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SILO RADON HEADSPACE CONCENTRATION

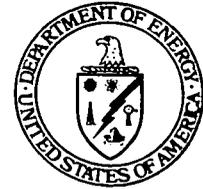
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**DOE-0270-97
DOE-FEMP EPAS
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LETTER**



Department of Energy

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DOE-0270-97

Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - 5HSF-5J
77 W. Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

SILO RADON HEADSPACE CONCENTRATION

The purpose of this letter is to provide information regarding the increase in radon concentration in the K-65 Silos 1 and 2 and discuss the Department of Energy's action to address this issue.

As you are aware from our weekly conference calls, the radon concentration in the headspace of Silos 1 and 2 has increased steadily since the placement of the bentonite cap in November 1991. Recent testing of Silos 1 and 2 has confirmed this upward trend and has also validated the concern, in regard to the accuracy of the radon data previously reported for Silo 1. Concerns about the accuracy in the reporting of Silo 1 radon headspace concentration was first suspected in the fall of 1995 as a result of the variability in the data being collected. As a result of continuous sampling at the sampling ports of both silos initiated in September 1996, it was determined that the variability in Silo 1 data was a result of in leakage to the sample line that feeds the Data Logging System (DLS). This caused sample dilution and resulted in the reporting of radon concentrations which were significantly lower than were actually present. Modifications to the leaking sample line and fittings have been made. Furthermore, silo dome dose rates are also being monitored and grab samples are being taken to verify readings from the DLS.

The U.S. Environmental Protection Agency (U.S. EPA) established a removal action goal for limiting the silos contributions to off-site radon emissions to a level no greater than 0.015pCi/l above background at the location of the maximally exposed individual at a non-FEMP location. The removal action goal was defined in the K-65 Silos Engineering

Evaluation /Cost Analysis (EE/CA) document dated August 1, 1990. Since the incremental level of 0.015 pCi/l is not discernable using best available monitoring technology, the off-site contribution is predicted from a U.S. EPA approved Gaussian Plume computer model using silo headspace concentration data.

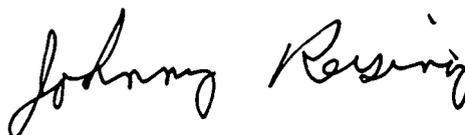
As discussed during the October 8, 1996, weekly conference call, computer modeling of the maximum daily average concentrations from recent headspace data, utilizing worst-case input parameters, estimated the off-site radon contribution at Receptors 1 and 2 to be 0.01572 and 0.01638 pCi/l.

In regard to on-site worker health and safety, as it relates to radon levels in the work place, the Department of Energy (DOE) is required to monitor worker exposures to radon if there is a potential to exceed 500 mrem committed effective dose equivalent in one year. This potential is conservatively estimated by requiring monitoring when airborne concentrations for radon exceed 10% of the derived air concentration or 0.033 working levels (WL) (3.3 pCi/l in equilibrium). Currently, the area outside the silos' exclusion fence has an average concentration of 0.017WL, which is less than the above monitoring action level of 0.033 WL. However, in keeping with As Low As Reasonably Achievable (ALARA) principles the work area will be monitored in an effort to protect the work force in the event conditions change.

As discussed during our weekly conference calls, DOE feels that the risk and exposure to workers is too high to take any immediate mitigative measures (i.e., additional bentonite) at this time. However, DOE will continue to closely monitor the radon data and in the event that more immediate mitigation steps are needed to ensure safety to on-site workers and off-site residents, DOE is committed to taking the necessary action.

If you have questions or concerns regarding radon levels in the headspace of Silos 1 and 2, please contact Nina Akgunduz at (513) 648-3110.

Sincerely,



Johnny W. Reising
Fernald Remedial Action
Project Manager

FEMP:Yockman

cc:

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