

Enforcement of surface coal mine rules and regulations, case study (Wyoming, USA)¹

Anna Krzyszowska Waitkus²

Abstract: According to the federal Surface Mining Coal Reclamation Act (SMCRA) and Wyoming Department of Environmental Quality (WDEQ), Land Quality Division (LQD) Coal Rules and Regulations all active surface coal mining and reclamation operations must be inspected on an irregular basis every month. All inspections must occur without prior notice. As a result of the inspection, a state inspector submits a list of maintenance, recommendation, and monitoring items as well as issuing any violations. The inspector of the WDEQ/LQD assesses mining and reclamation activities, assesses all compliance features, and verifies compliance with regulatory requirements and with permit commitments. Additionally, specific reclamation criteria and performance standards (e.g., backfilling, soil replacement, drainage construction, revegetation, etc.) for bond release purposes are verified in the field by joint inspection of the landowners, permit operator, WDEQ/LQD inspectors, and Office of Surface Mining and Reclamation Enforcement (OSMRE) representatives. For a large surface coal mine, the amount of compliance features could exceed hundreds of items changing with time. The collection and maintenance of inspection features and bond release criteria for the North Antelope Rochelle Mine was organized by developing a geodatabase for the inspection purposes. A spatial system to combine all data for compliance purposes was created using geographic information system (GIS) via ESRI ArcPad mobile computing software and a Trimble GeoExplorer Series handheld GPS. Using geospatial tools proved to be a highly effective method to reduce time needed to prepare inspection report, track all compliance features, and bond release criteria, track the bond release progress, improve the inspector's ability to assess reclamation adequacy and review mining and reclamation progress. Another tool to verify the operator's reclamation effort by the federal and state agencies is the review of the operator's annual report. The major purpose is to review the fulfillment of permit commitments, document deviations from the permit, evaluate monitoring data, and evaluate reclamation bond adequacy. The annual report provides data for each monitoring location of surface and groundwater stations, overburden and backfill quality, and progress of the permanent vegetation. On the basis of submitted information, the state agency is contemporaneously analyzing reclamation efforts and concluding if the operator follows permit commitment and state rules and regulations.

Additional Key Words: Inspections, Enforcement, GIS/GPS, Annual Reports

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 2. Anna Krzyszowska Waitkus, Environmental Consulting, 80 Eagle Nest Ln., Laramie, WY 82070, enviro@wyoming.com.