

ATSDR Coal Ash Release Initial PHA prepared 10/30/2009  
 Comments prepared by Robert Brawner and Jackie Waynick, TDEC APCD, compiled by  
 Robert Brawner 11/12/2009.

Comment #	Document Section	Page #	Comments	Suggested Amendatory Language
1	List of Tables at End of Document	viii and 188	Error in title for table	Table is identified as containing data from January 19, 2009 through February 24, 2009 on page 188. Page 188 contains a table with dates running from 1/19/2009 through 5/31/2009 and data inclusive up to 04/19/2009.
2	Background	4	Error in date	Suggest using January 19, 2009 and not January 21, 2009 in second paragraph.
3	Background	7	Question on ingestion toxicity	If the soil contained 20 PPM of arsenic and the soil was blown as dust to the child who inhaled and ingested the dust, the portion ingested (from inhalation and deposition on mucosa with that portion being brought up out of the respiratory tract and ingested with mucus or saliva) is this arsenic also counted toward the total chronic EMEG? Is this form of ingestion different from simple consumption of soil from food, from hands and eating dirt?
4	Air	38	Table d. Appears to contain some errors in the TDEC entry.	Change TISCH Hi Vol to R&P TEOM (drop word daily) and change TISCH TSP to TISCH Hi Vol and (drop word daily).
5	Air		Table d will also need to be reviewed by TVA to insure correct instrument info.	

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6	Air	40	CTEH is a private contractor employed by TVA. TVA is employing a different contractor now.	Insert the words "a private contractor" after the words "every day by" in the second sentence on the paragraph Real Time Measurements.
7	Air			Insert the words "The contractor" before CTEH at the beginning of the next sentence.
8	Air	42		Insert the words "The contractor is" before the word continuing and drop the words "They are" from sentence 2 in Real Time Results.
9	Air	46	Error in reported dates	Change the date from January 21, 2009 to January 19, 2009 in the first sentence of Sampling.
10	Air	50	Error in commentary. TDEC is not measuring metals in PM10 but in TSP. Chromium has been detected in the TSP metals reported.	Revise last sentence of 3rd paragraph and 1st sentence of 4th paragraph.
11	Figures	88	Figure is identified as December 23, 2008 but is actually an image of a prior date.	Revise text to indicate pre-spill aerial image.
12	Figures	96	Figure 9 shows an error at site PS07	Revise TDEC monitors to show TISCH Hi Vol Metals and TEOM PM10.

**From:** Tom Moss  
**To:** Bashor, Bonnie  
**Date:** 11/2/2009 10:49 AM  
**Subject:** Re: red cover PHA

How about

Could we say in places where we discuss this: Secondary standards are **considered** non-enforceable guidelines for EPA, but are **considered** enforceable standards by TDEC

Thomas A. Moss, P. G.  
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>>> Bonnie Bashor 11/2/2009 10:04 AM >>>

This where we got our info about secondary standards (<http://www.epa.gov/safewater/contaminants/index.html>).

Could we say in places where we discuss this: Secondary standards are non-enforceable guidelines for EPA, but are enforceable standards by TDEC or something similar?

National Secondary Drinking Water Regulations

National Secondary Drinking Water Regulations (NSDWRs or secondary standards) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, states may choose to adopt them as enforceable standards.

National Secondary Drinking Water Regulations ( [http://www.access.gpo.gov/nara/cfr/waisidx\\_02/40cfr143\\_02.html](http://www.access.gpo.gov/nara/cfr/waisidx_02/40cfr143_02.html) )- The complete regulations regarding these contaminants available from the Code of Federal Regulations Web Site.

For more information, read Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals ( <http://www.epa.gov/safewater/consumer/2ndstandards.html> ).

List of National Secondary Drinking Water Regulations

Contaminant	Secondary Standard
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

>>> Tom Moss 11/2/2009 9:11 AM >>>

On page 33 of the draft it says that secondary MCLs are guidelines and not enforceable. They are not health based but they are most certainly enforceable in both state and federal regulation:

1200-05-01-.12 SECONDARY DRINKING WATER REGULATIONS.

(1) The following maximum contaminant levels are established to provide a water that is aesthetically pleasing to the consumer. These standards will apply to all community water systems and to those non-community water systems as may be deemed necessary by the Department. Monitoring for these contaminants will be set in the Monitoring Program for each system, but in no event less than once every year for a surface and surface/ground supply and once every three years for a ground water supply.

