

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 1 of 37)**

No.	Comment	Response	Action (Responsibility)
Phase 1 Emory River Dredging Plan			
<i>Comments from Bob Alexander, TDEC, Division of Water Pollution Control, February 11, 2009</i>			
1	Para. 1.5 – Project Schedule: Site preparation of the Ash Recovery Area limits the ability to initiate river cleanup – from the Construction and Operations Plan (Para. 3.3), completion of the site preparation depends on the chemical pond closure. TDEC expects TVA to use all reasonable efforts to expedite this phase of the work, upon which the overall schedule depends.	Chemical ponds interim closure should be completed by 2/27/09. Interim closure procedure included in Ash Processing Area documentation.	e-mail (Cynthia Anderson)
2	Para. 1.1 Objectives and 3.2.1 Segment 1: The proposed procedure for dredging blocks along the eastern part of Emory River channel from south to north causes a concern for increased scouring of ash downstream from Segment 1 into Segment 2. TVA should explain the reasoning for how opening this “column” of blocks will not create a narrow channel where river flow is concentrated and increased scouring could occur. The explanation should address the alternative of removal of the southern rows of columns and proceeding from south to north. TDEC recognizes the concerns for flooding which	TVA has rewritten Section 1.1 Objectives to clarify that Phase 1 is to clear the Emory River channel to a specific elevation to minimize the risk of flooding, restore flow to the channel, and prevent further migration of the ash. Based on plan comments, discussions with commenters, and conversations with our overall environmental coordinator, Jacobs, TVA has revised the dredging pattern to start at the north end of Segment 1. The dredging will progress east to west from the north end of the segment to the south end. In addition, a “pilot” dredging program will begin in Segment 1 and	Amend Plan (Shaw)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 2 of 37)**

No.	Comment	Response	Action (Responsibility)
		continue for 60 days to evaluate the dredging techniques and ash behavior.	
3	<p>3.4 Mechanical Dredging: Noting that pre-incident photographs depict a heavily wooded peninsula in the northern portion. Observations of heavy equipment operations in that area suggest woody debris will be a significant factor requiring the mechanical dredge on the northern channel blockage. As noted in the comment on Segment 1, it may be advisable to dredge the southern rows first.</p> <p>TVA should assess the extent to which mechanical dredging will be required to complete the eastern column of blocks through to the north, with the likelihood of encountering significant amounts of woody debris in this area.</p> <p>Question: has TVA considered using onshore storage and tub grinding or chipping the woody debris (returning chips for land cover on ash pond berms for erosion control) versus disposal in offsite landfill?</p>	<p>Working south to north with a hydraulic dredge would clear a path for a mechanical dredge to get to the debris in the northern part of Segment 1. Debris in this area will also be removed as possible with land based equipment.</p> <p>At this time TVA cannot make a total assessment of the amount of debris that will be encountered or the extent of required mechanical dredging in Phase 1. We will be prepared to use mechanical dredging as well as hydraulic dredging as appropriate.</p> <p>TVA is evaluating the use of onshore wood debris chipping, which would require debris landing area and a cleaning pad (to remove non-wood debris before chipping). The resultant mulch will be used for dust suppression.</p>	e-mail (Cynthia Anderson)
4	<p>4.3 WQ Monitoring: TDEC agrees that the 5-station Hydrolab monitoring approach should be utilized. Especially for velocity measurement, these data should be used to assess whether installation</p>	TVA is evaluating the use of turbidity curtains to manage suspended solids during Phase 1 in the immediate	Amend Plan (Shaw)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 3 of 37)**

No.	Comment	Response	Action (Responsibility)
	<p>of turbidity curtains when the Emory River is at feasible levels, such as one (1) foot per second.</p>	<p>area of mechanical dredging in the Emory River channel.</p> <p>A turbidity curtain is designed to deflect and contain suspended solids within a limited area and provide enough residence time so the particles will fall out of suspension and not travel beyond the immediate area of dredging. Flow data for the Emory River generally precludes the use of turbidity curtains over large areas as would be required during channel dredging.</p> <p>Use of engineering and operating controls, such as implementing BMPs, modifying the dredge cutter head speed, cutting depth, sequencing of dredge cuts, and/or dredging production, and use of the turbidity monitoring systems (upstream and downstream of dredging) should prevent periods of high turbidity in the Emory River downstream of dredging activities. Monitoring systems (USGS Emory River stage gage, river velocity meters and weather stations) will warn of impending river conditions</p>	

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 4 of 37)**

No.	Comment	Response	Action (Responsibility)
	<p>TDEC recommends (as has TWRA) that, upon initial dredging, water quality monitoring of the downstream plume of solids and turbidity should also be conducted by boat. The objective of this effort is to define the boundaries of the plume along the length and width of the Emory River channel. Probes measuring pH and conductivity can be used to expedite plume location from which to select 2 to 4 locations for TSS and turbidity sampling.</p> <p>This comment recognizes that the shape and size of the plume will be a dynamic condition and will vary both in time and space based on changing river flows and reservoir levels.</p> <p>At silt curtain used for mechanical dredging, WQ monitoring of TSS and turbidity should be measured inside and outside of silt curtain to describe efficiency.</p>	<p>that could result in exceeding the turbidity limit and the dredging will be modified until river flow and/or weather conditions improve.</p> <p>TVA will increase water quality monitoring to daily during the first two weeks of dredging operations to determine the appropriate amount of water quality monitoring needed for the remainder of Phase 1 dredging. Boat based crews will monitor water quality and river conditions during dredging operations. Field parameters such as turbidity, temperature, dissolved oxygen, conductivity, and pH will be collected to assist in characterizing material disturbed and any potential impacts to ambient water quality resulting from dredging activities.</p> <p>Turbidity curtains do not reduce turbidity in the immediate area of dredging. TVA wants to ensure excessive levels of turbidity do not occur downstream of dredging operations. Therefore TVA will monitor turbidity upstream of the dredging (background) and</p>	<p>Amend Plan (Anne Aiken)</p> <p>e-mail (Cynthia Anderson)</p>

**Comments on the
 Phase 1 Emory River Dredging Plan
 And
 Ash Processing Area Construction and Operation Plan
 Kingston Fossil Plant Ash Recovery Project
 Tennessee Valley Authority
 February 20, 2009
 (Page 5 of 37)**

No.	Comment	Response	Action (Responsibility)
	<p>If turbidity measures are exceeded, TVA should consult with TDEC regarding adjustments.</p>	<p>downstream of dredging. Measuring turbidity inside and outside the curtain is not necessary as visual observations will determine the effectiveness of deployed curtains. Likewise, there is no benefit to measuring TSS inside and outside the curtain. TSS is not a real time measurement even with fast laboratory turnaround time.</p> <p>Recognizing that clearing the Emory River channel in Phase 1 is essential to reducing the risk of flooding on the Emory, TVA will make timely operational decisions based on continuous turbidity monitoring and water quality sample results.</p> <p>TVA will implement triggers such as the following:</p> <ul style="list-style-type: none"> • 24-hour average turbidity near upstream to 1/4 mile downstream difference equal to or greater than 200 NTU at monitor - investigate dredging conditions and review downstream monitor turbidity readings • 24-hour average turbidity near 	<p>Amend Plan (Shaw)</p> <p>Amend Plan (Shaw)</p>

