Tennessee Valley Authority
Kingston Fossil Plant Scrubber

Aquatic Resource Alteration Permit (ARAP) for Wetlands Alteration
May 2007

Lindy Johnson

Overview

- Introduction -- why add a scrubber?
- General project information
- Proposed wetlands alteration -- need for action
- Wetlands impact avoidance
- Proposed compensatory mitigation
- Conclusion

Why add a Scrubber?

- Comply with Clean Air Act Requirements - reduce SO_2 (sulfur dioxide) emissions from Kingston Fossil Plant by ~95%
- SO_2 & acid rain
- Scrubbers help improve overall air quality in the region
- TVA's Scrubber Program has reduced SO_2 emissions by >80%

General Project Information

- Estimated cost
  - Approximately $500 million
- Construction began Summer 2006
  - Additional 100-400 jobs during construction
- Commercial operation date scheduled prior to the end of 2010
  - 30-35 permanent jobs

Gypsum Disposal: Need for Action

- Scrubber uses limestone to remove SO_2
- Average limestone ~ 950-1450 tons/day
- Gypsum results from scrubber process
- Typical uses – wallboard and agriculture
- 449,000-742,000 tons of gypsum/yr at KIF
- TVA hopes to market gypsum: not a certainty - depends on gypsum quality, supply, and demand

Gypsum Disposal: Need for Action

- Must be able to dispose of 100% gypsum produced in case marketing not successful (more FGDs coming on line; housing market slump)
- Design criteria: sufficient size disposal facility to allow time for permitting and construction

Offsite Disposal Options Considered

- Berkshire/Friche farm – significant electric transmission line relocation, gypsum transportation to site/marketing; floodplain & topography issues
- Clinch River Breeder Reactor – 25 miles from KIF; significant geological & archeological/ cultural resource impacts; significant long distance transportation costs and other issues
- Trailer Court – would impact non-TVA land owners; too small

Onsite Disposal Options Considered

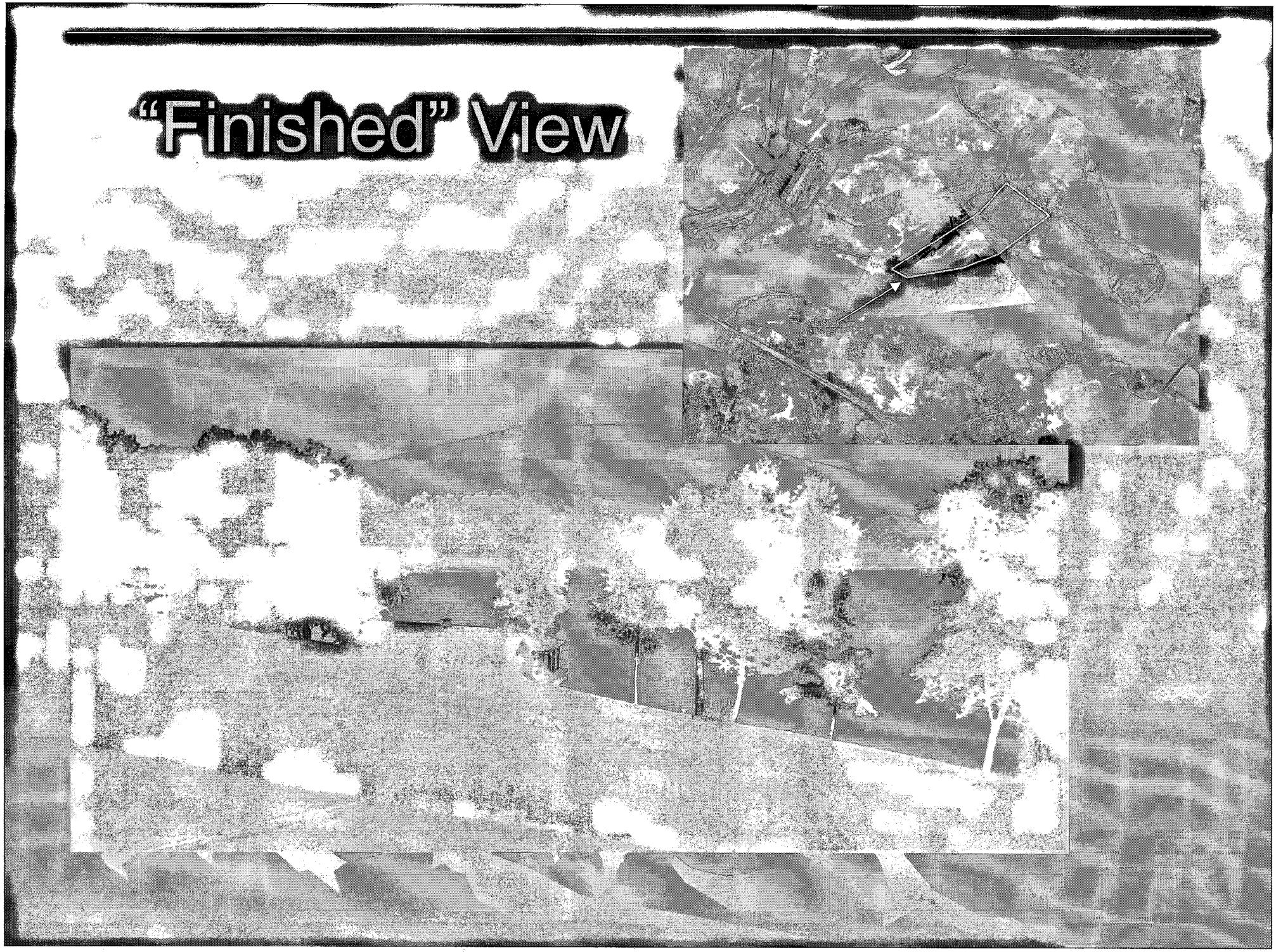
- Existing Kingston Ash Pond – combine with ash
- Existing Kingston rail loop area – high quality/biologically diverse wetland area; too small (<5 years)
- Kingston chem treatment pond area/abandoned ash pond area – too small (< 5 years); need alternate chem pond; local recreational impact (soccer field)
- Coal pile – too small (< 5 years)
- Tip of Kingston Peninsula – too small (< 5 years)
- Selected ~125 acres on KIF Peninsula

