The Next Step After 2,000 Dam Inspections: Risk-Based Prioritization

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WhitesideSL@cdmsmith.com -(919) 325-3556 - More than 2000 dams are regulated by the South Carolina Dams and Reservoirs Safety Program. Close to 400 of these dams are classified as high-hazard-potential dams. Effective management of the high-hazard-potential dam inventory includes conducting a risk-based prioritization effort. Recently completed inspections for more than 2000 dams and development of inundation maps for most of the 2,000 dams (using FEMA’s DSS-WISE Lite) are instrumental in the risk-based prioritization effort. Risk is defined as the combined effect of hazard, performance, and consequence levels, each of which has been evaluated systematically for all high-hazard-potential dams based on screening-level risk analysis. Two different hazard types are defined as seismic hazard and flood hazard. Performance is evaluated based on the inspection reports in a qualitative manner. Consequence is evaluated from the life-at-risk and economic damage perspectives. Scoring criteria were developed with input from eight experienced dam engineers, and risk scores were assigned in a consistent manner for all high-hazard-potential dams. Doing so allowed not only for a risk-based prioritization of all dams, but also for creation of a comprehensive database containing hazard levels, downstream consequences, and condition assessments after inspections. The database will be updated as the condition of the dams, hazard levels, or downstream residential/commercial development conditions change. As a next step, semi-quantitative risk analysis (SQRA) will be conducted for the dams with the highest risk.