



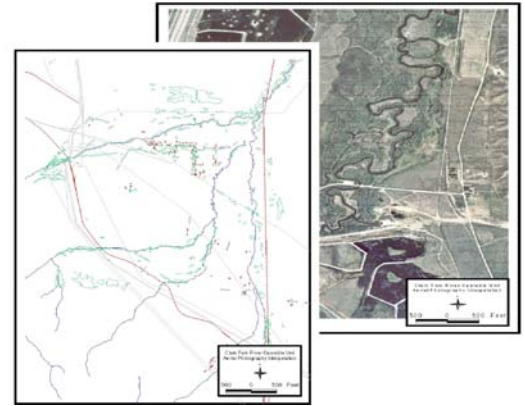
## GEOGRAPHIC INFORMATION SYSTEMS/DATA MANAGEMENT

Industry's increasing reliance on complex technologies, and the increasing complexity of regulatory criteria, have made data management and analysis a critical component of successful project management. As outlined in the examples below, EMC<sup>2</sup> personnel are experienced in the use of Geographic Information Systems (GIS), Relational Database Management, and Statistical Analyses methods to meet project technical, regulatory and managerial requirements.

**Streamside Tailings Operable Unit, Butte, Montana** – EMC<sup>2</sup> staff was responsible for the creation, maintenance, and analysis of the GIS database for a 26-mile long reach of Silver Bow Creek that was impacted by historic mining, milling, and smelting activities. Responsibilities included integration of geographic data from many sources, coordination of GIS activities among several contractors, data reporting to government agencies, cut/fill, proximity, and surface differential analyses, and the preparation of over 500 base maps, construction drawings, and other presentation materials.

### **Clark Fork River Operable Unit, Anaconda to Missoula, Montana** –

EMC<sup>2</sup> staff was responsible for all aspects of spatial data management for the Riparian Vegetation Inventory, the Surface Tailings Inventory, and the Streambank Tailings Inventory for this 120 mile long Superfund site. Work included study design, field crew training, accuracy standard development, dimensional/proximity/overlap analyses, and data reporting.



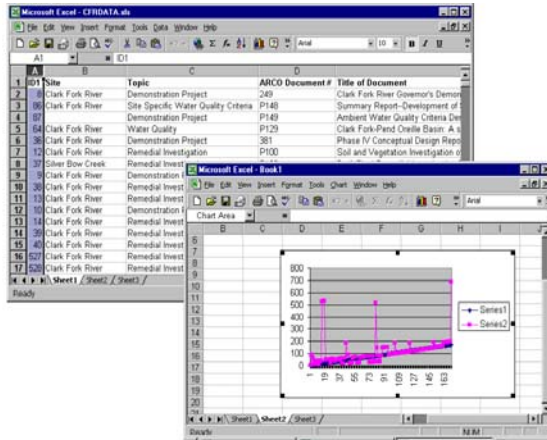
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### **BLM Riparian Area Inventory, Montana** –

EMC<sup>2</sup> staff was responsible for the creation and maintenance of the Vegetation and Site Characteristics database for the Bureau of Land Management's Riparian Area Inventory, as performed by the University of Montana and other contractors at various locations in Montana. Accomplishments included the development of a run-time data entry/analysis program. This program, written using FoxPro's suite of professional development tools, provided sub-contractors with an easy to use, graphically oriented interface for data entry, error correction, and analysis. It also served as a simple interface to the larger, centralized database.

**Bear Track Mine, Salmon, Idaho** - EMC<sup>2</sup> staff developed software routines which performed 2.5 and 3 dimensional analyses of the mine's geologic block model, quantifying geochemical analyses results for use in limnologic and water chemistry models. Performed 2.5 and 3 dimensional analyses of topographic and potentiometric surface data for use in groundwater flow models. Organized, maintained, and analyzed (spatially and non-spatially) a database of 45,000 blast holes samples and 5,000 exploration drilling samples.