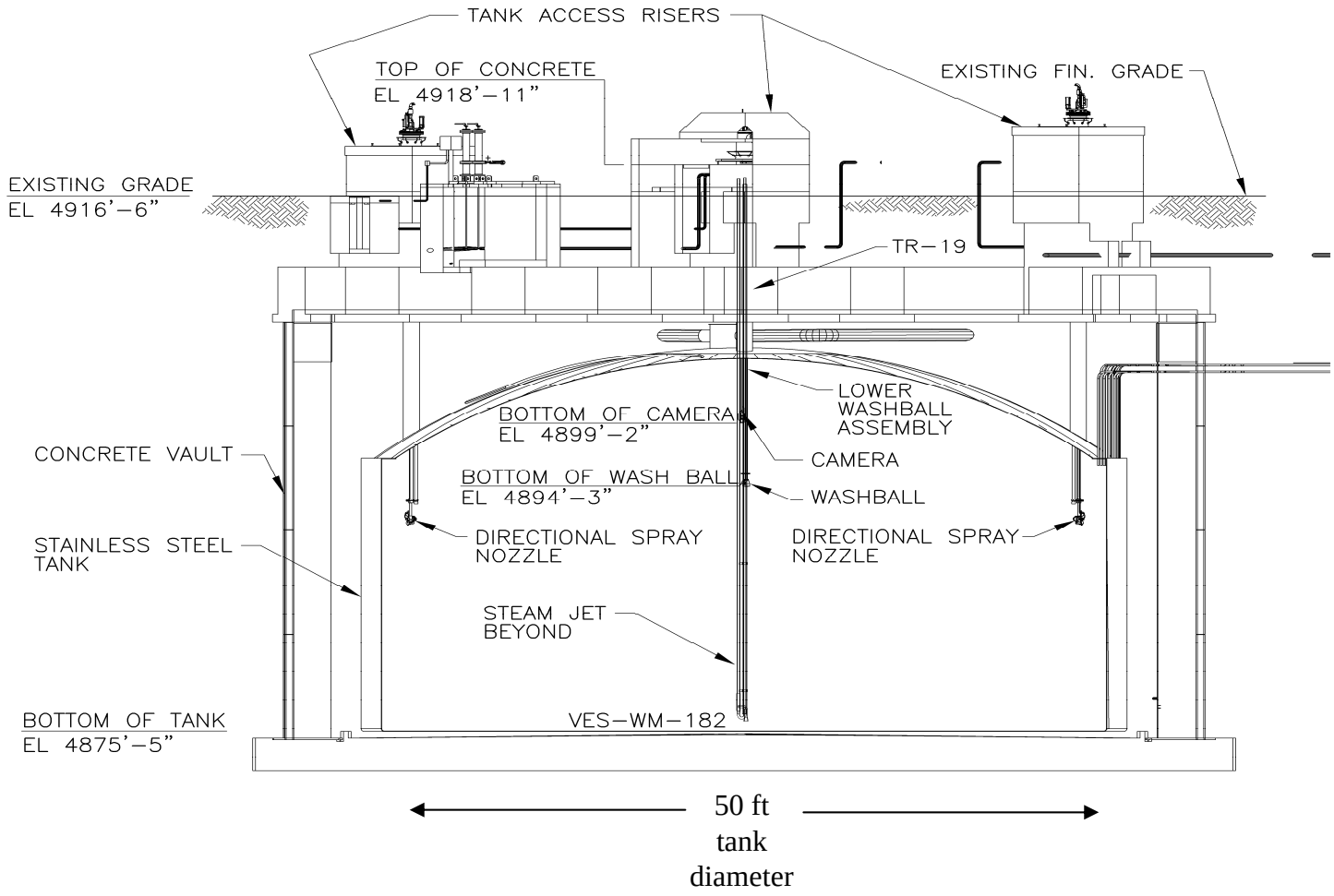
Construction Photo - Interior of Tank



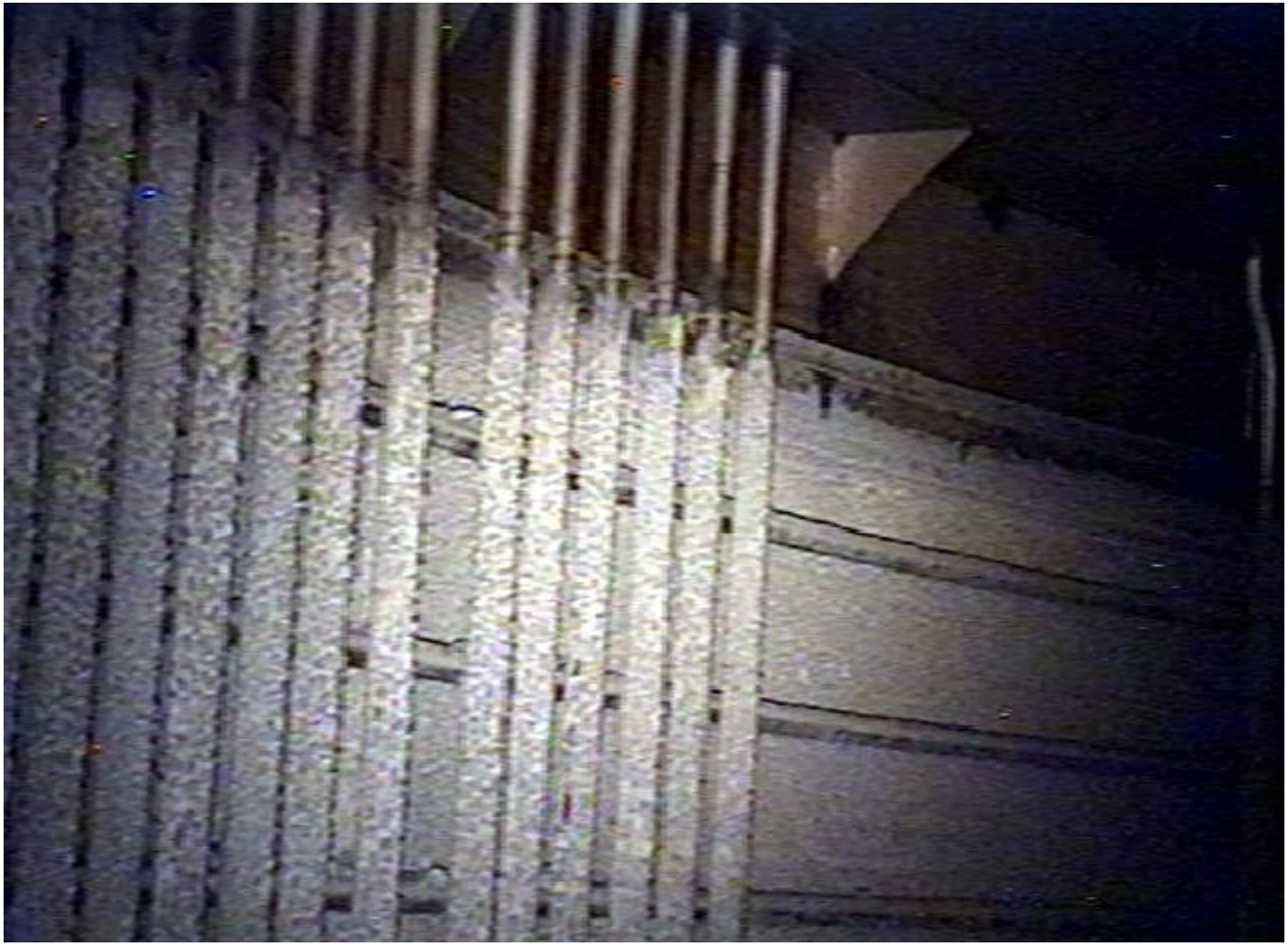
Summary of Cleaning Experiences

- Mockups used to develop cleaning methods
- Simulated solids utilized in mockups
- Directional nozzles were developed from the mockups
- Washing and sampling performed remotely
- Existing Rad-monitors located in Valve Boxes on transfer piping tracked cleaning performance.
- Reduced water volume for tank cleaning from high of over 100,000 gal to 30,000 gal per tank
- Duration of sampling reduced from two months to two days

