K.E. Harris
W2 D220 C-K

~~EWB~~

APR 15 1986

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RIMS
LP 3S 127H-C

Subject: KINGSTON FOSSIL PLANT - MEETING ON ASH POND

Attendance

Bob Harris	OE
Don Galloway	OE
John Albright	F&H PR/TSB
Leon Massey	F&H PR/TSB
Randy Cole	F&H PR/Kingston
Ken Lewis	F&H PR/Kingston
Ed McClung	F&H PR/Kingston

Four major topics were discussed. They were (1) the repair of areas of dike C that leak; (2) relocating the ash pond discharge to the Emory River; (3) a wetlands treatment system for the acidic drainage between the bottom ash canal and the intake channel; and (4) the purchase of a dredge and internal dike construction for dredge cells.

Mr. Massey and I reported that the dredge/dike work order was being discussed among division management with consideration given to the past problems that were encountered using dredge contractors.

Discussions over the wetlands yielded a two-phase approach. Phase 1 will construct the wetlands as designed with two modifications. First, the invert of the culvert leading into the wetlands will be set to the minimum elevation to allow for the later installation of a "french drain" under the ditch should it be needed. Second, the slope of the bottom ash pile adjacent to the ditch will be reduced; and it will be capped with clay and grassed to control erosion. Also, a small diversion ditch will be cut between the existing road and the intake channel and its drainage channeled into the wetlands. Phase 2, as recommended by Mr. Galloway, would be to install a berm at low pool in the intake channel and place a drain tile at the inside toe of the berm to intercept any acidic seepage between the road and the intake channel and route it to the wetlands. Should the wetlands not function as expected, phase 2 will be the original "french drain" and permanent pumping station estimated at $565,000. The wetlands will be constructed under its own work order.

Relocating the ash pond discharge to the Emory River and the dike C repair will be performed under the same work order. The dike C repair has been previously examined by OE and estimated at $63,000 by CSB.

Mr. Harris reported that rough estimates for relocating the ash pond discharge to the river came in at less than $1,000,000. It is to have a deflector dike built in the stilling pool and included in the estimate and is to be justified by a combination of environmental and heat rate benefits.

J. G. Albright

JGA:CDR
cc: R. M. Cole, Kingston
R. E. Harris, W2 D220 C-K

Cattails helping to cleanse river

TVA creates artificial wetlands to cut pollution from coal plant

By J. PATRICK WILLARD
The Knoxville Journal

KINGSTON — A heron stretched its wings, rose from the cattails onto a gravel road and gazed across the Clinch River, where the mammoth towers of the Kingston Steam Plant speared the sky.

Greg Brodie, a Tennessee Valley Authority environmental scientist, pulled one of the cattails out of the wetlands, spooking a Canada goose that honked angrily as it skittered through the marsh.

Brodie designed the 2½-acre wetlands at the Kingston plant to reduce the iron and manganese contamination of water that seeps through coal piles into the Clinch River.

Brodie admits he does not know how the cattails remove the pollutants from the water, but he does know it works.

"It's just an infant technology right now," he says. "We are really viewing this as the black box. What goes in is nasty. What comes out is nice."

Artificial wetlands have been successful since 1985 in drawing out pollutants at TVA's Fabius Coal Preparation Plant in north Alabama, a 1,850-acre mining site that is undergoing reclamation. Now Brodie is experimenting to discover if the success can be repeated around the ash ponds of coal plants.

"Basically we think this is a microbiological process going on," he says. "What we think is there is a bacteria that uses the metal material as an energy source."

The red water, filled with iron and manganese, seeps into a ditch that channels the water into the wetland plots. The plots hold cattails planted in shallow water and some blue-green algae. As the water slowly moves from one plot to another, the iron is removed from the water, which gradually loses its muddy red color.

Under normal practice, the water would be pumped into a large ash pond and treated before it is allowed into the river. Much of the water, however, would seep out of the coal piles and into the river, Brodie says. Under federal law it is illegal for the untreated water to enter the river.

"This is probably one of the most important problems we've got right now as far as getting water quality fixed," Brodie says.

Since the initial experiments at the Fabius mines, TVA has created nine wetlands areas at the site. Recently it has planted the cattails at the Kingston, Colbert and Widows Creek steam plants.

ALAN R. ENGLISH/The Knoxville Journal

ARTIFICIAL WETLANDS: These cattails at TVA's Kingston Steam Plant are working to reduce the iron and manganese contamination that seeps through coal piles into the Clinch River. Scientists are unsure of just how the cattails work.

