The West Valley Demonstration Project’s (WVDP) high-level waste (HLW) canisters will have a new on-site storage location. The previously-produced canisters are on schedule to be moved to an engineered outdoor concrete pad in 2016-2018, as part of the ongoing effort to prepare their present storage location, the Main Plant Process Building (MPPB), for demolition. Final disposal of the canisters is planned for a yet-to-be established federal high-level waste repository.

The storage pad features an at-grade design capable of supporting the weight of 57 loaded storage casks containing 278 glass-filled waste canisters. Its location was one of several considered; it was chosen in part due to its on-site accessibility, proximity to site’s rail spur, and distance from future planned cleanup activities.

Each loaded storage cask will be transported about 0.5 mile to the pad using a towed rubber-tired gantry style crane traveling on an on-site roadway. Adjoining pad structures include an approach ramp for removing the casks from the transporter and placing them on the pad.

The casks are part of a passive storage system whose design is consistent with systems in use for spent nuclear fuel dry storage at nuclear power reactor sites across the U.S.
HLW Canister Storage Pad
Design and Construction

Site Analysis
Prior to final design, geotechnical testing was conducted to analyze the existing sub-surface structure and identify any impediments to safe transport of the loaded casks from the MPPB to the storage pad. That testing determined site excavation depth and engineered backfill requirements for pad construction for providing a stable pad surface capable of withstanding the weight of 57 loaded storage casks (87.4 tons per cask, each containing 5 HLW canisters).

The haul path – existing roadways on the WVDP site that extend from the MPPB to the pad location – were evaluated to determine locations requiring reinforcement, such as existing underground utilities and drainage culverts to allow conveyance of the loaded casks.

Pad Design and Construction Planning
The pad and related structures were designed to support canister storage casks for a minimum of 50 years. Pad features include several feet of compacted permeable backfill beneath a three-foot-thick reinforced concrete pad. An adjoining concrete approach will support cask off-loading and placement on the pad and crane pads will support possible future shipping operations. A grounding system will be installed for grounding the pad and associated electrical components.

Temporary storm water barriers will be placed during construction to minimize environmental impacts resulting from area runoff while the area is an active work zone. Permanent drainage features located north and west of the pad and finished grading are designed to accommodate the rainwater discharge from a 100-year storm event.

Pad Construction
Pad construction is scheduled to begin in the summer of 2013 and be completed in November 2013, and includes placement of approximately 2,800 cubic yards of locally-produced concrete.