Typical tank cleaning system



Interior of Tank Prior to Cleaning



Spray Cleaning Tank Walls

Tank WM-184 After Cleaning (Tank bottom)

Summary of Grouting

- Engineered Placements – first 3-4 feet in bottom of tank, using a slag containing grout sequenced in a manner that pushes residual solids toward steam jet, provides for some uplift and mixing, and encapsulates remaining residuals
- CLSM Pours

  – remaining volume filled with a controlled low strength grout (CLSM) in alternating lifts between vault and tank

  – Top of Dome Pours – required modifications to off-gas piping to allow filling the very top of the domes in each tank, then completion of the top layer in the vault (over the tank domes)
- Ancillary Equipment – transfer piping, tank/vault risers, cooling coils, valve boxes filled to ~ ground level

Grouting of WM-184 – August 2007

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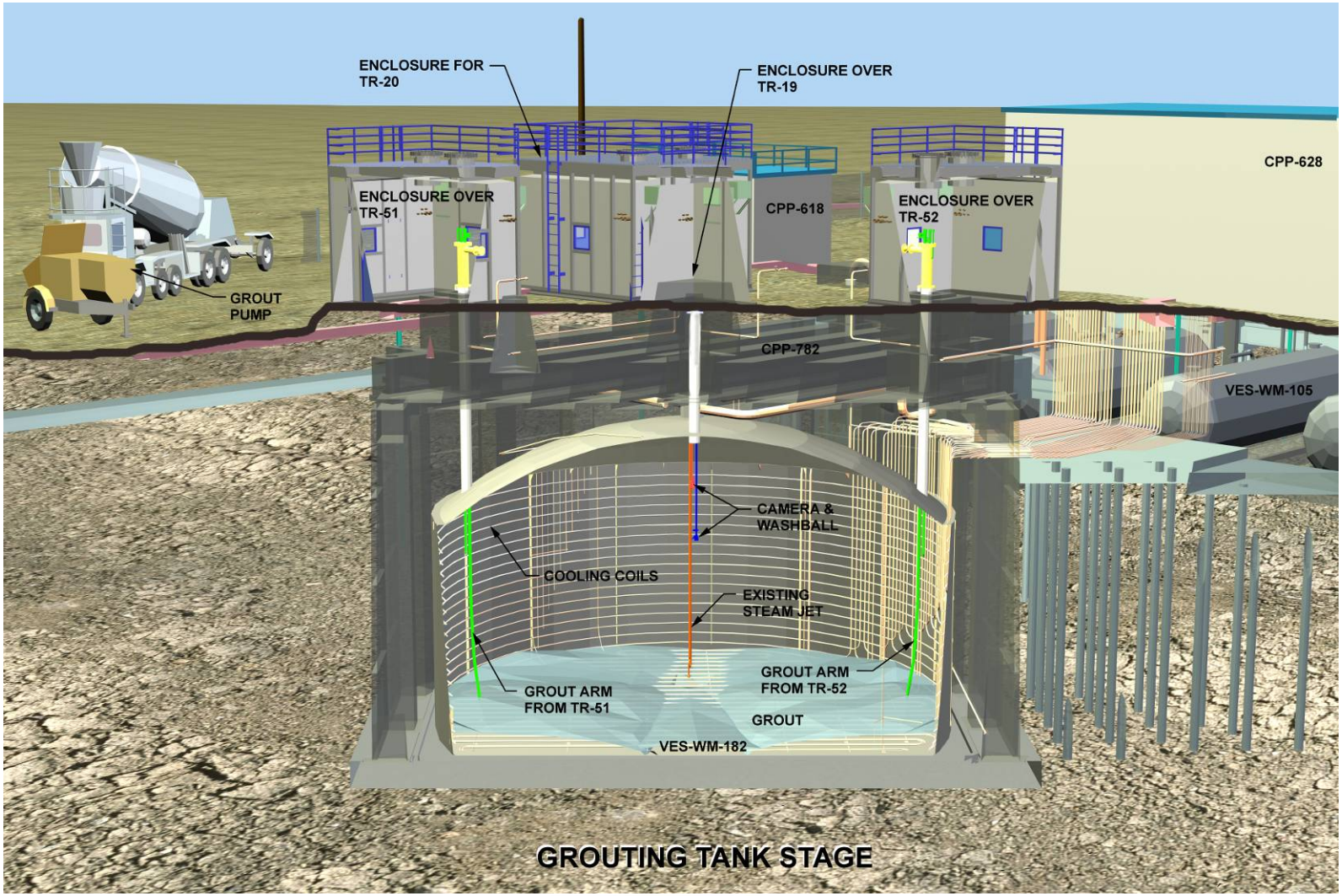
Tank Grouting Concept



