

From: Riner, Steve" <Steve.Riner@blackhillscorp.com>
Sent: Monday, June 22, 2009 3:06 PM
To: Curtis Taipale [cdtaipal@cdphe.state.co.us]
Subject: Black Hills Corporation comments on four-factor Regional Haze Analysis

Black Hills Corporation is providing these comments on the Supplementary Four-Factor Analysis performed by the Western Regional Air Partnership (WRAP) for W.N. Clark Station in Colorado. W.N. Clark is now owned by Black Hills Corporation, though it is still shown on these documents as being owned by Aquila, Inc.

First, communications on this topic seem to have broken down a little. It is important that Black Hills staff who have been tracking the regional haze issues be kept informed of these proposals. I received the report in a roundabout way from my department manager, not directly from CDPHE. Originally I was on the CDPHE distribution list because of my involvement with regional haze/reasonable progress stakeholder group, but after the Aquila operations (of which W.N. Clark was part) were sold to Black Hills Corporation last year my e-mail address changed. I have previously notified CDPHE of the change but apparently my new address hasn't been updated on the distribution list. Please be sure I am included on the list as steve.riner@blackhillscorp.com. And, since our department manager, Fred Carl, has used e-mail on an older Black Hills Corporation domain that is also being eliminated please be sure he is on the list as fred.carl@blackhillscorp.com.

It is difficult to review these cost estimates without seeing the underlying assumptions about the units. In general, we think that because these were done using industry-wide averages, and because of the large number of units evaluated, there was no attempt to determine site-specific factors. The major issue with W.N. Clark is the very small size of the units. The cost figures for SCR, for instance, are based on unit size, but in the reference that was cited, all units under 300 MW are lumped together to get the \$/kW cost. With economies of scale, systems for 18 and 24 MW units would have a significantly higher cost than units close to 300 MW. In general, it isn't possible to find \$/kW figures for units of this size, but costs for units of this size tend to be off the graph in an area where the \$/kW curve is rising steeply.

The lack of site-specific knowledge of the units is also indicated by the fact that low-NOx burners were proposed as a feasible technology for stoker boilers.

Besides the unit cost issue with adding controls to very small units, W.N. Clark is located on a relatively narrow riverside plot of land and has little room for additional equipment on the site. Additional pollution control equipment would require more ductwork and other ancillary equipment than most installations. Thus, costs would be even higher.

Finally, we question the accuracy of an electricity requirement figures of 2% for a wet scrubber. That figure seems too low for a fairly energy-intensive process.

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