STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
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May 22, 1991

Eric Goller
U.S Department of Energy
Richland Operations Office
P.O. Box 550
Richland, WA 99352

Re: 100-NR-1 Soil Gas Survey

Dear Mr. Goller:

Bill Green, of Westinghouse Hanford Co., and I, have been discussing the soil gas survey task, which was established during the rescoping of the 100-NR-1 Operable Unit last July. As proposed, the investigation does not seem tailored to fulfill a goal. It seems intended to meet the requirement of the rescoping session. The chemical and engineering justification for the investigation has not been explained.

The soil gas survey is in the 166-N Tank Farm, and an area of past leakage of diesel fuel and heavier fuel oils. The basic purpose of the soil gas survey is to identify the optimal location for placing the vadose zone borehole scheduled for FY-93. The borehole should be placed through the point where 80,000 gallons of diesel fuel leaked in 1966. The first step which should be taken is a document search to determine the location of the leak. The soil gas survey should be used to confirm this location. Additional soil gas probes should be placed at the outlet areas of each of the five tanks and at each of the two unloading headers.

The efficacy of soil gas surveys has not been demonstrated with less volatile components like diesel oil and heavier fuel oil fractions, and with old spills where the volatile components may have already dissipated from the top four feet of the vadose zone. A survey in the intercepter trench is further limited by the fluctuating river levels that may have flushed the soil in the trench. Therefor, the soil gas survey may not be used to rule out hydrocarbon contamination, but it may be used to confirm contamination.

Sampling from the oil and grease well network was terminated in the last year or two. Sampling should be started in up-gradient wells and restarted in down-gradient wells. Down-gradient wells are N-3, N-8, and N-16 through N-26. Up-gradient wells are N-55 through N-57. The need

for continued well monitoring was demonstrated by an underground water leak in 1991 between wells N-55 and N-57 that corresponded with highly elevated levels in well N-18. The concern for protecting the groundwater and the river is immediate, in contrast to the deferred cleanup of the soil.

Limiting the investigation to the 166-N Area is based on the assumption that all the other pipelines and tank farms have leaked, are contaminated, and will be remediated as soon as practicable in the operable unit schedule. This most notably includes the 184-N day tank and the 166-N to 184-N pipeline. USDOE will be considered to have adopted this assumption unless we are notified otherwise.

Ecology *Guidance for Remediation of Releases from Underground Storage Tanks* should be used in planning the investigation of the tank farms. Even though the tanks are above ground, the guidance is applicable. Appendix L to the guidance provides sampling methods for diesel in soil and in water that may be more appropriate than the oil and grease method 413.2 previously used in the well network. Also key to the guidance is the use of up-gradient monitoring.

Additional soil gas probes should be located at the 117-N paint shop and at the HGP burn pit. Section 5.1.2.3.5 of the Work Plan states that soil gas sampling may be performed where contamination is suspected. I would like to confirm the presence at this time of measurable releases at the paint shop, even though it is still in use. The work plan, section 3.1.1.13.1, indicates that solvents may have been disposed of at the burn pit.

Sincerely,

Steve Cross
CERCLA Unit
Nuclear and Mixed Waste Management

SC:jw

cc. Paul Day, EPA
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Dave Jansen, Ecology