-----Original Message-----
From: Wendte, Jim
Sent: Friday, June 25, 2010 4:45 PM
To: 'Mark Quarles'
Subject: FW: South Dakota Coal Ash Discussion

Mark,

Our staff has addressed your questions below. Our answers immediately follow your questions. We are not sure which annual reports you have been provided. But much of the information that you have asked about is included in the narrative sections and data of the more recent Big Stone Power Plant annual groundwater monitoring reports. Hope the answers below help to clarify things for you. Jim

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

Mark, in response to your questions and comments:

Can you tell me what coal combustion liquid wastes go to the cooling water, evaporation pond, or the holding pond? Neither the surface water program nor the groundwater program knows because they don't have a permit. Please let me know what you have in your files for the these ponds in terms of what goes in them so that you and I can rule out coal combustion wastes / residues going there.
There are NO coal combustion wastes going to the cooling pond, evaporation pond or holding pond. The power plant withdraws lake water from Big Stone Lake each year and fills the cooling pond to a predetermined level. The plant pulls water out of the cooling pond for use in the plant and the non-contact cooling water is discharged back into the cooling pond. Every so often, the power plant pumps water out off the cooling pond and into the evaporation pond to let it evaporate. When additional capacity is needed, water out of the evaporation pond is pumped into the holding pond.

Are both brine ponds composite-lined?
Both current brine ponds were built within the footprint of the original 12-acre brine pond which had been constructed with a compacted clay liner. In 1998 the Existing Brine Pond (smaller pond) was constructed using a HDPE liner over a compacted clay liner. In 2007 the New Brine Pond was constructed using a HPDE liner also over a compacted clay liner. Both compositely lined ponds also have the added protection of an underdrain collection system under the composite liner.

Why is the brine pond(s) covered under a solid waste permit?
The brine ponds are covered under a solid waste permit because the ponds are used to settle solids/sludge associated with the brine solution. The settled brine concentrator solids are periodically removed from the brine ponds and disposed of in the ash monofill area.

Where is the lined sludge pond that you mentioned in our call?
During our phone conversation we mentioned that there were two lime sludge drying beds on-site. Lime sludge is generated on-site as part of additional water softening efforts. The two drying beds are located approximately 150 yards southwest of the powerplant and southeast of the coal stockpile area. The drying beds have compacted clay liners.

Numerous wells on-site have sulfate concentrations less than the DENR 500 mg/L standard. The ones closest to the disposal units are the highest.
If you are referring to the Ash Disposal Area, the second statement is inaccurate. The H-1 well nest is immediately downgradient and closest to the monofill and has the lowest sulfate concentrations (<500 mg/L).

Where is the best "background" well that is not near on-site disposal unit(s)?
How do you know that H4-OX / H4-I are background? When I look at the potentiometric surface diagram, they are both downgradient of the cooling water pond and the evaporation pond.
Spatial variability in groundwater chemistry inherent to the clay till in eastern South Dakota precludes placing upgradient wells at a distance from monitored areas. As discussed in a previous email, the H-4 well nest is hydraulically upgradient and the H-1 well nest is hydraulically downgradient from the Ash Disposal Area. Monitoring the data for changes in groundwater quality will indicate any potential release from the monofill. In addition, the placement of the well nests aids in screening potential changes to groundwater quality attributable to the cooling and evaporation ponds.

Jim, how does the ash get to the ash pond? Slurry?
The Ash Runoff Pond is not for disposal of ash. The Ash Runoff Pond serves to collect and retain storm water runoff from the Ash Monofill. **The powerplant uses scrapers to haul fly ash and bottom ash that isn't recycled to the ash monofill area for disposal. The ash is not slurried to the ash monofill.**

-----Original Message-----
From: Mark Quarles [mailto:markquarles@comcast.net]
Sent: Thursday, June 24, 2010 3:07 PM
To: Wendte, Jim
Subject: Re: South Dakota Coal Ash Discussion

Jim, how does the ash get to the ash pond? Slurry?

Thanks,

Mark

-----Original Message-----
From: Wendte, Jim
Sent: Thursday, June 24, 2010 1:54 PM
To: 'Mark Quarles'
Subject: RE: South Dakota Coal Ash Discussion

Mark, A couple of examples of what I mean by "context".....