KIF Peninsula (Preferred Option)

- Disposal capacity if marketing efforts fail
- Future recovery of gypsum possible
- More efficient gypsum drying and marketing
- Avoids mixing with ash in the existing ash pond (marketing loss); fills up ash pond faster (future disposal needed)
- Lowest cost option
- Avoids additional purchase of private land for disposal facility

"Before" View

"Finished" View



Wetlands Impact Avoidance

- Avoided biologically diverse wetlands in KIF rail loop area
- Reduced impacts to existing wetlands at selected site by re-alignment of FGD disposal area to provide buffer zone along Watts Bar Reservoir
- Maintained some wetlands/other habitat around margins of peninsula disposal site

Compensatory Mitigation

- 4.81 acres impacted (1.35 acres open water)
- Using private contractor for tailored mitigation development (MRW Properties)
- Local sites investigated – appropriate land not for sale in the immediate area
- Drowning Creek floodplain – Cumberland County, Tennessee

Drowning Creek Mitigation

- Wetlands area to be enhanced near riverbank
- 19.5 acres suitable & available for mitigation activity
- 4:1 mitigation ratio
- Existing vegetation significantly different and degraded : reference conditions
- Hydrology can be restored – high probability of success in restoring high quality riverine wetland
- Uncommon resource – valuable addition

Drowning Creek Mitigation

- Native tree species – willow oak, cherrybark oak, white oak, green ash, persimmon
- Water tolerant dogwood (if available), ironwood, and/or possumhaw
- Hydrology – ditches filled, ditches blocked (amphibian habitat)
- Monitoring will be conducted as required by permit: groundwater, wildlife, tree survival

Summary

- Construction of FGD will improve air quality/comply with Clean Air Act
- FGD produces significant quantities of gypsum that must be disposed of – marketing not certain
- Minimized/avoided some impacts to onsite wetlands
- Impacts to other wetlands unavoidable
- Mitigation in watershed on 4:1 ratio

Petty, Harold L

Subject: Updated: Principal's Meeting
Location: E&C Conf Area

Start: Tue 05/29/2007 8:30 AM
End: Tue 05/29/2007 9:00 AM
Show Time As: Tentative

Recurrence: Weekly
Recurrence Pattern: every Monday, Tuesday, Wednesday, Thursday, and Friday from 8:30 AM to 9:00 AM

Meeting Status: Not yet responded

Required Attendees: Kimsey, Barry A; Petty, Harold L; Ward, Charles P; Wallmarker, Christer P; Glass, Rosalind D
Optional Attendees: Davis, Victor W; Dueker, Douglas L

I have been requested to move our 08:00 meeting on Monday to 08:30. Also, for the interim, we'll have this meeting each morning until further notice. Victor and Doug are to come on Monday but other days are at their option.

Monday
Plant Status
Project Approvals / Request for Plant Support
OT - Review for Approvals
Open Items List
Time Sheets - Is Everyone Lined Up to see correct Personnel

Tuesday
Estimating
Time Sheet Reminder
Group Meetings
Roundtable - things we need to function more affectively

Wednesday
Pre John Kammeyer Input
Open Items
Schedule Resource Reviews

Thursday
PERS - Have these been reassigned
Moving and Cleanup Items

Friday
OT Input Due COB for Monday
Upcoming DRMs
Upcoming Scheduled Leave Review (who's out next week)
Round Table