Vitrification Lessons Learned
From the West Valley Demonstration Project and Their Application to the Waste Treatment Plant
West Valley HLW Processing Flowsheet
West Valley Vitrification In Cell
West Valley Melter

Slurry fed, joule heated

- 3 single-phase circuits
- 3 Inconel® electrodes
- 1150°C operating temperature
- 10-ft × 10-ft × 10-ft, water-cooled jacket
- 60 tons
- Capacity: ~5,000 lb glass
- Production ~1 ton/day
WTP HLW Melter

- Melter wt: 89 Tons without Glass/100 Ton with Glass
- Melter size: 14’-4” × 13’-8” × 11’ high
- Glass Pool area: 8’ × 5’ × 4’ high
- Production rate 3 tons/day
- 2 side large Plate electrodes used (cooled)
- External surface of refractory cooled by Cooling panels using cooling water
West Valley Melter Operations Lessons Learned That Are Applicable to WTP

- Electrical conduit design & contamination due to pressure spikes
- Silicon carbide discharge heater operational strategies
- Melter pressure control with a quick acting control valve
- Excessive Accumulation of thin glass fibers in the glass pour stream
- Melter offgas piping accumulation of solids
- Failed melter dam during initial melter heat-up
  - Drawing transpositional errors
  - Melter heat-up rate was too fast