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HISTORY OF PADDY'S RUN CREEK AND SURROUNDING WASTE PIT STORAGE AREA (WPSA)

DOCUMENT DATE 02-27-87

Department of
Oak Ridge Operations
P. O. Box E
Oak Ridge, Tennessee 37831

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LCB (last)

February 27, 1987

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Mr. William D. Franz, Chief
Environmental Review Board
Planning & Management Div.
US - EPA
Region V - 5ME-12
230 S. Dearborn Street
Chicago, Illinois 60604

Dear Mr. Franz:

HISTORY OF PADDY'S RUN CREEK AND SURROUNDING WASTE PIT STORAGE AREA (WPSA)

Reference is made to my February 20, 1987 letter with the subject "Relocation of Paddy's Run Creek - Feed Materials Production Center."

As stated in the referenced letter, we have conducted a futher investigation of the history of Paddy's Run and WPSA to better understand the area's near-surface geology. The information obtained for this effort was based on interviews with long time former FMPC employees, aerial photographs, and various documents referring to the structure of the area. A copy of the findings is provided in the enclosed report.

The investigation thus far has revealed the following:

- Relocation of the Paddy's Run streambed has occurred twice.
- A former tributary of Paddy's Run traversed the present waste pit area.
- Entrance into the aquifer underlying the FMPC may be provided by groundwater seeps and through several unaccounted for wells.

The streambed of Paddy's Run has been relocated on two occasions. The first relocation occurred in 1961-62 to direct stream flow away from Pit 3 and is shown by 1A-1B on the attached aerial photograph (Attachement 1). The second relocation occurred in the early 1970's for the purpose of preventing streambank erosion at Paddy's Run Road and is noted as 2A-2B on the aerial photograph (Attachment 2). This information was provided for you in the referenced letter.

There was formerly a tributary to Paddy's Run which traversed the present pit area. The natural watershed of this tributary was supplemented with water from a drainage tile system. Springs encountered in pit construction, associated with this tributary's streambed, appear to have been supplied by water from these combined sources. The springs were not associated with upward pressure or volume from the underlying aquifer. The drainage tile system mentioned above is reported to have extended eight miles in length through the upper third of the FMPC site. Although much of this system has been disrupted, the remnants need to be considered for a present understanding of groundwater flow.

A groundwater seep was reported to have been encountered along the south wall of Pit 5 during its construction. The seep apparently originated in a layer of sand (about 450 feet in length and 6-8 feet in height) from which water flowed at a low rate. This sand appears to be the edge of a sand lens, profiled in the well log as being 52 foot deep and is reflected in the profile of Well No. 7 located at the outer edge of the south wall of Pit 5. The well log indicated that sand was encountered below an 8 foot layer of topsoil and continued unbroken by clay to a depth of 60 feet. Below 60 feet, the sand layer became a mixture of sand and gravel and continued until the well's end depth of 116 feet. This well log, if correct, indicated that there may be a potential unimpeded entrance into the underlying aquifer from the Pit 5 area.

It was also learned that there were two cased wells installed at the former agricultural buildings before the site was developed. One of these wells may still be located at or near Pit 6 and the other may still be located near the present Well No. 10. The method of removal of these wells is uncertain; therefore they are suspected as potential means of entrance into the aquifer.

Based on the above information, DOE has taken the following actions:

1. The Pit 5 and Clearwell system were removed from active service on February 24, 1987. With this action, effluents from the General Sump are routed directly to the Biodenitrification (BDN) Surge Lagoon prior to treatment at the Demonstration Biodenitrification Unit and Sewage Treatment Plant. It is our best technical judgement that this action will have a positive environmental impact on FMPC operations. However, the retention capability of the BDN Surge Lagoon and Sewage Treatment Plant loading can only be estimated at this time. Thus, you should be aware that there may be isolated occurrences that could result in NPDES violations as a result of removing the Pit 5-Clearwell system from service. In addition, as previously discussed with you, it will be necessary to place the Pit 5-Clearwell system into

temporary active service to make permanent repairs to the BDN surge lagoon liner or if a major problem develops in the use of the BDN surge lagoon/Demonstration BDN unit/Sewage Treatment Plant treatment system.

2. The data and preliminary conclusions in the enclosed report are currently under a more thorough review. In addition, the report's data have been provided to personnel conducting the Remedial Investigation/Feasibility Study (RI/FS) and the Characterization Investigation Study (CIS) for verification through the studies currently in progress. If remedial actions are warranted prior to completing the RI/FS, your office will be consulted.

3. As a result of this new information, it is likely that the Task 1 deliverable to the RI/FS - Evaluation of Current Situation - will be necessary. Additionally, the RI/FS Sampling Plan (Task 2 supporting document) will be evaluated to determine if the sampling needs and priorities should be modified. If modifications to either deliverable (Task 1 or 2) are necessary, these will be transmitted to your office upon completion.

Upon your review of this letter and report, DOE would welcome the opportunity to discuss this matter further as soon as it is mutually convenient.

Sincerely,

Ray Hansen

for James A. Reafsnyder
Site Manager

Attachments (2): As stated

DP-84:Collier

cc w/encl:
Steve Clough, US-EPA, 5

cc w/o encl:
Warren Tyler, OEPA
Tom Winston, OEPA
Graham Mitchell, OEPA

bcc w/encl.
Bill Snyder, CC-10, ORO
Margaret Wilson, SE-31, ORO
Doyle Brown, ER-121, ORO
Lou Bogar, WMCO
Bill Weinreich, WMCO
Bill Britton, WMCO
Susan Castle, WMCO