Comment [RV1]: How and when will these be set? If we do not state the limit, we should perhaps state how the limit will be set

**Comments on the
 Phase 1 Emory River Dredging Plan
 And
 Ash Processing Area Construction and Operation Plan
 Kingston Fossil Plant Ash Recovery Project
 Tennessee Valley Authority
 February 20, 2009
 (Page 6 of 37)**

No.	Comment	Response	Action (Responsibility)
		<p>upstream to 1/4 mile and far downstream differences both equal to or greater than 200 NTU take following measures as appropriate. Decrease dredge production, adjust cutting depth, and revise water quality monitoring parameters.</p> <p>If field observations and/or water quality data trends indicate that the 200 NTU trigger is not going to be protective enough of the downstream water uses, TVA will consult with TDEC regarding implementation of more protective mitigation measures.</p>	

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 7 of 37)**

No.	Comment	Response	Action (Responsibility)
5	<p>5.1 Location of Sampling and Monitoring Stations: TDEC recommends moving the ER station 1 from 0.5 to a more upstream location nearer to RM 1.5 or 1.75 (existing station) where the river channel is more like the upstream segments, is narrower and velocities are more representative of a flowing stream and less like an impoundment. An upstream location above RM 0.5 will be more likely to detect the subtle velocity changes and the station nearer the wider embayment cross-section.</p>	<p>TVA recognizes that flow patterns in the Emory and Clinch Rivers are very complex. The repositioning of the subject station would put it in Segment 4. This would require the station to be moved several times to accommodate the dredging of Segment 4. River water quality monitoring data would be more consistent and useable if the monitoring station is not moved.</p> <p>TVA believes that monitoring station EMR 0.5 is needed at its current location to monitor dredging in Segment 4, to consistently monitor Emory River water quality downstream of all dredging operations, and to provide consistent readings of Emory River discharges into the Clinch River.</p>	e-mail (Cynthia Anderson)
6	<p>5.2 WQ Monitoring Methods and Parameters: TVA should describe purpose of turbidity sampling at TRM 563.5 or WBNP intake?</p>	Monitoring of water quality stations is being performed at the TVA Watts Bar Nuclear plant request.	e-mail (Cynthia Anderson)
7	<p>Table 3 Requested Laboratory Analyses: TVA should utilize EPA Method 245.7 to analyze Total Mercury for all surface water sampling of the Clinch/Emory River in order to detect lower levels in the water column for these reasons:</p> <ul style="list-style-type: none"> • The current Method 245.1 has not detected levels in surface water 	TVA will evaluate using the more sensitive Method 245.7 for subsequent phases of the dredge operations which will involve sediment. However, the Phase 1	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 8 of 37)**

No.	Comment	Response	Action (Responsibility)
	<p>below 0.2 ug/l. to date.</p> <ul style="list-style-type: none"> • EPA Method 245.7 can detect total mercury at 0.002 ug/l and at a reasonable cost (<\$200) from commercial laboratories. • EPA Method 245.7 is NOT THE "CLEAN" METHOD, enabling conventional collection and handling techniques to be employed. • EPA Method 245.7 is the method which TDEC currently requires in NPDES permits for Total Mercury analyses in the watershed [Clinch/Poplar Creek/Hiwassee] where we have Hg impairments. • Using Method 245.1 will likely NOT DETECT concentrations of mercury which MAY be leached from the ash – a potential concern for the present and certainly a concern for the future. 	<p>dredging will only involve ash removal, therefore the use of mercury Method 245.1 will continue for project consistency. Potential concerns regarding significant mercury leaching from ash does not appear to be warranted as little or no mercury (within analytical sensitivity) has been detected in the numerous ash samples or in the TCLP leachates generated from those ash samples. This further supports continuing the use of Method 245.1. Method 245.7 could more appropriately be used for industrial-type discharges such as any required monitoring of the Ash Pond.</p> <p>Furthermore, TVA, in cooperation with TWRA and FWS, will be performing sediment elutriate tests to evaluate environmental impacts. Method 245.7 is one of the lower detection limit methods for mercury we are considering for those elutriate tests.</p> <p>Prior to Phase 2 dredging, TVA will evaluate the utility and logistics associated with using enhanced</p>	

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 9 of 37)**

No.	Comment	Response	Action (Responsibility)
		analytical methods such as Method 245.7 in analyzing material dredged from the river.	
8	Table 4 – Analytes and Target MDL: The laboratory MDL for the constituent Mercury should be listed as 0.000002 mg/l.	TVA intends to use the RDL listed for mercury which is 0.0002 mg/l (or 0.2 ppb) .	Amend Plan (Environmental Standards/Anne Aiken)
9	5.5 – Water Quality Monitoring Report: TVA should submit monthly summaries of Monitoring performed under Section 4.3, 4.4, and Section 5 beginning 30 days from the startup of dredging and for each month thereafter until Phase I is complete.	TVA understands that multiple environmental media monitoring, site restoration and data collection/reporting operations will be occurring simultaneously with multiple parties requesting information. A project-specific electronic document transmittal site will be updated daily (working days only) and will incorporate water quality monitoring data. Access to the electronic document transmittal site will be provided to the regulators. TVA will work with TDEC and others on the oversight group to determine the appropriate frequency of reporting which may be more or less than monthly. TVA will also prepare a summary report at the end of Phase 1 dredging.	Amend Plan (Environmental Standards/Anne Aiken)
<i>Comments from Doug Neeley, EPA, February 10, 2009</i>			

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 10 of 37)**

No.	Comment	Response	Action (Responsibility)
1	Page 5-4: TVA is proposing to monitor for total suspended solids from the ash pond discharge weekly. It seems to me that if they monitor a value above their NPDES permit, they should go to daily sampling or conduct daily sampling from the start and reduce the frequency depending on the trend.	TVA will increase TSS monitoring to daily for the first two weeks and require 24 hour turnaround from the laboratories. The TSS monitoring trend will be analyzed at the end of the two week period and reduced to weekly if data trend is favorable. Likewise, the weekly trend will be analyzed for favorable trend and appropriate TSS monitoring will be established to protect the river and be consistent with NPDES permit requirements.	Amend Plan (Environmental Standards/Anne Aiken)
2	Page 6 of the document entitled "Ash Processing Area Construction and Operation Plan": TVA discusses Dust Suppression under item 5.3. It would be good if they would discuss how they are going to monitor fugitive dust and what action levels would trigger further mitigation. If this is going to be covered in their monitoring plan, a reference to that would be sufficient even though the monitoring plan is not completed.	Fugitive dust monitoring at the ash processing area will follow the current fugitive dust monitoring protocols in use for the ash stabilization efforts. See TVA Dust Suppression Plan available on the KIF website.	Amend Plan (John Dizer)
3	A general comment that covers both documents is to encourage TVA to utilize clean diesel equipment as much as possible. With the large number of diesel equipment, this could be an issue, both at the site and on the route from the rock quarry to the site.	TVA will encourage the use of equipment that can use ultra low sulfur diesel, if available.	e-mail (Cynthia Anderson)
<i>Comments from Christopher J. McArthur, PE, Environmental Engineer, EPA, February 10, 2009</i>			
1	I took a quick look at the dredge plan. They plan on using a GPS on the dredges so they know where they are, but there is no mention of any system for logging this information. They may want to include some sort	TVA will evaluate methods to monitor and record the progress of dredging and the removal of materials from the	Amend Plan (Shaw)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 11 of 37)**

