



CONSTRUCTION MANAGEMENT/OVERSIGHT/QAQC

On-site owner representation and contractor/quality assurance oversight is necessary in varying degrees for all construction projects. Oversight is particularly important for environmental construction projects given that they often require a high degree of testing, documentation, regulatory interactions and field design changes. These projects have historically been more susceptible to unexpected cost and schedule increases. EMC² staff has been providing construction management/oversight services on mine reclamation and site remediation projects for over a decade. Our staffs' engineering training combined with on-site construction experience, enables EMC² to effectively oversee and document contractor compliance with project technical requirements while simultaneously meeting or exceeding our clients' cost and schedule objectives.

Flue Dust Operable Unit, Anaconda, Montana - EMC² staff provided construction management assistance and quality assurance oversight for the cement/lime stabilization of 500,000 cubic yards of copper smelting flue dust. Construction management assistance/oversight included: construction of an 800,000 cubic yard modified RCRA Subtitle D repository with leachate detection/collection system;



construction of a rail spur for bulk material shipping; construction of riprap lined site drainage channels; construction of a concrete lined decontamination pad; construction of a sprung structure for equipment decontamination during winter months; TCLP analysis and tracking of 100-ton stabilized material batches in laydown areas prior to repository placement; and material screening operations to provide riprap and cover soils. EMC² staff interacted daily with full-time federal oversight assigned to the project and maintained a seamless construction operation.

Flue Dust Stabilization Process Unit

Acid Rock Drainage Control, Arizona - After completing the design, EMC² staff provided construction management/oversight services during construction of a seepage interception system and detention pond to contain/evaporate collected seepage. Construction work included: core drilling and packer testing to define weathered bedrock extent and permeability profiles; installation of five shallow seepage interception wells and associated pumping/conveyance system; general site backfill and regrading; and construction of a two-acre HDPE lined detention basin and permalyn or asphaltic sealant lined channels and culverts.

National Zinc Site, Bartlesville, Oklahoma - After preparing all design work plans, EMC² staff provided on-site owners representation and construction management/oversight for clean-up of over 1,200 residential and 30 commercial/industrial properties and 100 alleyways with soils impacted by a former zinc smelter. Separate operable unit work included remediation of stream sediments.

Gypsum Stacks Reclamation, Joplin, Missouri - EMC² staff provided construction management support and quality assurance oversight during reclamation of phospho-gypsum piles at this former fertilizer manufacturing facility. The oversight work included: maintaining survey control, geotechnical testing, clay cover placement testing, documenting that sediment basins and drainage channels were constructed in accordance with design specifications, and overseeing revegetation work at the site.



Gypsum Stack Reclamation

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CONSTRUCTION MANAGEMENT/OVERSIGHT/QAQC (continued)

Pecos Mine Operable Unit, Tererro Mine Reclamation, Pecos, New Mexico - EMC² staff is providing construction management/oversight services during reclamation at this former polymetallic zinc/lead mine. Construction operations include: waste rock consolidation, regrading of a 14-acre waste rock pile, reconstruction of 1,500 feet of stream banks and floodplain, reclamation of impacted wetland areas, placement of a geosynthetic clay liner/two-foot soil cover over the regraded waste rock pile, construction of surface/subsurface interception system to intercept surface/subsurface flow upgradient of the waste rock pile, permitting/development/reclamation of several borrow areas, construction of gabion-lined surface water channels, implementation of an extensive revegetation/reforestation program and development and implementation of a site-wide storm water management plan that includes the development and maintenance of storm water Best Management Practices.

Hudson River Superfund Site, New York – EMC² staff performed construction oversight and contract management as a general contractor for reclamation of PCB-contaminated remnant deposits. Construction work included constructed a 460-foot-long temporary bridge across the Hudson River to access remote areas; excavation, transport and regrading of 400,000 cubic yards of soil and waste materials; placement of 50 acres of geosynthetic clay liner; geotextile/riprap placement for erosion control along 4,000 feet of Hudson River embankment; 2,000 linear foot of HDPE-lined surface water transfer channels; development/reclamation of three borrow areas; and revegetation of over 200 acres.

Arbiter/Beryllium Expedited Response Action, Anaconda, Montana – EMC² staff provided construction quality assurance/quality control for remediation of copper processing wastes at the Anaconda Smelter Superfund Site. The project included construction of two RCRA Subtitle C repositories and excavation, transport, and placement of approximately 275,000 cubic yards of processing wastes and 5,000 cubic yards of beryllium wastes into the repositories.



Arbiter Repository Construction

Defense Depot Superfund Site, Utah – EMC² staff performed construction oversight and contract management as a general contractor for a contaminated aquifer characterization/VOC plume delineation to provide baseline data for an extraction, treatment and reinjection design. Construction work included: installation of sampling pumping, injection and monitoring wells; performance of an aquifer pump test and sampling/monitoring of 27 monitoring wells; and separate excavation and manifesting of pesticide/herbicide impacted soils containerized for off-site incineration.

Rabbs Creek Remediation Project, Texas – EMC² functioned as general contractor and performed comprehensive construction management to excavate hydrocarbon impacted soils resulting from breached natural gas pipeline, apply bioremediation processes to impacted soils and reclamation/revegetation of creek bed and embankment. The work incorporated a temporary Portadam to reroute creek flow around the remediation area; and excavation/dewatering wet impacted soils prior to land farming.

Blackwell Zinc Sites Remediation, Oklahoma – Comprehensive contract management, project planning, scheduling, cost tracking and QA/QC oversight of prime contractor and also performed general contracting on components of this multi-year project. The work included remediation of: a 188-acre former zinc smelter property in preparation for commercial redevelopment under the Brownfields Program; approximately 150 residential properties; and two area track facilities originally surfaced with smelter cinders and resurfaced with clay cinders/asphalt.

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