

**PGDP Citizens Advisory Board  
Water Task Force  
January 9, 2004 \* CAB Office**

**CAB Members Present:** Linda Long  
Jim Smart, Chair

**DOE Representatives Present:** David Dollins

**Commonwealth of Kentucky  
Representatives Present:** Brian Begley (via telephone)  
Gaye Brewer  
Jon Maybriar (via telephone)  
Todd Mullins (via telephone)  
Lori Veal (via telephone)

**BJC Representatives Present:** Bryan Clayton  
John Farrell (via telephone)

**Support Staff Present:** Kim Crenshaw  
Lynn Link  
Kendra Payne

**Public:** Vicki Jurka

The meeting was called to order at 12:10 p.m.

**North-South Diversion Ditch Update**

Dollins reported excavation of Section 2 of the North-South Diversion Ditch (NSDD) was completed on December 19, 2003. He said all of the soil has been placed in burrito bags awaiting disposition. He stated that the U.S. Department of Energy (DOE) is waiting for validated data.

Smart asked if any volatile organic compound screening had been done in the field. Mullins stated test screening was done on the burrito bags using In-Sitsu Object Count Systems for radionuclides and all have been below detection levels. Maybriar said a portable Gas Chromatography instrument was randomly used to scan burrito bags, in which no trichloroethylene (TCE) was detected. He asked when burrito bags would be sent to the C-746-U Landfill for disposition. Dollins said shipment of the bags to the landfill is pending the receipt of data results.

Dollins said if DOE and the Commonwealth of Kentucky reach an agreement on the type of sampling and characterization that needs to be completed, field work will begin in 60 to 90 days on Section 1 of the NSDD.

## **C-400 Remedial Action Proposed Plan**

Dollins stated the Water task force had recommended that a list of lessons learned during the Six-Phase Treatability Study be added to the Groundwater Operable Unit C-400 Remedial Action Proposed Plan. He said that DOE will accept the recommendation to document lessons learned, however, the list will be incorporated in the Six-Phase Heating Treatability Study Final Report because it is a more widely distributed document. He stated a letter from DOE will be forthcoming the following week.

Clayton reported the C-400 Remedial Action Proposed Plan is currently being drafted. He stated there are four alternatives presented in the plan:

1. No action
2. Limited action, which includes continuing existing institutional controls and implementing enhanced institutional controls. The enhanced controls have not been decided. They could range from purchasing water rights, issuing deed restrictions, and possibly purchasing the properties.
3. Six-Phase Heating, including remedial action and contaminant removal.
4. Dual phase extraction for the unsaturated zone and steam flooding for the saturated zone.

Clayton said alternative three was the preferred alternative, which is Six-Phase Heating.

Smart inquired about the timeline of the document. Clayton said the Proposed Plan will be issued to the Commonwealth of Kentucky no later than January 30, 2004. He said there will be a 45-day public comment period followed by the release of the final version of the document. Clayton reported the Record of Decision will be submitted to regulators mid-summer and fieldwork is expected to begin fifteen months later.

Mullins asked what was the response from DOE Headquarters regarding the Six-Phase Heating project. Clayton said the overall summary was a mixed resolution to the success of Six-Phase. He said DOE had recovered dense nonaqueous-phase liquid (DNAPL), but it was not enough to determine where the material originated. He stated there were a number of questions that need to be implemented in the design phase. Farrell said that the report shows that all of the objectives for the project were met. He said they experienced electrode problems early in the project, but all groundwater cleanup criteria goals were met and soil cleanup criteria and all goals were exceeded.

## **Water Balance Presentation**

Clayton presented information regarding a site-wide water balance that was performed in 2000 utilizing existing data. He said the analysis did not include taking active measurements and was based mainly on estimates. Begley said he assumed the numbers quoted were best guesses, not average conditions. Clayton said some of the averages for the outfall numbers given for pipe leakage and basin seepage were based on engineering judgements and various verbal communications.

Clayton reported that two analyses were conducted. He said the first analysis was for a plant water balance, which was data collected for average plant conditions that utilize average production levels, average power, and cooling water consumption. He stated no precipitation conditions were included in this study. Clayton said the boundary for the evaluation was the Paducah Gaseous Diffusion Plant (PGDP) security fence, and the balancing flow value was used to account for errors inherent in the utilized data. Begley said the boundary that was used for the 2000 study is questionable. He stated DOE should consider extending the boundary to include the water policy area. Begley also said that the Tennessee Valley Authority's influence on the movement of the plumes should be researched.

Clayton said the second analysis was a precipitation balance in which data points were gathered for rainfall and groundwater recharge. He stated drainage basin run-off coefficients were based on weighted averages for drainage surfaces.

Begley said a comprehensive water budget is very important to the groundwater modelers. He said a computer model could be created on what is seen in the plumes and wells to manipulate and form questions to ask the model about plant closure. He said some questions are:

1. When the plant shuts down and there is no longer 11.9 million gallons of water per day being withdrawn, what happens when the creeks quit flowing?
2. Is TVA going to be operating at the same withdrawal intensity?
3. Will the Depleted Uranium Hexafluoride Conversion facility increase the flow of water to the plant and what types of impact could occur?
4. Will the Olmsted Dam projection of raising the Ohio River six feet affect the area?

Begley said the 2000 study was a good first step but it did not answer all the questions. He said the Commonwealth of Kentucky, groundwater modelers, and other entities formed a list of things they would like to include in the scope of work. He stated after the list was compiled, they would narrow the list down. Clayton said the estimated cost of the entire list was at \$3-4 million. Begley requested a breakdown for the individual items of inputs and outputs to see what scope of work could be cost productive and useful for the water balance to occur. Dollins agreed to determine the vital data for the end goals and conclude the essentials to reach that goal. Clayton suggested that the water balance be added to the next quarterly modeling meeting agenda.

Smart asked what kind of confidence level could be placed with the water balance done in 2000. Clayton said the confidence level is low considering the estimates that were made. He said with real time data using meters for key reading, the confidence level would be raised. Smart said he would like to know the dollar amount verses confidence level for justification of expenses associated with conducting a water balance.

### **Revisit Southwest Plume Recommendation**

Clayton said the Water task force had made a recommendation requesting DOE include in the Southwest Plume/Site Investigation Work Plan the following:

1. Take three to four grab samples at each manhole along the storm sewer.
2. Compare the water grab samples with the soil samples and video camera survey results to determine any correlation or contamination.

Clayton said Outfall 8 has a continuous flow of 800,000 gallons a day therefore, the sewer line never completely drains to be tested for the TCE DNAPL sources. The Site Investigation Workplan is planning on direct push technology every 50 feet to gather soil measurements to determine if there is TCE in the area.

Smart suggested that Clayton speak with Tanner regarding the recommendation. He said a response could then be prepared for the recommendation.

### **Next Month's Agenda**

Smart said he would like the February agenda to include:

1. NSDD Update
2. C-400 Remedial Action Proposed Plan
3. Water Balance Status
4. Next Month's Agenda

The meeting adjourned at 1:50 p.m.

### **Action Items**

Clayton: Prepare ratio of confidence verses cost level percentage for implementation of a water balance.

Clayton: Discuss Southwest Plume recommendation with Tanner.

Staff: Copy of 2000 Water Balance Report for Smart.