No.	Comment	Response	Action (Responsibility)
	of Silent Inspector like system so they have a record of where they dredged and how much. Such a system would log the dredging location, time, cutter head depth, production rate. This could also be used for any permit compliance issues.	Emory River. Reporting of dredging progress will be made on a periodic basis to TDEC and EPA.	
2	Maybe I missed something, but it is also not clear as to how they came up with the dredging prism? How did they decide how wide a channel to dredge?	The Phase 1 dredging will occur within the original Emory River channel and is designed to restore the original channel width. The original boundaries of the Emory River channel are depicted within the yellow lines on Figure 6. The horizontal limits of the Phase 1 dredging will occur for most part within the boundaries of the Emory River channel, except where ash and debris pose a navigation hazard outside of the channel boundaries.	Amend Plan (Shaw)
<i>Comments from Doug Johnson, Regional Sediment Quality Coordinator/Dredged Material Evaluation, EPA, February 10, 2009</i>			
1	Page 2-1, Section 2.2, second paragraph states: "A dike is being constructed in the eastern portion of the Swan Pond Embayment to contain that fly ash while a remedial action plan is developed by TVA and approved by TDEC, USACE, and EPA. The final disposition of that fly ash is completed." - What does this mean?	Comment noted. TVA will revise the text.	Amend Plan (Anne Aiken)
2	Section 3, 2, 1 is very confusing. Perhaps they will explain it during the conference call.	Comment noted. TVA will revise the text. (See Bob Alexander, TDEC comment 2)	Amend Plan (Shaw) Revise Section 3.2.1.
3	Section 3.2.3 states that "Sampling will evaluate the extent of ash	TVA has conducted ash depth	Amend Plan (Shaw)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 12 of 37)**

No.	Comment	Response	Action (Responsibility)
	presence downstream...." -what sampling? (Also stated again in Section 3.2.5)	measurements in the Emory River, as shown on Figure 5. Additional surveying will continue during all phases of dredging to determine the extent of ash deposits and appropriate dredging locations and depths within the Emory River.	
4	Section 3.3, top of page 3-5 , states that dredges will pump 4,000 to 5,000 GPM containing 15-20% solids. I thought they said they would run at 5-10% solids with a possibility of hitting 15% for short periods of time.	The dredging capacity has been removed from the plan. TVA has used 15% solids and 4000 gpm in our material flow balance calculations.	Amend Plan (Shaw)
5	Section 4.3.1 - setting 200 NTU greater than "background" as trigger. 200 NTU seems really high. I think 50 NTU would be more appropriate. Perhaps TDEC will have a comment? Also, not sure exactly what "background" is.	<p>In discussions with TDEC, we were trying to identify a turbidity trigger that would limit impacts downstream without being too restrictive of dredging operations. TVA believes 200 NTU is an appropriate level to trigger operational management decisions.</p> <p>Five continuous monitoring stations will be set up to monitor the potential impacts of the dredging operations. The station ¼ mile from the dredging operations determined to be upstream of dredging (depending on flow direction) will be considered the background station.</p>	Amend Plan (Anne Aiken)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 13 of 37)**

No.	Comment	Response	Action (Responsibility)
6	Section 5.2, third paragraph states "Pending results of ongoing sediment sampling..." - what ongoing sediment sampling?	TVA will revise the text. The statement, "Pending results . . . will be deleted. Characterization of sediments will occur in Phase 2. Sediment sampling is at this time not part of the Phase 1 dredging plan. Prior to initiating Phase 1 dredging, TVA and DOE have collected background sediment samples in the Emory River (8 samples from locations between ERM 6 to 8; 1 sample from ERM 1.0; and 1 sample from ERM 0.5) and in the Clinch River immediately downstream of its confluence with the Emory River (32 samples). The samples are being analyzed for legacy sediment contaminants and fly ash constituents.	Amend Plan (Anne Aiken)
7	Good to see they changed (lowered) the Target MDLs (Table 4). First draft was way too high. I may have additional comments on the MDLs.	These will be based on the TDEC Required Detection Levels (RDL) or other applicable TDEC Water Quality Criteria. Table 4 will be revised to reflect this fact.	Amend Plan (Anne Aiken)
<i>Comments from Karrie-Jo Shell, PE, NPDES, EPA, February 10, 2009</i>			
1	Page 5-4 of the Dredging Plan mentions that TVA will monitor turbidity to make sure it does not go more than 200 NTU above background. The permit does not have a limit for turbidity but rather TSS (mg/l).	Comment noted. See response to Doug Johnson, EPA, Comment #5. Turbidity is a real time measurement	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 14 of 37)**

No.	Comment	Response	Action (Responsibility)
		to make timely operational decisions. TSS is not a real time measurement even with fast laboratory turnaround time.	
2	Attachment 3 should mention which EPA analytical methods will be used for WQ monitoring. The Most sensitive methods should be required, as I have stated before to TDEC.	The analytical methods and detection levels are addressed in Tables 3 and 4 of the dredging plan.	Amend Plan (Anne Aiken)
<i>Comments from Ronald Jordan, DC Waste Water Program, EPA, February 10, 2009</i>			
1	It's great that they're using 200.8 (instead of 200.7). HOWEVER, they really should not be using method 245.1 for mercury. Follow this web link to see a memorandum issued by the Office of Wastewater Management - it provides a very good rationale for using method 1631E or 245.7, and for not using 245.1. http://www.epa.gov/npdes/pubs/mercurymemo_analyticalmethods.pdf I'll add that in discussions with a number of states, we've been told that repeatedly about the importance of using lower level methods for mercury and that upon shifting from 245.1, the quantified measurements of mercury dramatically increased.	Comment noted. See Bob Alexander, TDEC Response 7.	
<i>Comments from Tom Welborn, 404 Program, EPA, February 10, 2009</i>			
1	Need a map of waters of US for the entire site and overlay of work proposed and completed.	TVA will prepare the requested map. It will be incorporated into the NEPA process as part of the Dredging Environmental Assessment (EA). This EA is scheduled to be completed by March 10, 2009. The draft should be distributed for	Dredging EA (Helen Rucker) Map prep included.

