

# PROJECT PROFILE

## UPDATE OF MSHA MANUAL FOR COAL REFUSE DISPOSAL FACILITIES

The Engineering and Design Manual for Coal Refuse Disposal Facilities, which was originally prepared by D'Appolonia in 1975 for the predecessor

to underground mines and evaluation of potential earthquake impacts on dam safety.

D'Appolonia enlisted the participation of other prominent engineering design firms with substantial industry experience and internationally recognized experts to ensure that the manual reflects a broad base of knowledge and applications.

The project involved solicitation of broad industry review and comment at two stages of the manual development: initially through a survey of design methodology currently in practice and subsequently by providing access to draft sections on critical design issues that were not previously addressed in the original 1975 manual. Some of the additions to the manual include:

- Impounding facility concepts including slurry cells, and combustion ash co-disposal,
- Site exploration methods including surface and borehole geophysics,
- Site mining and foundation issues including evaluation of breakthrough potential,
- Mine entry barriers and bulkheads,
- Stability and seepage analyses including filter compatibility,
- Decant backfilling options,
- Dam safety instrumentation, and
- Preparation of emergency action plans.

In D'Appolonia's 53-year history of serving the mining industry, the firm



The 2009 Engineering and Design Manual is available for download at MSHA's web site: [www.msha.gov](http://www.msha.gov).

has provided design, permitting, and construction phase support for more than 200 coal and other mining refuse disposal facilities.



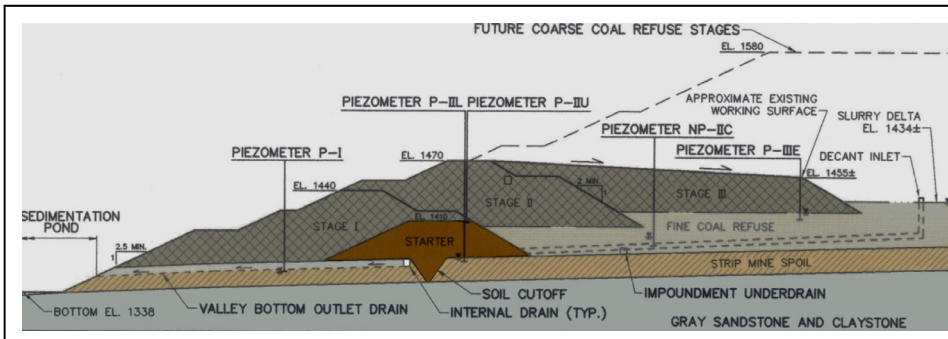
Decant backfill and intake options are among the many topics addressed in the new manual.



New site development (foreground) and active impoundment operations (background) are addressed.

to the Mine Safety and Health Administration (MSHA), has been updated. Updates to the manual reflect advances in dam safety and slurry impoundment design, construction, monitoring, inspection and instrumentation in the more than 30 years since publication of the original document.

Specific design guidance added to the manual includes engineering analyses for siting impoundments over or adja-



Cross section of upstream construction design and photograph of seismic piezocone exploration of fine refuse.