Maximum Contaminant Level

Milligrams

Contaminant per Liter (unless otherwise indicated)

(a) Chloride 250

- (b) Color 15 (Color Units)
- (c) Copper 1
- (d) MBAS (Methyl Blue Active Substance) 0.5
- (e) Iron 0.3
- (f) Manganese 0.05
- (g) Odor 3 (Threshold Odor Number)
- (h) pH 6.5-8.5
- (i) Sulfate 250
- (j) TDS (Total Dissolved Solids) 500
- (k) Zinc 5
- (l) Fluoride 2.0
- (m) Aluminum 0.2
- (n) Silver 0.1

(2) The system may apply for monitoring waivers from the monitoring frequency specified in paragraph (1). The Department may issue monitoring waivers after considering: historical data, whether or not there have been customer complaints concerning the contaminant to be waived, any corrective action taken by the water supplier to correct the secondary contaminant problem, and whether or not the system routinely monitors for the contaminant as part of its treatment process monitoring program. The Department shall determine the frequency, if any, a system must monitor after considering the historical data available, the number and nature of customer complaints and other factors that may affect the contaminant concentration, and specify the decision in writing to the system.

We will continue to sample at Rockwood and Kingston's intakes but just FYI you should be aware that the likelihood of finding contamination is very low. Rockwood's intake is 1 1/2 miles upstream in an embayment from the Tennessee River and for Kingston's intake to be impacted, water will have to flow 1/2 mile back upstream (backwards) from the Clinch to the Tennessee River. Depending on TVA dam releases, it is possible for the water to flow backwards to the Kingston intake but it does so only on rare occasions.

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**From:** Paul.Estill Davis  
**To:** Bashor, Bonnie; Burr, Jonathon; Calabrese, Tisha; Head, Chuck; Moss,...  
**Date:** 10/30/2009 12:30 AM  
**Subject:** PHA Comments  
**Attachments:** Fwd: Coal ash poses significant risk: EPA report says; pha\_tva\_102309\_text.pdf; pha\_tva\_102309\_figures.pdf

Bonnie - I've looked over the PHA documents and have some picky comments. But before I get into them, I need to say what an excellent job you and TDH have done here. This is wonderfully written and thorough. I intend to print it to keep as a reference.

I'm copying **Tom Moss**, and will use this space to ask him to take a look at pages **32, 33 and 80** and give us his opinion of the groundwater discussion on those pages.

Before I get to comments, I want to suggest you reread your assessment in light of the recent EPA report on the general subject of coal ash. See the article "Coal ash poses significant risk: EPA report says" (David Borowski sent it to us today). I'm confident your assessment is much more valid, but I expect there will be comparison, so you may want to get ahead of that.

#### Comments

P. xxxiv - it looks to me that you may want the present "choose" instead of the past "chose" in the NEXT STEPS section.

p. 1 - the process description is written in present tense but some of that is obsolete. Like "The ash is deposited in an aboveground ash containment slurry pond with three cells." Those cells are goners, so it may better to state that in the past tense.

p. 4 - third paragraph, you might add here that TDEC did 7 day/week sampling and reporting and that TDH supported that with weekend lab coverage. Kingston was sampling and still is to my knowledge, but perhaps that's somewhere else in the document.

p. 20 - we would capitalize the C in "Criteria" in the paragraph just above the table. Also, you might want somewhere to recognize that you're writing about human health and that's why you limited your consideration to drinking water and recreation. While I'm on it, within recreation, our criteria apply both to contact with water and to eating fish. So on page 25 the reference to recreation not happening in winter is not exactly consistent with that. People catch and eat fish year round.

p. 21 - 1st paragraph under the intro, the board is the "Water Quality Control Board" - not "Water Pollution Control Board." Criteria are actually set by the board through rulemaking, not by TDEC through the board. You could just save yourself explaining all of this by referring to the criteria as "Tennessee's criteria" or "criteria in TDEC's rules."

p. 22 - the discussion of all of the sampling could include all of what Kingston has collected and has been analyzed at TVA's expense.

p. 25 - see earlier note about recreation in winter.