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 15 of 37)**

No.	Comment	Response	Action (Responsibility)
		<p>comments the prior week. TVA can prepare the requested map for EPA's use before the EA is completed if requested.</p>	
2	<p>Alternatives discussion for dredging, surface water management and storm water treatment.</p>	<p>Both hydraulic and mechanical dredging were considered, before hydraulic dredging was deemed to be more appropriate for the Phase 1 dredging. Mechanical dredging will be used for debris removal only during Phase 1. TVA will discuss the options considered for dredging in the Dredging EA that is scheduled to be completed by March 10th.</p> <p>The interim drainage plan for surface water management in the Swan Pond Embayment area will be submitted for regulatory review and approval by February 27, 2009. Options considered will be addressed in the NEPA document for this area. A general discussion is also included in the Corrective Action Plan to be submitted to TDEC on March 2, 2009.</p> <p>Site storm water treatment is addressed in the Construction Storm</p>	<p>e-mail (Cynthia Anderson)</p>

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 16 of 37)**

No.	Comment	Response	Action (Responsibility)
		<p>Water Pollution Prevention Plan (SWPPP) created prior to site preparation of the Ash Processing Area. The SWPPP will be a living document that is updated as each new construction area plan is developed. The plan is currently being updated to include the Swan Pond Bay interim drainage plan activities. The plan will be updated again as design is completed for a second ash processing area to be located in the Gypsum Pond Phase II. TVA can provide copies of the SWPPP as it is significantly updated to EPA.</p>	
3	<p>Cross section of river, sloughs and embayments to show original elevations and post elevations after dredging is complete.</p>	<p>Bathymetric surveys will be performed at critical stages of Phase 1 to track dredging progress. Several initial surveys have already been completed prior to initiation of dredging activities. Hydrographic surveys will be performed to comply with Engineering & Design Hydrographic Surveying EM 110-2-1003 on at least a weekly basis. This data can be used to create various representations of dredging activities such as cross sections.</p>	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 17 of 37)**

No.	Comment	Response	Action (Responsibility)
		TVA will coordinate with EPA and USACE on the development of specific data representations.	
4	Need to provide modeling of flooding impacts and upstream impacts on river hydrology of the ash spill and Weir 1 and the projected impacts from dredging of the ash.	TVA River Operations have created a flood model for the Emory River. This model will be shared with TEMA, local officials and EPA. Since the material is sensitive and open to misinterpretation, TVA will provide some of the documents in hard copy form only. These models should be distributed during or before the week of February 23, 2009.	e-mail (Cynthia Anderson)
5	Need to provide NEPA documents prepared to date for site work.	TVA NEPA personnel are working with the CEQ in Washington to furnish documents for work done by TVA on an emergency basis. EAs for upcoming activities and an overall Environmental Impact Statement are being prepared. TVA will coordinate with EPA on the delivery of these documents.	EPA Coordination (Helen Rucker)
<i>Comments from U.S. Army Engineer Research and Development Center, Vicksburg, MS, February 9, 2009</i>			
1	Dredging Plan: Nashville District Comment regarding Paragraph 4.2 on the hydrographic surveys: Nashville District hydro-surveys have always used NGVD 29 datum, the reason is all surveys using river gages will agree with the guard and miter sills at the locks. In the Chattanooga area the difference between GPS and river gage elevations was about 0.3'. As	TVA will coordinate surveying at the end of each dredging phase with the Nashville District Office of the U.S. Army Corps of Engineers to insure that the survey data is in acceptable	Amend Plan (Shaw)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 18 of 37)**

No.	Comment	Response	Action (Responsibility)
	you move east, the difference becomes greater. The Nashville District survey boat is not equipped with RTK at this time. If the contractor is going to do their own final surveys it is recommend that a qualified TVA or COE survey person accompany the boat to QA the procedures used and the data collected is acceptable.	format for use by USACE. TVA or contractor will coordinate with Bob Taphorn, USACE.	
2	Dredging Plan: Site background information should include flow characteristics of the river in the area to be dredged. What are the anticipated typical and maximum velocities during the course of the dredging operation? This information is important to the transport of suspended solids and to the selection and operation of turbidity barriers.	TVA will revise the text as needed. River Operations will provide the appropriate background data. Emory River flow data can be found at the following site: http://waterdata.usgs.gov	Amend Plan (Shaw)
3	Dredging Plan, Page 3-4 states, "...dredge with a 50-foot ladder (suction boom) will allow dredging to the planned depth of 710 feet msl, regardless of river stage elevation. The design specifications of the hydraulic dredge are provided in Attachment 1." The specifications provided in attachment 1 indicate a maximum dredging depth of 20 ft, short of the 30 ft expected dredging depth for this project. Does the 50-foot ladder provide the additional digging depth? Can the dredge achieve a 60-ft channel width each pass at 30-ft dredging depth? Why not use a larger dredge with standard capability to dig at 30+ ft?	TVA has modified the plan to specify a hydraulic swinging ladder dredge capable of a specific dredging capacity and 30 foot depth of cut.	Amend Plan (Shaw)
4	Dredging Plan: The output curve shown in Attachment 1 is for a 12-in. discharge line. The report says a 10-in. discharge will be used at KIF. Does the 150 cu yd per hr production account for using a 10-in. diameter discharge line?	Attachments 1 and 2 have been removed. Specific output curves will be provided by the dredging contractor.	Amend Plan (Shaw)
5	Dredging Plan: The report assumes a production time of 20 hours daily and a solids concentration of 15%. These parameters may be achievable on an optimum operating day. However, the effective working time of the dredge will be reduced by time required for maintenance, re-fueling,	TVA will use maximum operational hours in our material flow balance calculations as a conservative approach. We will use minimum	e-mail (Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 19 of 37)**

No.	Comment	Response	Action (Responsibility)
	moving anchors or spud barges, pipeline changes, waiting for debris to be moved, waiting for the dewatering system to resume operations, weather, and other factors. Typical effective working time efficiencies range from 70 to 85% for maintenance dredging without special concerns for re-suspension and positioning. For environmental dredging projects with water quality concerns, the efficiencies more typically ranges from 50 to 70%, particularly when special positioning requirements are placed on the dredge. A 15% solids concentration is a fair assumption for dredging the thicker lifts of material, but a lower concentration should be expected for cleanup passes.	operational efficiencies in schedule projections.	
6	Dredging Plan: Explain how the mechanical removal of debris will be operated in concert with the hydraulic dredging.	The mechanical dredge will be brought into blocks where hydraulic dredging has encountered debris. It is anticipated the mechanical dredge will need greater draft than the hydraulic dredge and will need to work in an area dredged by the hydraulic dredge. Because of the unknown conditions of the ash and debris in the Emory River channel, the specific sequencing and implementation of the mechanical dredge is unknown at this time.	Amend Plan (Shaw)
7	Dredging Plan, Attachment 2 provides generic information on a particular brand of turbidity barriers. What type of curtain will be deployed? What are the length and depth dimensions of the curtain to be used? What stream velocities are anticipated? How will the curtain be deployed around the dredge?	Attachment 2 has been removed. Floating turbidity curtain containment systems fastened to the debris removal barge will be used. For other applications, TVA typically	Amend Plan (Shaw)

