-----Original Message-----
From: Wendte, Jim
Sent: Thursday, July 15, 2010 2:20 PM
To: 'Mark Quarles'
Cc: Kallemeyn, Vonni; Kropp, Steve; Elliott, Kevin
Subject: FW: South Dakota Coal Ash Discussion

Mr. Quarles,

Following below are answers to your most recent questions. In addition to the answers, attached to this message is a map that will hopefully clarify the location of certain features at the power plant. Also attached is other information that will serve to answer some of your questions. I apologize for the formatting and various fonts used in our answers. I received information from several sources and did not take the time to make all of this information look identical in its presentation. I hope this information serves to fully answer your questions.

Because of the amount of confusion regarding the management of ash waste at the Big Stone Power Plant, we would appreciate an opportunity to review your information and conclusions about this plant prior to the information being made public. Especially since this information will potentially be used by EPA to aid in their determination of how best to regulate the disposal of coal ash. We would like this opportunity so that we can help to ensure the information is as accurate as possible. Thank you in advance for considering our request. Jim

1. A 5-mile radius of the Big Stone Power Plant includes parts of T121N-R46W, T121N-R47W, T122N-R46W, and T122N-R47W. We have placed .pdf's of ALL of the groundwater appropriations for those four townships, and pdf's of ALL of the well reports on file with the DENR-Water Rights Program for those four townships at an ftp site for your access. The ftp site is:

ftp://ftp.state.sd.us/denr/WR/Wendte

There are 119 well reports and 11 Water Rights/Permits in the four townships. Consequently there are 130 files at the ftp site. We think providing the data in the above format is as comprehensive as we can get.

After gaining access, please download the files to your local PC. The files located on this site can only be made available on a temporary basis.

If you prefer, we also have available two excel spread sheets with the same information. However, we will not provide the excel spreadsheets unless you reply that you would prefer the information in the spreadsheet format.

2. Big Stone City purchases treated groundwater from Ortonville, MN. We are not aware of any surface water sources being utilized in South Dakota. You will need to contact the Minnesota Dept. of Health to verify if any surface water sources are being utilized in this area.

3. No known surface water intake in South Dakota. (Refer to answer 2)

4.
Big Stone Lake -
(4) Warmwater permanent fish life propagation waters;
(7) Immersion recreation waters;

(8) Limited-contact waters;
(9) Fish and wildlife propagation, recreation, and stock watering waters; and
(10) Irrigation waters.

Whetstone River - from the confluence of its north and south forks to the SD/Mn state border
(5) Warmwater semipermanent fish life propagation waters;
(8) Limited-contact recreation waters;
(9) Fish and wildlife propagation, recreation, and stock watering waters; and
(10) Irrigation waters.

5. We have no specific infomation about liner construction for the cooling pond and evaporation pond. But plant personnel provided information that the holding pond was originally constructed to waste water pond standards that allowed seepage up to 1/16 inch/day. Please remember that the water in these ponds is non-contact cooling water.

6. The brine pond underdrain system consists of a series of 6-inch perforated pipes placed under the composite liner system to collect any shallow, perched groundwater. Any water collected in the underdrain system is pumped to the cooling pond.

7. As water in the cooling pond evaporates, the concentration of the chemical constituents increases. To keep the water acceptable for use, some of the water is pumped from the cooling pond to the evaporation pond and is replaced by water from Big Stone Lake. Continued evaporation in the shallower evaporation pond increases the concentration of chemical constituents. Water is pumped from the evaporation pond to the holding pond. From the holding pond, water is passed through the brine concentrator which removes undesirable constituents from the water and discharges them into the brine ponds. Relatively pure water, demineralized by the brine concentrator, is then available for reuse by the plant. The mineralized sludge from the brine concentrator collects in the brine ponds where solids settle out and the brine supernatant evaporates. Once again, please remember that these ponds contain wastes that are neither fly ash, nor bottom ash.

8. Since 1999, brine concentrator solids have been removed from the small concentrator pond in 2003 and 2005. The removed solids are disposed in the ash monofill disposal area. No solids have yet been removed from the larger concentrator pond which was contructed in 2007

9. There is a pond located southeast of the lime sludge ponds/drying beds and west of the brine concentrator ponds that is used to temporarily hold slurried bottom ash (slag) before it is screened for recycling. The ash monofill disposal area has its own runoff pond located north of the ash monfill disposal area to handle storm water runoff.

10. The bottom ash (slag) is excavated out of the pond described in answer #9. The bottom ash (slag) is stockpiled and allowed to dry. Then the bottom ash (slag) is screened and the recyclable material is loaded into rail cars and sent out-of-state for recycling for use in shingle grit, sandblasting material, etc. The non-recyclable material is loaded into scrapers by front-end loader and hauled to the ash monofill disposal area. The fly ash is collected dry in the bag house and is temporarily stored in a covered silo similar to those used to hold Portland cement. Scrapers drive under the silo where the fly ash is loaded and then hauled to the ash monofill disposal area.

