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To:	**Ed Harvey**
Company:	**C/o John Rogness, Kentucky Public Service Commission**
City/State:	**Frankfort, KY**
Fax No:	**1-502-564-3460**

From:	**Lloyd Levy**
Date:	**August 6, 2002**
Subject:	**Kentucky Powerplant Impacts**

No. of Pages (including cover): **3**

Notes: I've attached two memos. On July 6, I filed a memo on my review of the permits CD and noted obersvations relevant to our site assessment topics. On July 9, I filed a memo on exhaust and cooling tower considerations that took into account mentions of these features in the air permit.

3773 CHERRY CREEK NORTH DRIVE, SUITE 850
DENVER, COLORADO 80209.3827

PHONE: 303.321.2547, FAX: 303.399.0448
e-mail: bbc@bbcresearch.com
internet: www.bbcresearch.com

BBC Research & Consulting
3773 Cherry Creek North Drive
Suite 850
Denver, Colorado 80209 3827
303.321.2547 fax 303.399.0448
www.bbcresearch.com bbc@bbcresearch.com

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MEMORANDUM

To: File
From: Lloyd
Re: Kentucky Power Plant Impacts, Review of KMPP Permits Disk
Date: July 6, 2002

I reviewed the solid waste, air, and wastewater permits and made the following observations, listed in order of my view of how relevant they are to our evaluation of SAR:

- The AQ permit covers fugitive dust and other fugitive emissions under regulation KAR 63:010.
- The Kentucky air quality (AQ) division asserts that the potential for AQ impacts from off-site coal loading, handling and transport is accounted for in the fugitive emissions provisions of the air permit. This came in response to a comment from Tom Fitzgerald of the Kentucky Resource Council.
- A "plant boundary" is recognized for purposes of air quality modeling, according to a comment by the AQ division. However, I didn't see where this boundary is described verbally or graphically in the permit.
- A CFB demonstration project is underway in Jacksonville, Florida. Some in the AQ permitting process view it as a precedent for the KMPP. Because of DOE funding, Jacksonville Electric prepared an EIS under NEPA. I emailed a request for this document on June 21 and hearing nothing followed up with another email on July 6.
- The air permit would expire 18 months after issue if project construction does not commence, subject to extension provisions. Permit issue date is May 4, 2001.
- The permit is not transferable, but a permit with the same terms apparently may be "re-issued" to a successor by administrative amendment, presumably without re-opening substantive issues.
- The entrance to the ash landfill site is described in the permit as 6.7 miles north of US 80 on KY 476.

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www.bbcresearch.com bbc@bbcresearch.com

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MEMORANDUM

To: Kentucky Power Plant Impacts File

From: Lloyd

Re: Kentucky Mountain Power Exhaust Stack and Cooling Tower Considerations

Date: July 8, 2002

I reviewed the Application and other materials and found the following regarding the KMPP exhaust stack and cooling towers.

1. The exhaust stack is described in Section 8.4, Scenic Compatibility

- "The tallest portion of the power plant is the stack that will be approximately 450 feet in height"
- "The highest elevation of the plant, the stack will be at an elevation of approximately 1,850. This will be the critical benchmark elevation for the visual/scenic assessment"
- "Considering that Robinson Forest has a very dense tree and vegetation cover, there are over 150 days of precipitation in the area creating atmospheric obstructions and the single vertical inclusion of the power plant stack approximately four miles from the critical activity areas in Robinson Forest, the potential for other environmental obstructions and minimization of visual impacts is high."

2. The air permit mentions the "single chimney," but there is no description of the structure.

3. The cooling towers are described in Section 8.2, Description of the Facility:

- "Cooling towers will be multi-cell mechanical draft wooden towers with PVC fill."

4. Note that neither the stack nor the cooling towers are listed in Section 8.3.4, Location of Facility buildings, Transmission Lines and Other Structures.

5. I reviewed the air permit (# V-01-045) – pp. 20 - 21address the 2 cooling towers:

- They are required to 0.01% drift eliminators. No monitoring or testing of drift eliminators is required.

- There is no discussion of "plume abatement" (see below for definition).

6. I reviewed some manufacturers' websites to get information on cooling tower issues. Here is a brief rundown.

- Drift is entrained water in the tower discharge airstream. Drift appears to be regulated mainly because of the risk of Legionnaires' disease, which is normally contracted by the inhalation of contaminated water droplets. Other problems are dermatitis and respiratory infections from water treatment chemicals, corrosion to adjacent plant, and flashover on power lines.

- Drift can also be safety hazard by forming ice on roads and walkways, and it can result in higher water make-up and water treatment costs.

- Drift elimination forces fine drift particles to agglomerate to form larger droplets of sufficient weight and size to fall by gravity against the upward air velocity and not become re-entrained in the exit air.

- Controlling the visible plume may falls under the rubric of plume abatement. This apparently requires a different type of tower. (LEL note: Although drift elimination may also help with plume abatement, there is apparently a significant difference in equipment required to control the drift versus the plume.)

- Plume formation is the result of water vapor in the cooling tower exhaust air and it depends on temperatures of input and output waters, input and output airs, ambient temperatures, dewpoints, etc.

- Plume appearance depends on contrast with the sky.