**Comments on the
 Phase 1 Emory River Dredging Plan
 And
 Ash Processing Area Construction and Operation Plan
 Kingston Fossil Plant Ash Recovery Project
 Tennessee Valley Authority
 February 20, 2009
 (Page 20 of 37)**

No.	Comment	Response	Action (Responsibility)
		deploys 50-foot sections of turbidity curtain that are 8-feet deep. However, other applications of turbidity curtains may not be suitable for Phase 1 channel dredging due to changing flow conditions and challenges in curtain management. Turbidity curtain use will be limited to mechanical dredge in low flow conditions or near shore shallow dredging as in Segment 4.	
8	Dredging Plan: How will floatable material be contained and removed from the dredging area?	Cenospheres and other floating debris will be collected with booms and recovered from the water with vacuum equipment.	Amend Plan (Shaw)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 21 of 37)**

No.	Comment	Response	Action (Responsibility)
9	Dredging Plan: What is the rationale for monitoring turbidity at a depth of 6 ft below the surface? Initial monitoring should include measurements at multiple depths to see if a single representative depth is appropriate.	Each water quality monitoring station will only have one water quality monitoring Hydrolab®. During Phase 1 dredging, stations ERS2 and ERS3 locations are likely to be filled with ash and the Hydrolab® monitoring depth will be adjusted according to site conditions. Other fixed monitoring stations' Hydrolab® depths will be adjusted based on monitoring results. Crews in boats monitoring the dredging activities will be able to monitor water quality from multiple depths. TVA will determine the most appropriate depth to measure average turbidity from knowledge of cutting depths and monitoring results.	Amend Plan (Anne Aiken)
10	Dredging Plan: Explain the layout of the turbidity curtain that the report says "...will be deployed in the main ash pond to increase retention time there."	TVA will revise the text as follows: A turbidity curtain will be deployed in the main ash pond as a baffle between the lateral expansion cell and the sluice channel discharge to reduce short circuiting and increase solids retention time.	Amend Plan (Shaw)
11	Dredging Plan: The mechanical dredge examples shown in Attachment 2 do not look like buckets for trees and other debris. Will the mechanical	Attachment 2 has been removed.	Amend Plan (Shaw)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 22 of 37)**

No.	Comment	Response	Action (Responsibility)
	dredge be a fixed arm or cable suspended? Both types are shown.		
12	Dredging Plan: The 3,000 cu yd per day production rate is attributed in Attachment 3 to "Joe Kaldmo." Please state his affiliation and position.	Joe Kaldmo is the Vice President of TransAsh, the Phase 1 hydraulic dredging "pilot" contractor. TVA will remove "Joe Kaldmo" and add that production is typical of similar current operation at JOF.	Amend Plan (Neil Carriker)
13	Dredging Plan, Section 5 describes the monitoring that will occur before, during, and after the dredging event. The purpose for this monitoring is not clear. It is recommended this data be used to improve dredging and management operations. To accomplish this, actions associated with exceeded criteria should be determined <i>a priority</i> . For example, what actions will the dredge operator do to decrease suspended particles if the 200 NTU criteria were exceeded? Clearly it is expected that turbidity will increase, but at what level will operative modifications be done versus ceasing all operations? It is recommended at least two levels of decision making based on NTU criteria comparisons. The first level should be to consider modifications in the dredging process and the second level where dredging should cease until suspended sediments may be better controlled.	See Bob Alexander, TDEC Comment 4. The purpose for the water turbidity monitoring during dredging is described in Section 4.3. Section 5.0 describes water quality and chemical monitoring methods and procedures and Section 5.4 provides guidelines to monitor water quality results in regards to action levels. Modifications to the dredging operations within the existing approved permit and its supplements will be decided by the TVA Ash Recovery Project Manager; otherwise, changes will be agreed upon by the Kingston Oversight Executive and Construction Executive and TDEC and EPA will be notified.	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 23 of 37)**

No.	Comment	Response	Action (Responsibility)
14	Dredging Plan, Section 5.4 describes the method detection limits that will be used for chemical analysis of water samples. The justification for these MDLs should be provided. General practice for environmental assessments is that MDLs and reporting limits (RLs) must be around 5 to 10 times lower than action criteria. To what criteria will these values be compared? Table 4 should include screening criteria next to MDL values to ensure analytical chemistry methods will be adequate.	These will be based on the TDEC Required Detection Levels (RDL) or other applicable TDEC Water Quality Criteria. Table 4 will be revised to reflect this fact.	Amend Plan (Anne Aiken/Neil Carriker)
15	Dredging Plan: In addition to the chemical analysis of samples collected from the stations, particle size analysis should be conducted to characterize the particles released during the dredging process. While the majority of larger sized particles are not expected to be transported, some of the material with a diameter less than 1 um or smaller may be transported a long distance. The impact of dredging on suspended sediments and the composition of the suspended sediments will be important for determining the extent of dispersion and for improving dredging operations. This particle analysis can be completed using a combination of dynamic light scattering, centrifugation, and electron microscopy. Electron microscopy will only be required to confirm results of the DLS and centrifugation.	TVA is pursuing suspended solids transport modeling expertise based on particle size distribution.	Amend Plan (Shaw)
16	Dredging Plan: One of the significant challenges in the application of chemical screening criteria is that they do not apply to mixtures of chemicals and do not consider other factors in natural waters that may reduce the toxicological effects from a given chemical concentration. Therefore, an elutriate bioassay which mixes site water with the fly for up to 24 hours is prepared, allowed to settle and analyzed for chemical constituents and organisms exposed to the water. This approach was adopted by the dredging program in the U.S. and is routinely used where contaminants such as metals are a concern. Given the potential for metals released during dredging and during runoff from the placement	TVA biological monitoring and testing associated with the KIF ash spill event will be coordinated with TWRA, FWS, and DOE. These activities will be addressed in the NEPA documents and Corrective action Plan evaluation.	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 24 of 37)**