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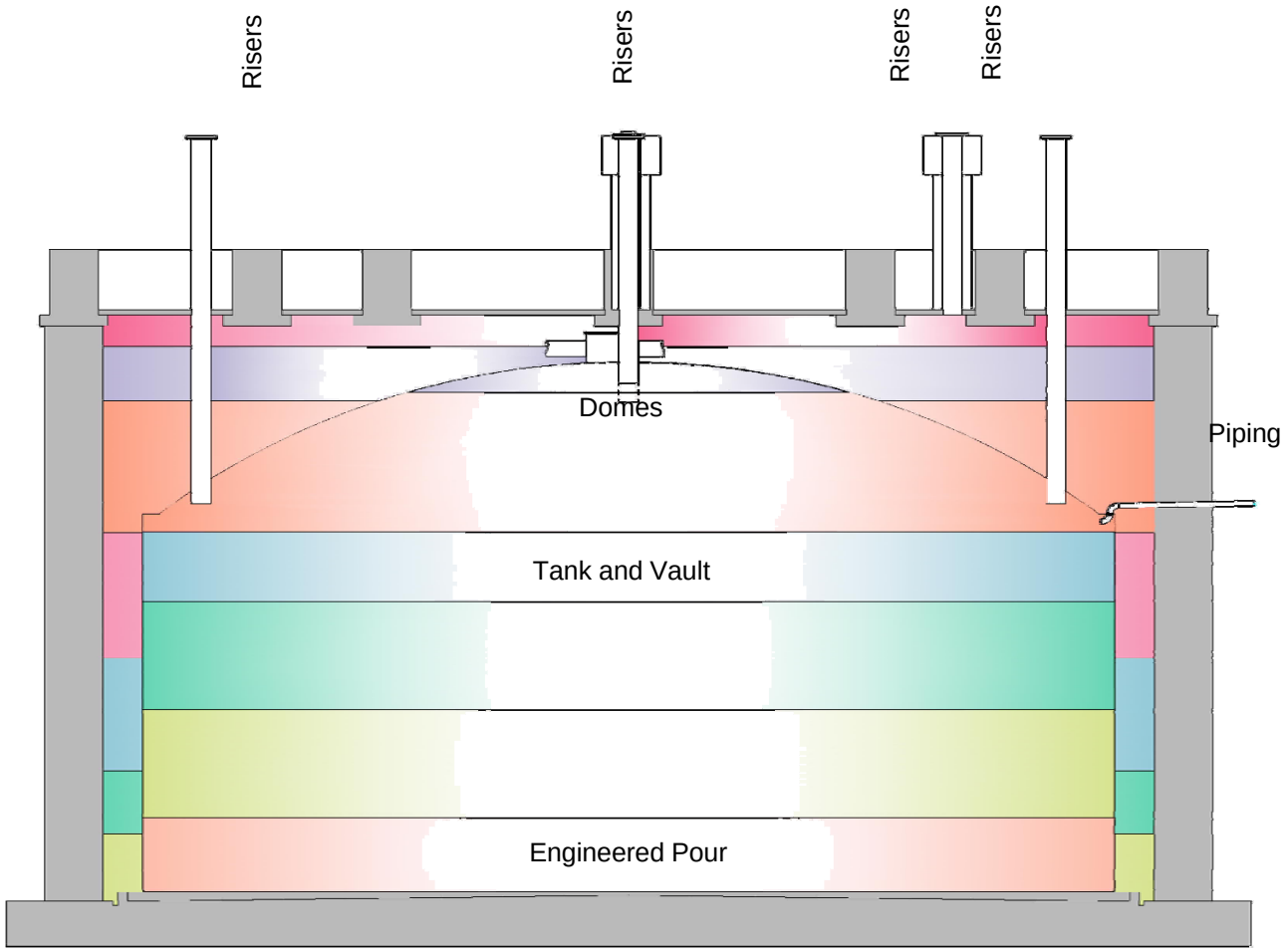
Grout Mast from Riser TR-52