Once the program is completed, samples will be taken from the wetlands water every two weeks to insure the water leaving the wetlands meets federal requirements. The results of the tests will be compiled and submitted quarterly to the Environmental Protection Agency,

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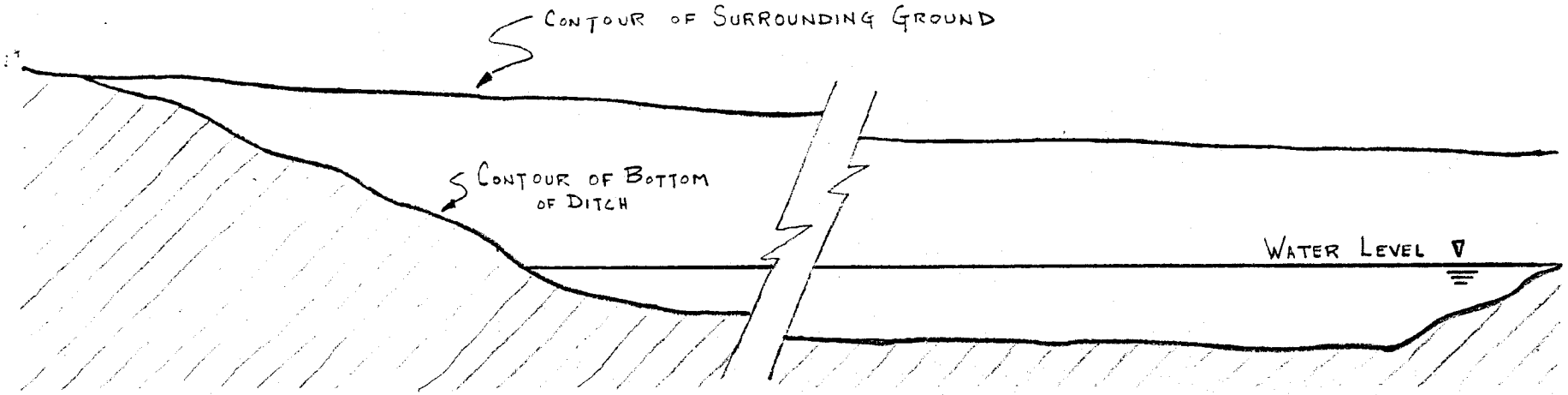
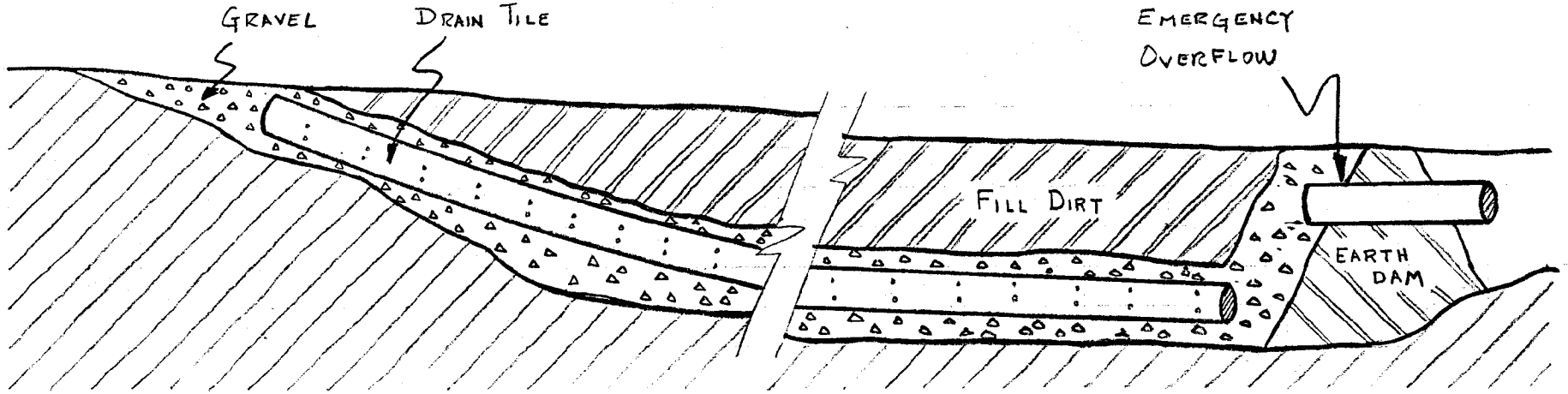


EXISTING CONFIGURATION



PROPOSED CONFIGURATION