No.	Comment	Response	Action (Responsibility)
	ponds, it is recommended these bioassays be considered periodically. The bioassays should use a fish due to their sensitivity to metals.		
17	Health and Safety Plan: The dredging is expected to occur through the spring season and therefore some flooding is expected to occur. At what level is the flooding no longer safe? This decision point should be made prior to any field work beginning.	Evaluation of working conditions and analysis site safety hazards are regular procedures practiced by all site workers and management. All site workers have stop work authority if unsafe working conditions are encountered. Dredging operations sediment re-suspension river flow rates limits will cause dredging operations to be suspended at flow rates and velocities that are considerably lower than unsafe river conditions of high flow rates and flooding.	Amend Plan (Shaw)
<i>Comments from EPA, Region 4, February 10, 2009</i>			
1	The plan calls for using a GPS on the dredges to position the cutter head, but there is no mention of any system for logging this information. EPA recommends including some sort of system (e.g., Silent Inspector) to record where and how much dredging has occurred. Such a system would log the dredging location, time, cutter head depth, and the production rate. ERDC (Jeff Steevens) can provide assistance with this.	TVA is evaluating the dredging contractor's surveying and recording methods.	Amend Plan (Shaw)
2	It is not clear from the dredging plan, how and where "background" turbidity levels will be determined. Will background be determined at the "upstream" station? Or do you have "background turbidity levels	See response to comment # 5 from Doug Johnson, EPA.	Amend Plan (Anne Aiken)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 25 of 37)**

No.	Comment	Response	Action (Responsibility)
	<p>established from pre-spill conditions? EPA would like a better rationale for the 200 NTU trigger value and the 24-hour rolling average and how they will be implemented. How will the turbidity be calculated? Do you wait 24 hours to calculate the first "24-hour rolling average?" How often do you calculate a new 24-hour rolling average? Hourly? Is there an upper limit to an instantaneous value during the 24-hour rolling average that would trigger an action? What actions will be taken if the 200 NTU trigger value is exceeded? How will visual observations indicating "excessive turbidity" differ from the 200 NTU 24-hour rolling average? Does this only apply during daylight hours?</p>	<p>Five continuous monitoring stations will be set up to monitor the potential impacts of the dredging operations. The station ¼ mile from the dredging operations determined to be upstream of dredging (depending on flow direction) will be considered the background station.</p> <p>TVA believes 200 NTU is an appropriate level to trigger operational management decisions.</p> <p>TVA will monitor turbidity hourly from surface water quality monitoring stations during daylight and non-daylight hours until a 24-hour period allows for rolling average hourly reviews. The 24-hour rolling average will be used to calculate turbidity difference readings collected in real time from the upstream and downstream surface water quality monitoring stations. Notices will be sent to operations as the average approaches 200 NTU. The dredger will adjust dredging activities and/or BMPs if turbidity measurement triggers are exceeded. No instantaneous upper limit has been</p>	

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 26 of 37)**

No.	Comment	Response	Action (Responsibility)
		<p>established.</p> <p>Visual observations will be additional and separate field indicator that could be used to adjust dredging operations during daylight hours.</p>	
<i>Comments from Dave McKinney, TWRA, February 10, 2009</i>			
1	TWRA fully supports recapture of ash from the Emory River as a priority project.	Comment noted.	
2	The Plan should acknowledge that TVA reports ash materials distributed upstream on the Emory to at least River Mile 6.0. Future sediment monitoring should define the upstream extent of ash and determine the limits of ash distribution.	TVA is planning additional surveying of the extent of the ash deposited in the Emory River as part of future dredging phases.	e-mail (Cynthia Anderson)
3	Maximum disturbance and re-suspension of ash will likely occur from use of the clam shell dredge to remove debris. During Phase I mobile monitoring should be used to define worst case distribution and determine if the turbidity curtain is useful.	In addition to the water quality monitoring stations, TVA will have boat based crews monitoring the turbidity curtains, water quality, and river conditions during dredging operations.	e-mail (Cynthia Anderson)
4	TVA fisheries group should prepare a plan to observe and document any significant spawning movement by fish through the dredge area during Phase I operations. Recording depth finders and recording side scan sonar would be useful. Observations should include both day and night assessments.	TVA biological monitoring and testing associated with the KIF ash spill event will be coordinated with TWRA, FWS, and DOE. These activities will be addressed in the NEPA documents and Corrective Action Plan evaluation.	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 27 of 37)**

No.	Comment	Response	Action (Responsibility)
5	Shad die-offs observed during Phase I operations should be reported in a timely manner to WPC/TWRA.	TVA biological monitoring and testing associated with the KIF ash spill event will be coordinated with TWRA, FWS, and DOE. These activities will be addressed in the NEPA documents and Corrective Action Plan evaluation.	e-mail (Cynthia Anderson)
6	Phase I water quality monitoring should include mobile boat crews sampling surface, mid-depth and near-bottom water to determine worst case re-distribution and to evaluate the utility of fixed monitors outlined in 5.2 of the Plan.	Each water quality monitoring station will only have one water quality monitoring Hydrolab®. During Phase 1 dredging, stations ERS2 and ERS3 locations are likely to be filled with ash and the Hydrolab® monitoring depth will be adjusted according to site conditions. Other fixed monitoring stations' Hydrolab® depths will be adjusted based on monitoring results. Crews in boats monitoring the dredging activities will be able to monitor water quality from multiple depths.	Amend Plan (Anne Aiken)
7	Total dissolved solids should be added as an analytical parameter to all sampling plans.	TVA will update Table 3 and Table 4. TVA will add total dissolved solids to the water quality analytical parameters.	Amend Plan (Anne Aiken)
8	Discharge from fly ash dewatering should be subjected to whole effluent	Weekly toxicity testing will not	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 28 of 37)**

No.	Comment	Response	Action (Responsibility)
	toxicity testing, using both fish and invertebrate surrogates, as defined by EPA protocols, on a weekly schedule during Phase I recapture. All use of polymers should be the subject of toxicity testing prior to implementation.	provide real time operational guidance. TVA is cooperating with TWRA and FWS to determine the appropriate types and frequencies of toxicity testing and alternate indicators of bioavailability to adequately assess potential ecological impacts of dredging operations. All polymers are subject to toxicity testing prior to implementation.	
9	Total phosphate should be added as an analytical parameter for all fly ash sediment sampling	There is no evidence that fly ash contains phosphate in any appreciable concentration to warrant analysis.	e-mail (Cynthia Anderson)
<i>Comments from Steven Alexander, U.S. Fish and Wildlife Service, February 10, 2009</i>			
1	Dredge immediately above Weir 1 to depths below proposed Phase 1 target elevations and/or normal channel elevation to create an in-stream settling basin. Identify appropriate dimensions for efficacy in capturing heavier solids/particles, considering the potential for sloughing of existing in-stream fly ash.	The Phase 1 dredging is to open the Emory River channel to an elevation of 710 feet msl. Segment 3 or dredging immediately upstream of Weir 1 will be completed as soon as multiple dredges can be used in the project. TVA is essentially providing an in-stream settling area with dredging above Weir 1. However, care will be taken to avoid any disturbance of sediments during this	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 29 of 37)**