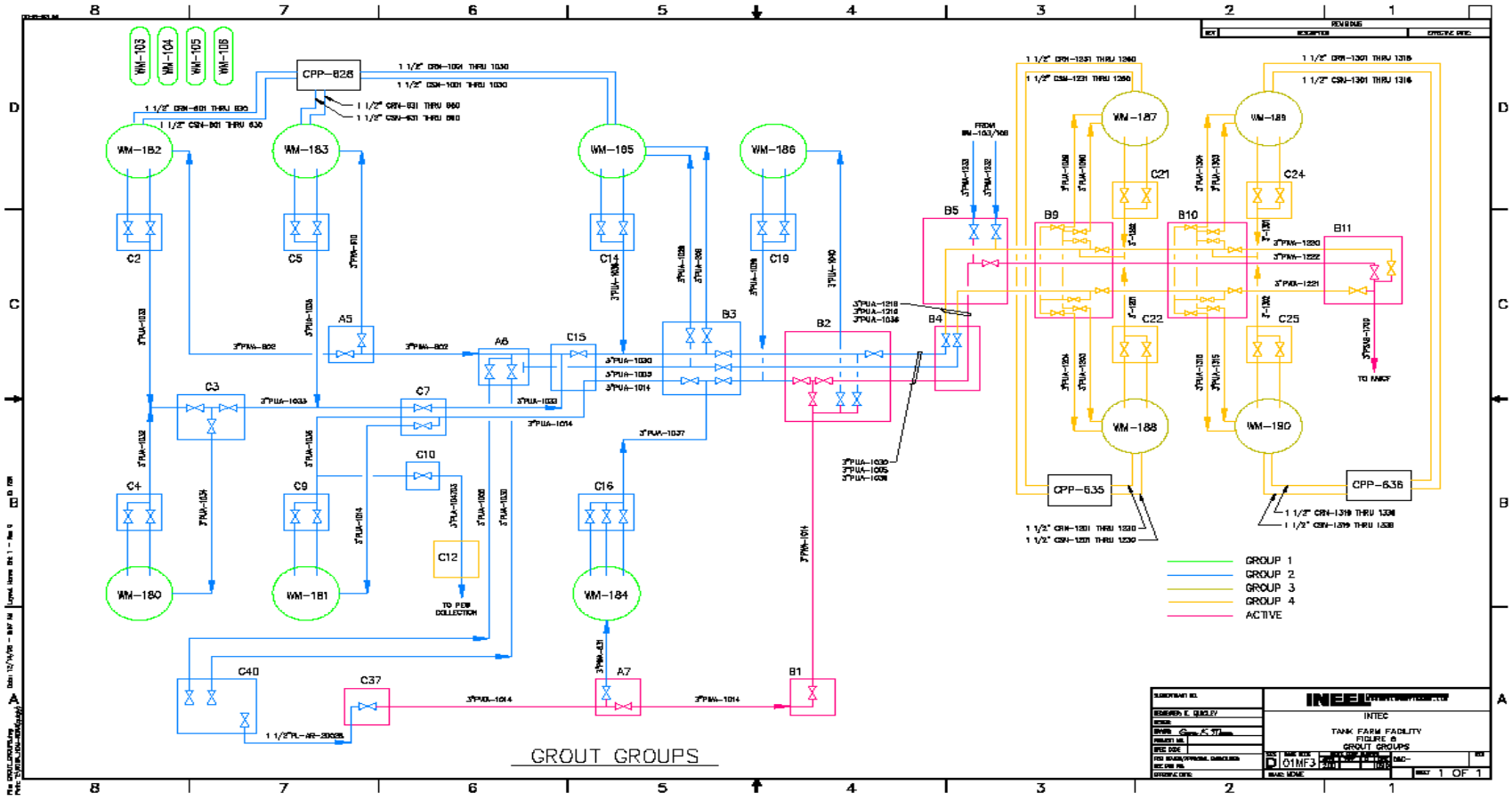
Tank and vault layers



Grouting of Vault up to VES-WM-180 Dome

Pipe Fill Grout Flowing Out of VOG Piping

Typical Grout Sequence for Tank Farm



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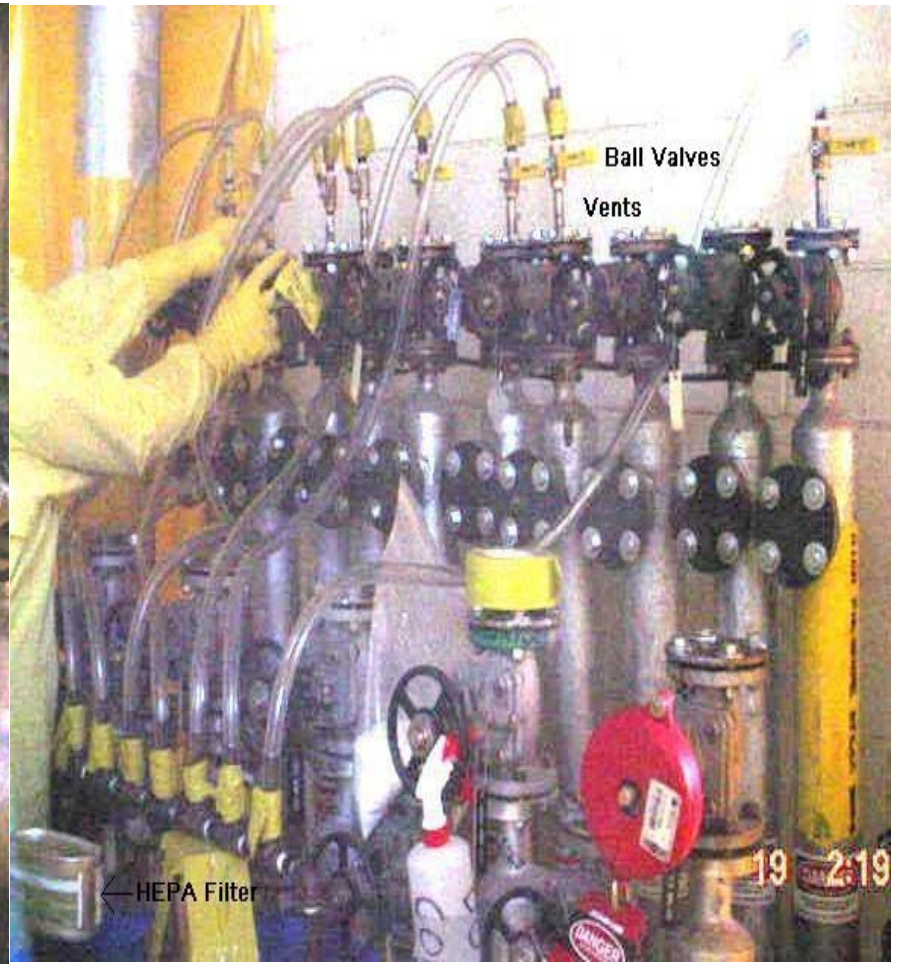
Typical Cooling Coil Grout Preparation

Grouted Cooling Coils and Pumps used for Grouting

Typical Tank and Vault Riser Grout Setup

Typical Grout Vent Collection System



Winter Conditions Require Special Safety Considerations

Questions?