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October 10, 1989

Mr. Roger Freeberg
Hanford Project Manager
U.S. Department of Energy
P.O. Box 550
Richland, Washington 99352

Dear Mr. Freeberg:

Re: Treatment By Generator Petition

Ecology has completed its review of your June 30, 1989 Treatment by Generator Petitions. The facilities involved with these petitions are:

T Plant Treatment Tank,
241-Z Treatment Tank,
222-S Treatment Tank,
PUREX Treatment Tanks, and
204-AR Waste Unloading Station.

This review consisted of a detailed review of the documents which you submitted as well as a review of the applicable Part A documents. Pertinent background documents discussing Treatment by Generator were also reviewed and a site inspection was conducted at each unit.

In order for a facility to successfully petition the Department to allow a Treatment by Generator exemption, the petitioner must meet requirements which are evaluated on a case by case basis (in all cases, the units in question must be a tank or container). For the units identified above, DOE would have to submit detailed information addressing the following:

* A complete waste characterization (to include full designation and chemical constituent analysis.

* Information detailing a complete understanding of the potential side reactions and secondary wastes generated.

* Information detailing treatment monitoring systems to ensure that there are no constituents being released into the environment.

In short, there must be a complete understanding of the system in question.

After reviewing the applicable information, it is apparent that USDOE cannot meet these general requirements for Treatment by Generator. Therefore, Ecology hereby denies each of these five petitions. A unit by unit discussion outlining the specific reasons for denying each petition follows.

T Plant Treatment Tank

Waste Characterization - There appears to be a lack of any detailed waste characterization (to include designation). The petition lists a number of potential contaminants, but only mentions that these constituents may, or may not, be present in the tank at any one time. Further, although these constituents may be present, (as well as oils, greases, and dirt), there is no documentation on designation of these materials other than that they are D002 (corrosive). The petition also mentions the possibility of fumes being generated during treatment, yet no other discussion of this potential is mentioned, (except that any off-gasses generated would go through a filtering system). It is impossible to know that the filter works unless you know what is in the off-gas. Are any precipitates created, and if so, how often are they removed? An April 24, 1989 EPA clarification letter (enclosed) discusses the requirements for removal and disposal of treatment residues.

Waste Volume - T.I.M. 86-3 clearly discusses the preferential granting of petitions for low volume wastes e.g., small quantity generators (100-1000kg/month or batch). Hanford does not meet this requirement. Even if the T Plant is considered by itself, which is how this review proceeded, this criteria is not met.

Risk of Release - It is impossible to determine any risk for a release from this system when the chemical constituents of the waste are not known.

Waste Treatment - Although pH alterations are commonly considered a low risk treatment, they can create hazardous conditions depending on the material being treated. Without a full understanding of the waste being treated, it is impossible for this criteria to be adequately met.

241-Z Treatment Tank

Waste Characterization - Again, there appears to be very little knowledge of the waste stream other than process knowledge. Based on an evaluation of the petition and information gained from the site inspection, it is clear that only a general idea of the constituents in the waste stream exists. As discussed above, without detailed analytical information about the waste stream, it is not appropriate to consider a treatment by generator petition.

Waste Volume - A precise discussion on the amount of waste treated in this system is not given. Following the site inspection and an evaluation of the Part A application, it is apparent that this facility treats amounts of waste greater than the 1000kg/month criteria.

Risk of Release - It is impossible to evaluate the risk of release when the chemical constituents of the waste are not known.

Waste Treatment - Again, although the primary treatment of this waste stream is pH adjustment, without complete waste stream characterization, it is impossible to evaluate this criteria.

222-S Treatment Tanks

Waste Characterization - These tanks receive a large amount of diverse waste(s) from the 222-S laboratory. As was discussed in the treatment by generator petition for this facility, the waste composition is unknown. The petition also states that a waste analysis plan is being developed for these tanks. Until the waste stream is completely characterized, it is not appropriate to grant this petition.

Waste Volume - The volumes of waste treated in these tanks is 3000 gallons, on a batch basis. This exceeds the general criteria for acceptable waste volumes.

Risk of Release - The discussion of the potential for release in the petition for these units describes air emissions as the primary threat. Again, a lack of waste stream knowledge prevents an evaluation of the air filter systems' ability to prevent a release of constituents.

Waste Treatment - As has been addressed previously, treatment by changing the pH is generally low risk. However, as mentioned above, fumes are generated from treating the wastes in these tanks. Until the exact constituents are known, this criteria cannot be evaluated.

PUREX Treatment Tanks

Waste Characterization - The waste streams involved with this petition are known better than any of the other streams previously discussed. During the site inspection, a waste analysis plan for these tanks was briefly reviewed. Based on this review, we have concluded that additional characterization of these waste streams (including full designation) is necessary to adequately support a successful treatment by generator petition.

Waste Volume - The waste stream volumes treated in this complex tank system appear to exceed the general criteria by a considerable amount. In our view, the amounts of waste involved and the complex nature of the tank system do not support a treatment by generator petition.

Risk of Release - The threat of release to the air would apparently be the primary route to the environment. PUREX does have an elaborate air filtration system, but again, it is impossible to adequately evaluate this system for non-radioactive components, as a complete waste characterization does not exist.

Waste Treatment - Again, the primary waste treatment methodology is pH control (the PUREX petition does propose an ammonia treatment system which would be a slightly more complex treatment than the above described systems). Neither of these systems can be considered for a Treatment by Generator exemption due to the unknown character of the waste streams being treated.

204-AR Waste Unloading Station

This unit does not qualify for a Treatment by Generator exemption, as it does not conduct treatment in a tank or container.

As discussed above, Ecology has determined that all of the subject petitions for Treatment by Generator fail to adequately meet the general criteria by which these systems are evaluated. Consequently, these petitions are denied. Should you have any questions or concerns regarding this issue please contact Mr. Toby Michelena of my staff at (206) 438-7016.

Sincerely,

Roger Stanley

Roger Stanley
Program Manager
Nuclear and Mixed Waste Management

RS:tkr
Enclosure

cc: Paul Day - EPA Richland
Jack Waite - Westinghouse

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Subject TREATMENT BY GENERATOR PETITION

10/16/89JLW:dh

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