No.	Comment	Response	Action (Responsibility)
		initial dredging of Segment 3.	
2	Identify flow regimes (i.e., low and high flow conditions) where dredging is permissible or not advised.	TVA will develop flow condition parameters for dredging after consultation with dredging contractor and internal River Operations personnel.	Amend Plan (Shaw)
3	Total Suspended Solids (TSS) data may not provide substantive information. A broader approach at determining particle size distribution and homogeneity of the dredged material is needed.	TVA is pursuing suspended solids transport modeling expertise based on particle size distribution.	e-mail (Cynthia Anderson)
4	Scanning Electron Microscopy (SEM) and other analyses of the dredged and suspended material should be performed, both in-stream and within the ash processing basin, during the dredging process. Turbidity analyses alone may underestimate transport of nanoscale particles/material. The proposed 200 NTU turbidity trigger for Best Management Practice (BMP) alternatives may also not be conservative enough to guide quick decisions related to larger particles/solids transport within the Emory River.	Comment noted. See comment above and Doug Johnson, EPA Comment 5.	e-mail (Cynthia Anderson)
5	Add Total Dissolved Solids (TDS) to target water quality analyte list. Do not use 0.5 or 0.25 of the Method Detection Limit as a default value to determine compliance with Ambient Water Quality Criteria (AWQC) or in developing potential metal loading rates. Ash process discharges, commingled intake water, and/or KIF process/storm water discharges should be evaluated conservatively. Additional detail on the routine analytical methods (e.g., EPA 200.7) in use for Kingston intake and process wastewater/storm water samples is needed. Metals analyses associated with this project should be conducted with ICP-MS and/or ICP-AES to achieve lower Instrument Detection Limits (IDLs)/Method Detection Limits (MDLs), verify existing data, and characterize dewatering	TVA will update Table 3 and Table 4. TVA will add total dissolved solids to the water quality analytical parameters.	Amend Plan (Anne Aiken)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 30 of 37)**

No.	Comment	Response	Action (Responsibility)
	and ash processing discharges. Several of the existing TN AWQC for fish and aquatic life are likely below IDLs/MDLs currently in place or proposed for Kingston analyses.		
6	Add vanadium and potassium to target water quality analyte list.	There is no evidence that KIF fly ash contains vanadium or potassium in any appreciable concentration to warrant analysis.	e-mail (Cynthia Anderson)
7	Add Oxidation Reduction Potential (ORP) analysis capability to Hydrolab sondes	TVA will continue to measure dissolved oxygen as part of our water quality monitoring. We expect that oxidizing conditions will be present in the river during dredging operations making ORP analysis unnecessary.	e-mail (Cynthia Anderson)
8	Consider radionuclide analyses of the dredged material as well as existing sediments that may be removed during the dredging process.	Radionuclide analysis of the coal ash has been performed and reported. It is not anticipated that the naturally occurring radiological activity of the material will change from previous characterization. Phase 1 will not disturb river sediments or resuspend potential legacy contaminants.	e-mail (Cynthia Anderson)
9	Due to existing significant usage of the sluice ponds and potential usage of the proposed ash processing area by migratory bird species, appropriate bird hazing activities may need to be implemented. A bird hazing plan should be developed.	Comment noted. TVA will address migratory bird issues as part of NEPA process.	e-mail (Cynthia Anderson)
10	All data generated by TVA or consulting firms during the dredging plan implementation should be shared with the other natural resources trustee	TVA proposes to work with TDEC, TWRA, EPA, USFW, and USACE on	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 31 of 37)**

No.	Comment	Response	Action (Responsibility)
	agencies (i.e., U.S. Fish and Wildlife Service and Tennessee Wildlife Resources Agency).	determining the frequency and nature of the reporting of the dredging progress and water quality monitoring.	
<i>Verbal Comments from Paul Davis and Saya Qualls, TDEC Division of Water Pollution Control, February 9/10, 2009</i>			
1	Need to provide a cross-section of the river pre and post-dredging per EPA request.	Comment noted and addressed in NEPA documents.	e-mail (Cynthia Anderson)
2	Attachment 3 uses the MDLs required for Fish and Aquatic Life Use Classification. Should use the Recreation Use Classification (Water and Organisms). The RDLs for thallium and mercury are much lower than calculated results.	TVA will revise material flow balance to incorporate the appropriate criteria.	e-mail (Cynthia Anderson)
3	TDEC is performing a Reasonable Potential Assessment at the Ash Pond. Monitoring and reporting requirements may be added to required NPDES monitoring temporarily.	Comment noted.	
<i>Comments from Dee Stewart, EPA, Region 4 RCRA</i>			
1	<p>EPA recommends that the Plan include sampling and analyses (TCLP) of the dredged materials, both wet and dry.</p> <p>If the dredged CCW has constituents that fail TCLP, the solid waste is still exempt from being a hazardous waste under the Bevill Amendment as long as those constituents that fail TCLP are the inherent constituents known to be in the CCW generated at Kingston.</p> <p>Potential implications of "legacy" contaminants or wastes being comingled with Bevill wastes (i.e., the CCW): When analyzed after dredging, if hazardous wastes (or more likely, hazardous constituents) that are known to not be present in the CCW generated at the TVA</p>	TVA will develop a waste characterization for the dredged material that will include TCLP data prior to permanent disposal.	e-mail (Cynthia Anderson)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 32 of 37)**

No.	Comment	Response	Action (Responsibility)
	<p>Kingston facility fail TCLP, then the comingled solid waste would have to be considered a newly-generated hazardous waste and managed as such.</p> <p>Note: Past analyses from previous testing that indicate the known constituents in the Kingston CCW prior to its release will need to be provided for comparison.</p> <p>EPA recommends that TVA also review EPA's document "Management of Remediation Waste Under RCRA" (EPA530-F-98-026, October 1998)</p>		
Ash Processing Area Construction and Operation Plan			
<i>Verbal Comments from Glen Pugh, Jeff Norman, and Phillip Davis, TDEC Division of Solid Waste, February 9, 2009</i>			
1	<p>Permit by Rule 1200-1-7-.02(1)(c) (V) Please specify the trained personnel present during operating hours and their previous experience.</p>	<p>Trained personnel will be present during hours of operation. The personnel will be chosen based on their ash handling experience, with proven ability in rim ditch mechanical dredge ash recovery technique. Contractors such as TransAsh inc. or other companies with proven experience, good safety record, and personnel who have undergone TVA required environmental training will be present during hours of operation.</p>	Amend Plan (John Dizer)
2	<p>Permit by Rule 1200-1-7-.02(1)(c) (XII) What crusting agent will be used for dust suppression? Please provide MSDS and product availability.</p>	<p>A vinyl acrylic emulsion blend liquid dust suppression agent such as TM-06-515 MINCRYL X50TM produced by Momar Inc. or erosion control</p>	Amend Plan (John Dizer)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 33 of 37)**