11. Please see attachments for the complete 2009 annual monitoring report.

12. The Waste Management Program has microfilmed copies of Big Stone Power Plant annual reports dating back to 1991.

13. The lime sludge drying beds were constructed using clay soils, but not to any specific compaction or seepage requirement. The drying beds are similar in design and construction to drying beds constructed by municipalities for lime sludge storage/drying.

-----Original Message-----
From: Wendte, Jim
Sent: Thursday, July 08, 2010 4:12 PM
To: 'Mark Quarles'
Subject: RE: South Dakota Coal Ash Discussion

You will receive the answers to these questions and all of your other questions hopefully sometime next week. You will also receive a detailed map of the property. You will receive a pdf file of the entire 2009 annual ground water monitoring report. You will also receive other information that will hopefully answer all of your questions in the greatest detail possible without you actually visiting SD. Jim

-----Original Message-----
From: Mark Quarles [mailto:markquarles@comcast.net]
Sent: Thursday, July 08, 2010 2:29 PM
To: Wendte, Jim
Subject: Re: South Dakota Coal Ash Discussion

Jim, thank you once again.

Jim, let's just keep this simple in terms of your group.

Regarding the Ash Pond clarification below that is apparently still needed, can you tell me:

1. What the "Ash Pond" shown on the attached figure situated between the cooling water pond and evaporation pond is. How does the ash get there?
2. How is the Ash Pond on the diagram the same / different from the Ash Runoff Pond and settlement ponds that you mentioned below?
3. Where is the Ash Settlement Pond that receives the slurried bottom ash?
4. Since fly and bottom ash reaches the ash monofill in dry form, where and how is it dried?

We submitted a FOIA request for detailed reports associated with the site. We only received excerpts from the select annual reports. Somebody graciously took their time to pull portions from the reports but failed to include narrative detail that might have answered our questions. We wish that we would have received more information from our initial request but did not. The information that we have received though seems very clear though in terms of groundwater results.

Thanks,

-----Original Message-----
From: Wendte, Jim
Sent: Thursday, July 08, 2010 2:02 PM
To: 'Mark Quarles'
Subject: RE: South Dakota Coal Ash Discussion

Mr. Quarles,

Some of the requested information will need to come from multiple programs in our Department, so it would take some time to develop answers. Instead of another long email response, I think it

would be in everyone's best interest if you were to come to SD to review our files and possibly visit the Big Stone Power Plant site.

Based upon your questions below, there are still aspects of this site we have apparently failed to make you understand. For instance and in regard to your question #9, please do not confuse the "Ash Runoff Pond" with the small "settlement pond". These ponds are located in completely different locations and serve completely different functions. The "Ash Runoff Pond" (sometimes referred to as the Ash Reclaim Pond) is nothing more than a storm water retention area immediately north of the ash disposal monofill. It is not used to settle ash. The small "settlement pond" receives slurried bottom ash from the boiler. The bottom ash is settled out and then removed for off-site recycling or on-site disposal in the ash monofill.

All of our files are open to the public if you can come to Pierre to review them. Jim

Jim Wendte, P.E.
SD DENR - Waste Management Program
523 E. Capitol
Pierre, SD 57501
Phone: 605-773-3153

-----Original Message-----
From: Mark Quarles [mailto:markquarles@comcast.net]
Sent: Tuesday, July 06, 2010 3:19 PM
To: Wendte, Jim
Subject: South Dakota Coal Ash Discussion

Jim, I hope that you had a nice holiday. Sorry for my delay in answering your questions below.

When we submitted a FOIA request, we were provided only portions of 2007, 2008, and 2009 annual reports and those portions included tables of water levels, analytical results, and for 2 years, potentiometric surface diagrams for one event. Not sure why we only got portions of the reports but that is what we got.

if you don't mind, can you or your staff answer these questions too. I hope that I am not duplicating the same questions that I have asked in the past.

1. who do I speak with to get locations of private, public, commercial, or irrigation wells within a 5-mile radius of the power plant property?
2. is the populated area east of the plant and between Big Stone Lake and surrounding the plant provided treated municipal water from surface water sources?
3. where is the public water supply intake?
4. what are the designates uses of Big Stone Lake and Whetstone River?
5. does either the cooling pond or evaporation pond have a constructed liner? If so, what type, thickness, and permeability?
6. can you describe the brine pond "underdrain collection system?
7. how does the brine concentrator pond result in 50,000 mg/L (plus or minus) or more sulfates?
8. how often are the brine concentrator pond solids removed and disposed in the landfill?
9. in our call with Steve Kropp, you folks said that the small impoundment was used to "drop out" the ash. Are you saying that the pond has never been used to settle ash other than from stormwater runoff from the monofill?
10. since ash reaches the monofill in dry form, where and how is it dried?
11. in the portions of the reports that we received, there was no statistical analyses. Can you provide those portions of the annual reports?
12. how many years of annual groundwater reports do you have on file?
13. what thickness/ permeability are the liners at the lime sludge drying beds?

Thanks in advance for answering the additional questions.

Mark