p. 27 - I would say the Harriman intake is unlikely to be impacted by the spill because it's too far above the spill site and the reservoir does not cause that much backflow, instead of because of its position upstream of Watts Bar Dam. (I suggest big D in "Watts Bar Dam" here since it's a proper name.) Also, I don't know the correct figure in either case, but I have to doubt that the Kingston and Rockwood water plants each serve the exact same population of 8,989. That has to be a mistake.

p. 80 - recommendation 7 says TDEC should continue to sample groundwater from private wells and springs on a regular basis. We sampled wells once for property owners, but not on a regular basis. I'll ask Tom Moss to remind us what we're doing now, but I think private well sampling has slowed down considerably.

p. 90, figure 3 - the blue push pin representing Kingston's water intake looks to be below the confluence of the Tennessee and Clinch rather than above. Figure 7 looks more like it to me.

Thanks, thanks, thanks. Ped

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**From:** Ruben Crosslin  
**To:** Bashor, Bonnie  
**Date:** 11/9/2009 8:32 AM  
**Subject:** Re: Fwd: government review draft: PHA TVA Coal Ash Release  
**Attachments:** government review draft: PHA TVA Coal Ash Release

The following issues are not necessarily of great significance in terms of defining the health risk from the ash spill, but I am submitting the responses for the purposes of achieving accuracy and clarity.

1. My first comment is in regard to whether or not EPA's position regarding radium concentrations in soil is based on regulation, as opposed to policy. On Page 54, 4th paragraph, it is indicated (concerning soils) that **EPA has adopted a similar regulation threshold (i.e., 5 pCi/q above background) but their limit is based upon the combined Ra-226 and Ra 228 radioactivity concentration or "total radium"**. I believe that is essentially correct in terms of EPA **guidance**, according to the 1998 EPA document (Directive no. 9200.4-25 which is the 2nd reference listed on page 85). On the first page of that directive, EPA indicates the **document provides guidance to EPA staff, the public, and to the regulated community**. It also indicates that **the document does not substitute for EPA's statues or regulations, nor is it a regulation itself. Thus it cannot impose legally-binding requirements on EPA, States, or the regulated community**. Perhaps I'm splitting hairs here, but the point I'm making is that (other than for drinking water), I've not been able to determine from looking at EPA **regulations** that radium concentration limits in **soils** are to be based on "total radium".
2. On page 55, first paragraph, it is stated that **This regulatory limit was set to ensure the exposure to gamma radiation did not exceed the background ambient radiation by more than 20 microrentgens per hour**. Again perhaps I'm spitting hairs, but the regulation I'm aware of in 40 CFR 192 . 12 (b) appears to relate directly to occupied or habitable buildings, not soils. But I am not an expert on EPA regulations so I suggest that you check with EPA.
3. Regarding the Duke University table on page 189, there may be a problem with the 6th column (Total Radioactivity). It appears that the radium 228 concentrations were added twice in arriving at the total radioactivity numbers. However, it has been suggested to me that the Duke University Total Radioactivity numbers **may** be reflecting the contribution from radon, etc. So, you may want to check with Duke University.

**From:** Chuck Head  
**To:** Bashor, Bonnie; Sloan, Paul  
**Date:** 11/13/2009 8:17 AM  
**Subject:** Re: TVA PHA

Bonnie, after a quick review of the report I have no comments. I was pleased with the presentation of the questions/concerns and the answers. The report offers information in a well written and understandable format that I think most lay persons will understand.

Thanks,

Chuck

**From:** Barbara Scott  
**To:** Bashor, Bonnie  
**Date:** 11/19/2009 9:23 AM  
**Subject:** Review of PHA Report  
**Attachments:** Public Health Assessment for TVA Kingston\_Comments\_111309.xls

Hi Bonnie,

I was given the attached spreadsheet of comments from EPA at the Kingston site to forward with my comments. I only have two comments beyond what Paul Davis has already sent to you.

Page 12, last paragraph - Is the term "enriched" the proper term to describe the coal ash? Appears to insinuate that the coal ash has undergone a process to concentrate the metals. In this area of the country, the term "enrich" is equated to the uranium enrichment process.

Page 16, first paragraph - Would it be helpful to explain the dose at which these symptoms may occur? How much higher concentration?

The report is well written and very readable. Great job!

Thanks,

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