You mentioned sulfate numbers in the range of 50,000 ppm. We acknowledge those sulfate numbers related to a release from the brine concentrator ponds we discussed. But a release from a brine concentrator pond has absolutely nothing to do with coal ash disposal. The numbers we have for sulfate immediately downgradient from the ash monofill are less than 500 ppm. The sulfate numbers upgradient from the ash fill are actually higher than downgradient, but only slightly higher. If you suggest a sulfate number of 50,000 ppm related to ash disposal, it has been taken out of context.

Our review of the ground water data shows that upgradient (H-4 well nest) sulfate and chloride concentrations are greater than in the downgradient H-1 well nest. Ground water data from as far back as 1994 at this location show ground water that is highly mineralized, very hard, and high in sulfates. This is very typical of the glacial till in South Dakota. Analysis of the highly mineralized ground water in the till creates many challenges when evaluating inorganic parameters for potential ground water impacts. We have a large volume of data from different ground water monitoring sites around SD where background sulfate numbers exceed 2,000 ppm. Once again, please note that the sulfate numbers in the wells around the ash monofill at the Big Stone site are less than, or in the worst case scenario equal to, average sulfate numbers in the till across SD.

These are just a couple examples of how I think it might be possible for someone not extremely familiar with these SD sites to possibly present information out of context. 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: Wednesday, June 23, 2010 3:23 PM
To: Wendte, Jim
Subject: Re: South Dakota Coal Ash Discussion

Jim, you got me on that one! I sure don't remember that discussion but you are 100% correct. That is me. I have looked at so many of these sites in the last 6 months, they seem to roll over one another. From the date, it looks like I spoke with him when trying to figure out what information was available for FOIA. That period was very busy.

Thanks for refreshing my memory. I meant no harm or disrespect.

I am in the process of evaluating all Big Stone data. By putting this information "into context", what do you mean?

Thanks,

Mark Quarles, P.G.
Global Environmental, LLC
615-352-0471 office
615-504-0956 mobile

On 6/23/10 3:09 PM, "Jim.Wendte@state.sd.us" <Jim.Wendte@state.sd.us> wrote:

Mark,

When we spoke this morning, you seemed quite certain that you had never corresponded with anyone in SD about coal ash issues before. As you can see below, it is pretty apparent that you and Steve have corresponded more than once in the recent past. I'm certain that you have spoken with many state representatives and it is probably difficult to recall every conversation. I do hope the information we provided was helpful. You certainly gave us food for thought. We are confident that there are no significant ground water impacts associated with coal ash disposal at the Big Stone Power Plant. I hope that once you finish your review of the Big Stone facility and put all of the available information into context, you will come to the same conclusion.
Jim Wendte, P.E.

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523 E. Capitol
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-----Original Message-----
From: Kropp, Steve
Sent: Wednesday, June 23, 2010 2:08 PM
To: Wendte, Jim
Subject: FW: Ben French Black Hills Corp Plant

Here's a copy of the only e-mail I've gotten from Mark. I talked with him on the phone on May 4 and May 6.
-----Original Message-----
From: Kropp, Steve
Sent: Thursday, May 06, 2010 12:30 PM
To: 'Mark Quarles'
Subject: RE: Ben French Black Hills Corp Plant

We do a file for the 4.6 acre Ben French coal combustion waste landfill. The 4.6 acres is the permitted boundary for the landfill. There is no surface impoundment.

-----Original Message-----
From: Mark Quarles [mailto:markquarles@comcast.net]
Sent: Thursday, May 06, 2010 11:07 AM
To: Kropp, Steve
Subject: Ben French Black Hills Corp Plant

Steve, see attached document at http://www.publicintegrity.org/assets/pdf/CoalAsh-Doc2.pdf page B-2-1 that shows the Ben French plant has a 4.61 acre coal combustion waste landfill. Can you confirm that the Waste Management Program does or does not have a file associated with the the landfill and / or surface impoundment associated with that plant?

Thank you!

Mark Quarles, P.G.
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