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**DISAPPROVAL OF OU #5 WORK PLAN
ADDENDUM FOR ADDITIONAL MONITORING
WELLS**

12/29/92

**USEPA/DOE-FN
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LETTER**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

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REPLY TO THE ATTENTION OF:

Mr. Jack R. Craig
United States Department of Energy
Feed Materials Production Center
P.O. Box 398705
Cincinnati, Ohio 45239-8705

HRE-8J

RE: Disapproval of OU #5 Work Plan
Addendum for Additional
Monitoring Wells

Dear Mr. Craig:

The United States Environmental Protection Agency (U.S. EPA) has completed its review of the revised Operable Unit (OU) 5 Work Plan Addendum for Additional Monitoring Wells. The Addendum identifies six areas in OU 5 requiring further investigation: (1) the area east of the Storm Sewer Outfall Ditch, (2) the Southfield, (3) the area east of Plant 6, (4) the well cluster at location 013, (5) the northeast portion of the Production Area, and (6) background wells. U.S. EPA has several comments regarding this addendum. Although the information gathered from this addendum is valuable, it will not address data gaps which exist for any of the six areas listed above.

U.S. EPA hereby disapproves the Work Plan Addendum pending incorporation of the attached comments. Also U.S. EPA recommends this Addendum be discussed at the January 7, 1993 meeting.

Please contact me at (312/FTS) 886-0992 if you have any questions.

Sincerely,

James A. Saric
Remedial Project Manager

Enclosure

cc: Graham Mitchell, OEPA-SWDO
Pat Whitfield, U.S. DOE-HDQ
Nick Kauffman, FERMCO
Jim Theising, FERMCO
Paul Clay, FERMCO

REVISED OPERABLE UNIT 5 WORK PLAN ADDENDUM FOR
ADDITIONAL MONITORING WELLS

GENERAL TECHNICAL COMMENTS

- 1) The U.S. Department of Energy (DOE) identified uranium contamination in ground water at Well 2387. Well 2387 is located east of the Storm Sewer Outfall Ditch (SSOD) which may be a historical source of ground-water contamination. DOE used a particle track model to evaluate ground-water movement during 1989 and 1990. Using the particle track evaluation and a retardation factor of 12 for uranium, DOE has proposed three well locations. Based on the information provided, EPA believes that the well locations may provide valuable information. However, one data gap remains. DOE identified off-site contamination in a residential well; the contamination may be related to the SSOD. DOE's current approach does not adequately address the issue of off-site migration, which is a major concern. DOE should address this issue and revise the work plan accordingly.

2. DOE has identified elevated uranium concentrations in 2000-series wells in the Southfield Area. DOE states that the source of this contamination is unknown but could include Paddys Run, the Inactive Flyash Pile (IFP), the production area, or the Storm Water Retention Basin (SWRB). DOE proposes two additional wells to identify the source of the contamination. EPA notes that the two wells are proposed on either side of the IFB. These wells may help determine whether the IFB is a source of the contamination, but they will not rule out other potential sources. DOE must identify and propose a detailed approach to (1) identify the nature and extent of the plume, which contains the highest levels of uranium found in 2000-series wells to date; (2) confirm whether other sources are present; and (3) characterize other sources, if identified.

3. DOE has identified uranium contaminated ground water in the area east of Plant 6. Well clusters 2420/2420 and 2417/3417 are proposed to identify the edge of the contaminant plume. EPA believes that these wells may

provide valuable information. However, two potential data gaps exist; one data gap is defining the plume from Plant 6; the other data gap is other potential sources of contamination to well 2067. First, DOE's approach involves placing wells at the theorized limit of contamination. DOE's sole objective appears to be identifying the limit of the plume. However, DOE should identify the nature of contamination by characterizing both the source and plume. Second, other sources may be contributing to the contamination identified at Well 2067, including the Sewage Treatment Plant Incinerator or the wastewater pipes leading from the Sewage Treatment Plant to the production area. In addition, Well 2067 has shown an increasing trend in total uranium concentration but has not been sampled since early 1990. Well 2067 should be resampled as well. DOE should address these data gaps.

4. According to DOE, the well cluster consisting of wells 2013, 3013, and 4013 has yielded erratic results for uranium. Uranium has been detected at relatively low concentrations in most quarterly results but at elevated levels during one sampling round in each well. DOE theorized that damaged well casings were responsible for the observed contamination. DOE conducted a camera survey of the wells and identified damage in all of them. DOE proposes abandoning the 2000- and 3000-series wells and installing and sampling replacement wells. However, DOE has not proposed investigating contamination associated with Well 4013, which is the deepest well. EPA notes that elevated concentrations of uranium were detected in well 4013 in June 1989 and have not been detected since. It is unclear whether well 4013 is damaged and requires replacement or if the data may indicate that contamination detected in June 1989 is a result of a plume that has migrated further downgradient. DOE should justify its approach, especially considering that no 4000-series wells are located downgradient of Well 4013.
5. DOE has proposed additional investigation in the northeast portion of the production area. DOE states that two areas require further ground-water investigation (1) the fire training area and (2) the waste pit

