Data, Data, Data: Development of an Integrated Information Management System to Support Complex Environmental Programs and Projects

Christina Gepner (cgepner@burnsmcd.com) and Brian Hoye
(Burns & McDonnell Engineering Company, Kansas City, MO, USA)

Background/Objectives. The management of an environmental portfolio including multiple sites, stakeholder groups, regulatory programs, schedules, and budgets is both challenging and complex. Important project data are stored in a variety of formats across dynamic and disparate management and repository systems. Furthermore, distribution of such data is often haphazard and inconsistent: e-mailed, filed in network directories, on servers, downloaded from publicly available sources, mined from historical data, CAD, GIS, tabular, vector, raster, etc. These inconsistencies place a large administrative burden on a project team and require practitioners to work in multiple environments when assessing data in support of project decisions or when documenting project activities. Project teams are consistently seeking a means to effectively manage and share information to facilitate informed decision making, effective coordination amongst project managers and stakeholders, optimal risk mitigation, and verifiable quality assurance. A flexible and adaptable system, customized to handle data and reporting requirements specific to each project, is needed to overcome these challenges.

Approach/Activities. A four-dimensional, modern web-enabled tool that provides a spatial, user-friendly, on-demand, common operating display and user interface was developed to integrate project data for multiple projects. By accessing information from several disparate information systems and assimilating them into a single, easy-to-use interface, the data management system transformed vast data sets into actionable knowledge, and delivered critical information to decision makers and project stakeholders. Common datasets included, but were not limited to: design/engineering, plume models, permitting, mitigation, monitoring, archaeological, cultural, wetland, threatened and endangered species, publicly available data sets, construction coordination, remediation, field data, public involvement, safety, daily reports, status tracking, borings, lab results/air monitoring, etc. These data sets came together to facilitate analysis, schedule, reporting, planning, preparedness/awareness, incident response, and most of all coordination.

Results/Lessons Learned. The ability to collectively view and assess information that is stored across disparate systems and in various data formats in a four-dimensional platform transforms data into valuable knowledge and provides project teams with the opportunity to identify and account for synergies and refine site management strategies.