

Day Loma Pit –Water Filled Pit Backfill Method¹

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Abstract: BRS, Inc. has designed and managed the initial backfill of the Day Loma abandoned uranium mine pit in the Gas Hills Uranium District for the Wyoming Abandoned Mine Land program. The reclamation of the Day Loma pit is part of a larger project to address a uranium mining district that included over 1,000 acres of disturbed ground with a total of four open pits and multiple spoils areas to be completed in a 15-phase project. The Day Loma pit presented some unique challenges for backfill as it included a 23-acre open water body with depths up to 65' when the work began. The total earthwork quantity to reclaim the Day Loma Pit to the ultimate geomorphic reclamation surface is 12.5 million cubic yards. When complete, a total of 2,580' of dangerous highwalls will be eliminated. The pit water was covered in two annual phases, moving a total of 5 million cubic yards from the highwalls and spoil piles into the water-filled pit. Off-site dewatering allowed backfill to be introduced without significantly varying the pit water level. As the majority of material used for the project was clay, backfill stability was of particular concern. Specific methods were employed to emplace a stable backfill into the water-filled pit. The bottom of the pit was filled with a fine material fraction with a slime consistency. As backfill proceed, this material was displaced in front of the advancing stable backfill. Near the end of the backfill operations, approximately 200,000 cubic yards of slime remained in the pit, which was managed by a combination of covering, mixing, displacing, and spreading. The construction cost total for the two phases included in this presentation was approximately \$7.9 million, of which approximately \$300,000 was required to complete the mud covering and mixing.³

Additional Key Words: Uranium mine

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 3. Work reported here was conducted near 42° 43' 48" N; 107° 40' 00" W.