area. DOE proposes three well clusters to further define ground-water contamination in these areas. EPA believes that the proposed wells may provide valuable information on the extent of contamination. However, some potential data gaps are not addressed. First, historical information identifies the old administration well that may have been used to dispose of wastes from the fire training area. DOE states that the well was most likely not used for this purpose, but no other likely disposal area has been identified. DOE also indicates that the old administration well exists, but that it cannot be sampled. DOE should install wells downgradient of the administration well to evaluate the possibility of its use for past disposal. Second, the proposed downgradient wells are approximately 200 to 800 feet downgradient of the suspected sources. DOE should provide further justification that these wells will be adequate to evaluate the nature and extent of ground-water contamination associated with the suspect areas.

6. DOE has proposed an additional background well cluster: 2679/3679. This cluster is proposed because the well clusters 2024/3024 and 2052/3052 are potentially downgradient of the waste pits. EPA has previously commented on the inadequacy of background wells. EPA believes that background has not been adequately defined for any of the aquifers. While this well cluster may provide valuable data, it alone will not adequately address outstanding comments. EPA believes that DOE should provide a detailed plan for characterizing background ground-water quality.
7. DOE's general investigative approach for the above areas is to install the 2000 series well first; if contamination is identified using on-site analysis, then a 3000 series well will be installed. EPA believes that the approach should include installing an additional downgradient 2000 series well if contamination is identified. EPA also notes that DOE does not analyze for volatile organic compounds (VOC) or semivolatile organic compounds (SVOC) in wells in the Southfield or SWRB investigation. However, SVOCs and VOCs have been identified in both

these source areas. DOE should analyze wells in these areas for VOCs and SVOCs.

SPECIFIC TECHNICAL COMMENTS

1. Page 2, Paragraph 4. DOE states that residences located along Wiley Road near the site boundary are the most likely receptors of ground-water contamination. The residences and their drinking water sources should be identified in the text and shown on Figure 1.
2. Page 8, Paragraph 3. DOE states that the retardation factor for uranium is 12 when compared to the velocity of ground water. The reference for this information should be cited and the relative uncertainty should be identified. Also, the range of ground-water velocity should be provided for each aquifer.
3. Page 9, Figure 2. EPA received only a partial copy of Figure 2. The figure does not include any of the production area. Also, EPA believes that the particle tracking traces shown are for ground-water, without the assumed retardation factor of 12, as indicated in the legend block. DOE should check this and revise the figure, if necessary. Regardless, a complete figure must be submitted.
4. Page 10, Paragraph 3. DOE identifies elevated concentrations of uranium at a well serving two residences on the south side of Wiley Road. DOE should provide the specific analytical results for the well.
5. Page 10, Paragraph 5. DOE states that wells placed along the southern site boundary will provide an early warning to receptors on the south side of Wiley Road. If contamination has already been identified in one of these wells, they cannot serve as an early warning system. DOE should provide off-site monitoring wells south of Wiley Road.
6. Page 11, Paragraph 2. DOE states that samples from Well 2046 have exhibited the highest concentration of uranium in the 2000-series wells. EPA notes that more recent investigation of the area has identified much higher

concentrations of uranium. Elevated concentrations of uranium have been identified in a 1000-series well in the IFP and in 2000-series wells near the Southfield. DOE should include and evaluate more recent results in the revised work plan.

7. Page 11, Paragraph 5. DOE indicates that uranium has been identified in the glacial overburden and indicates that the SWRB or the production area may be responsible for ground-water contamination in the Southfield. Further, DOE indicates that the glacial overburden is being investigated near the SWRB. DOE should provide details on the scope of this investigation and provide tenable migration pathways for the SWRB or production area contaminating ground water in the Southfield.

8. Page 12, Paragraph 2. DOE indicates that U-238 concentrations of 150 picocuries per gram (pCi/g) in the IFP flyash could result in leachate concentrations of 900 ug/L. This statement appears to contradict the findings of the operable unit (OU) 2 report, which indicates a source term of around 500 ug/L. However, DOE's modelling of OU 2 indicated that the leachate would have a negligible contribution to ground-water contamination in the Great Miami Aquifer (2000-series wells). EPA believes that it is more likely that the IFB has not been adequately characterized. DOE should provide further justification for this statement.

9. Page 14, Paragraph 3. DOE indicates that wastewater piping between the production area and the Sewage Treatment Plant is a possible source of ground-water contamination; yet DOE does not propose to evaluate the area of the piping. Considering the fact that uranium contamination has been identified in Well 2067, DOE should investigate the wastewater pipes as a potential source of ground-water contamination.

10. Page 19, Paragraph 3. DOE indicates that the fire training area formerly had a sump for draining liquids from the oil fire pond. Further, the sump was reported to be the old administration well. However, the old administration well was not sampled because a pump was lodged in the well.

DOE should further discuss the available information in greater detail and should propose an investigation of the former sump.