

FILLING ABANDONED UNDERGROUND FACILITIES WITH CLSM FLY ASH SLURRY

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ABSTRACT

This research was carried out to develop CLSM mixture proportions using large quantities of Class F fly ash, a small amount of cement, and water. Test results showed that a flowable fly ash slurry mixture with low cement content, Class F fly ash, and no aggregates can be produced that has excellent flowability and desired compressive strength in the range of 50 to 100 psi at 28 days. The CLSM mixture was composed of 1400 ± 150 lb/yd³ fly ash, 100 ± 50 lb/yd³ cement, and the water content was maintained in the range of 1000 lb/yd³, depending on the cement and fly ash used. High fly ash content CLSM slurry was successfully used to fill abandoned underground utility structures. This should also be appropriate in other applications where ordinary sand, gravel backfills, and slurries are used, especially for backfill where settlement has to be prevented. Excavating of the material was also possible without undue effort using ordinary excavation equipment.