

## **Bond release verification requirements for successful reclamation at Wyoming surface coal mines<sup>1</sup>**

Anna Krzyszowska Waitkus<sup>2</sup>

**Abstract:** A reclamation bond must be submitted and updated periodically by all coal mines permittee to secure the performance of reclamation obligations. Approximately, 40% of coal in the US is produced by the state of Wyoming. The State of Wyoming Land Quality Division (WLQD) of the Department of Environmental Quality (DEQ), administers Wyoming's coal regulatory program. WLQD together with coal industry, government, and consultant representatives established a set of criteria and performance standards that have to be verified before a reclamation bond can be released. In Wyoming, four bond release phases (Area Bond, Phase 1, 2, and 3) for surface coal mines indicate the completion of various reclamation processes. Bond release verification criteria for an Area Bond include backfilling and regrading of the mined out area according to the approved plan. Bond release verification criteria for Phase 1 consist of reconstruction of stream channels and soil application. Completion of Phase 2 verification criteria involve an ocular approval of vegetation establishment and erosional stability and construction of permanent water impoundments. Phase 3 verification criteria include the accomplishment of revegetation success, tree replacement, and mitigation of wetlands. Major performance standards to meet the post mining land use pertain to backfill material quality approval, roads and structure removal, wildlife habitat restoration, surface and ground water quantity and quality evaluation. Examples of the bond release criteria and performance standards verification that occur through field inspections and annual reports will be discussed. The Bond Release Geodatabase (a GIS/GPS approach) was developed for a large surface coal mine to support the tracking of areas that satisfied criteria and performance standards for the incremental bond release. The Bond Release Geodatabase is a highly effective method that significantly reduces the time needed to track bond release progress, reach agreement between operator and regulator, and improve the state inspector's ability to assess reclamation adequacy and progress.

Additional Key Words: phases reclamation, performance standards, bond release geodatabase

---

<sup>1</sup> Oral paper presented at the 2017 National Meeting of the American Society of Mining and Reclamation, Morgantown, WV: *What's Next for Reclamation?* April 9-13, 2017. Published by ASMR, 1305 Weathervane Dr. Champaign, IL 61821.

<sup>2</sup> Anna Krzyszowska Waitkus, Environmental Consulting, Laramie, WY 82070