

# THE BUSS MINE RECLAMATION PROJECT, GAS HILLS, WYOMING <sup>1</sup>

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**Abstract:** The Buss Mine Reclamation Project is located in the Gas Hills Mining District of Wyoming and includes the restoration of a series of open pit uranium mines and associated mine spoils encompassing some 400 acres. The mining and reclamation plan for the area, as originally approved in 1978, included the trade-off of reclamation responsibilities for a variety of pre-law mine disturbances. Had the Buss mining and reclamation plan reached its ultimate conclusion, the final of a series of open pit mines would have been left as a groundwater impoundment. Economics of uranium mining in the early 1980's forced the cessation of mining before the 1978 mining and reclamation plan was completed. As a result the 1978 reclamation plan can not be achieved and, in addition, substantial ore reserves remain in the area.

In 1993 Power Resources Inc. entered a unique agreement to purchase the Buss property and complete the reclamation of the project. Power Resources is the largest producer of uranium concentrates in the U.S., using in situ mining technology to extract the reserves with minimum environmental impact. BRS Inc. was retained by PRI to develop an alternative reclamation plan for the project which was compatible with current standards, fits the current site conditions and provides for possible future mineral extraction by in situ mining methods. Additional considerations included, recognition of adjacent topographic conditions, development of a geomorphically stable slopes and surface drainages, preservation and/or enhancement of water resources, and cost considerations. The reclamation design, as approved in March, 1994, incorporates composite slope reduction, inclusion of remnant highwalls, a groundwater fed impoundment, two surface impoundments to minimize erosion and enhance water resource utilization, and concordant geomorphic stability design criteria.

Construction of the Buss Reclamation Plan was initiated on April 4, 1994 and represents a cooperative effort by the Wyoming Department of Environmental Quality, Land Quality Division, the Bureau of Land Management, and Power Resources Inc. Construction of this five million dollar project is scheduled for completion in the spring of 1995 just two years following the development of the initial conceptual design alternatives. The presentation includes key design aspects, as well as, documentation and examples from the construction phase of the project.

**Additional Key Words:** Open Pit Mine Reclamation, Highwall Reduction, Earthwork Design, Environmental Construction.

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<sup>1</sup>Poster presented at the 1995 National Meeting of the American Society of Surface Mining and Reclamation, Gillette, Wyoming, June 5-8, 1995.

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