No.	Comment	Response	Action (Responsibility)
		mulch such as Flextarra FGM produced by Profile Products LLC, can be applied via a truck and sprayer on the ash. Both of these products are readily available and are currently being used at KIF for dust suppression. MSDS sheets for these products can be found in Attachment 6.	
3	Permit by Rule 1200-1-7-.02(1)(c) (XIII) Is the TDEC Division of Water Pollution Control (DWPC) aware of the additional material and chemical loading into the Ash Pond?	TDEC DWPC is currently performing a Reasonable Potential Analysis on all ash constituents contained in the dredged material which will enter the Ash Pond. This analysis is a standard analysis performed during the NPDES permitting process. Results of the analysis will be provided to TVA at a later date.	e-mail (Cynthia Anderson)
4	Knoxville field office DSW personnel must be notified prior to any existing groundwater monitoring well removal or new groundwater monitoring well installation.	TDEC will be notified in advance of any well closures or installations that will be performed.	Amend Plan (John Dizer)
5	Conversations with TVA indicate that the interim Chemical Pond closure is changing from the first submitted description. Please update Chemical Pond Interim Closure section of the plan.	Due to the need for expediency, an interim closure of the ponds will be made and involve leaving the sludge material in place after stabilizing and capping with a demarcation layer of crushed stone and filter fabric. A RPG Risk Assessment consistent	Amend Plan (John Dizer)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 34 of 37)**

No.	Comment	Response	Action (Responsibility)
		with TDEC criteria will be performed to determine the risk involved in leaving the sludge encapsulated in place as part of final closure. If the risk assessment determines that it is not acceptable to leave the material in place, a final closure of the pond will be accomplished at a later date when the sludge is removed.	
6	How will ash already stored in the triangle area be handled?	Ash recovered from the west side of the failed dredge cell has temporarily been stockpiled in the northeast corner of the Ash Processing area. This material will be moved and placed over the demarcation layer for further dewatering once the area site preparation has been completed.	Amend Plan (John Dizer)
7	Figure 7 should be Figure 8	Comment noted. Plan changed.	Amend Plan (John Dizer)
<i>Comments from U.S. Army Engineer Research and Development Center, Vicksburg, MS, February 9, 2009</i>			
1	The report presents no design basis for the proposed ash processing (dewatering) and disposal system. If TVA is basing settling and dewatering rates on experience with existing systems, specific data for the existing system and the proposed system for KIF should be provided to justify the design. What are the widths, depths, velocities, etc. for the rim ditches? What are the zone settling velocities or discrete settling velocities of the ash materials? What are the anticipated concentrations	Comment noted. TVA will update the Material Flow Balance.	Amend Plan (Neil Carriker)

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 35 of 37)**

No.	Comment	Response	Action (Responsibility)
	<p>of suspended solids in the effluent from the settling areas? What free water volume must be maintained in the storage area? What is the residence time in the ash pond? What data is Trans-Ash using to produce its estimate that 90% of the ash can be recovered by the proposed dewatering system?</p>		
2	<p>The failed (ash) tailing dam started as a slope failure and then quickly progressed into a debris failure. One of the critical triggering aspects for the landslide was likely the backwater lake adjacent to the tailing dam toe. During the flow of the debris the material mixed with the nearby backwater lake (at the slope toe) and then the river water. The final underwater slope of the debris is likely now at a marginally stable state. This material now has higher water content than the tailing material state. The debris material in the old backwater lake area and inside the river channel is highly under consolidated (i.e. water is still leaving the soil mass and the mass is settling) if there is some clay in the debris mixture. Silts, especially in high speed debris flow (having lots of flow direction turns) can have a "metastable structure" meaning that a little future movement can cause a localized structural collapse and than an area failure. Metastable structures occur during violent depositions of high water content mixtures of silts with a little clay. I do not know the percent clay in the original tailing silt nor the average and range of percent passing the #200 sieve. The following is the problem, when dredging starts in the river channel there will likely be an unstable slope condition between the old backwater lake area (now filled) and the river being dredged. Remember, failed debris has a high water content and it's at present underwater slope is stable. Also, slope failures which can cascade into a debris failure can take away many times the material compared to the original slope failure. All it takes is a small over steep</p>	<p>This is a cautionary comment on the potential for material east of Weir 2 to slough into the dredged area of Phase 1. The rock weir placed across the Swan Pond embayment is designed to stabilize the ash flow to the west of the weir. TVA has also adjusted the dredging procedure to address these concerns.</p>	<p>e-mail (Cynthia Anderson)</p>

**Comments on the
Phase 1 Emory River Dredging Plan
And
Ash Processing Area Construction and Operation Plan
Kingston Fossil Plant Ash Recovery Project
Tennessee Valley Authority
February 20, 2009
(Page 36 of 37)**

No.	Comment	Response	Action (Responsibility)
	underwater dredge slope to start a debris failure which will cause a massive infilling of the dredging effort. A large debris failure into the dredge zone could even activate the original landslide.		
3	What is the usable volume of the storage area for the dredged ash material?	The usable storage area for the dredged material is dependent on stability analysis and methodology provided in the temporary processing area. The actual height of the storage area may change as more information becomes available either through the root-cause analysis or from other sources.	e-mail (Cynthia Anderson)
4	In a conference call January 21, 2009, ERDC representatives suggested that an elutriate test be performed to aid in predicting the quality of the effluent from the dredged ash disposal area. Is this analysis included in the data attached to this report?	The requested test data was included in the Ash Processing and Temporary Storage plan. The elutriate was only concerned with metals to determine the surface preparation requirements. Other data will be collected after the dredging is begun.	e-mail (Cynthia Anderson)
5	Placement of the hydraulically dredged ash in geotextile bags for dewatering and clarification rather than re-handling the dredged ash 3 or 4 times is an alternative worth considering.	TVA performed a pilot study to use GeoTube to dewater recovered ash with mixed results. Due to the timeliness and the volume of ash requiring treatment, other ash treatment alternatives were developed. The GeoTube may be	e-mail (Cynthia Anderson)

**Comments on the
 Phase 1 Emory River Dredging Plan
 And
 Ash Processing Area Construction and Operation Plan
 Kingston Fossil Plant Ash Recovery Project
 Tennessee Valley Authority
 February 20, 2009
 (Page 37 of 37)**

No.	Comment	Response	Action (Responsibility)
		considered in other processing locations.	
6	The preliminary slope stability evaluation shows an extremely idealized cross section, a piezometric level, and soil properties (in terms of only friction angle) for the different soil strata. A horizontal piezo level below the embankment is unconservative, but the soil properties were generally conservative, and the idealized cross section is likely too simplified. This is obviously a first stage estimation with no measured data. The document does not really state the procedures and methods that the engineers will use to get more realistic properties and conditions.	The usable storage area for the dredged material is based on a stability analysis using existing pre-incident data. Using this data and applying standard engineering safety factors TVA determined a maximum stacking height of 8 feet until more detailed, current stability data is available. The actual height of the storage area may change as more information becomes available either through the root-cause analysis or from other sources.	e-mail (Cynthia Anderson)