

ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

July 1974

ENVIRONMENTAL IMPACT STATEMENT COMMENTS

Kerr-McGee Nuclear Corporation  
Sequoyah Uranium Hexafluoride Plant

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## INTRODUCTION AND CONCLUSIONS

The Environmental Protection Agency has reviewed the draft environmental statement for the Kerr-McGee Nuclear Corporation Sequoyah Plant issued on April 11, 1974. Following are our major conclusions:

1. The final statement should include an analysis of the consequences of the discharge and dispersal of long-lived radionuclides into the general environment.
2. Estimates of the quantities of uranium, thorium and radium in contaminated solid and liquid wastes stored in ponds on the site or buried on the site should be included in the final statement.
3. We agree with the staff recommendation, "Provision must be made for determining the release rate of hexane from the solvent rework and distillation systems to evaluate compliance with existing regulations governing release of hydrocarbons" (page V-22). These provisions should be included in the final statement.

RADIOLOGICAL ASPECTSEnvironmental Dose Commitment

The final statement should include an analysis of the consequences of the discharge and dispersal of long-lived radionuclides into the general environment. By virtue of the long persistence of these materials, consequences may extend over many generations and, in this respect, such discharges can represent irreversible public health commitments. The recently published "Environmental Radiation Dose Commitment: An Application to the Nuclear Power Industry" (EPA-520/4-73-002) presents general concepts for calculating the cumulative consequences of the release of longer lived radionuclides to the environment. This cost should be added to other environmental costs in the cost-benefit analysis.

The draft statement indicates that the population distribution within a 10 mile radius of the facility was used for calculation of the organ-rem doses due to annual radioactivity releases. Past AEC environmental statements have used a 50 mile radius for these calculations. EPA would suggest that this practice be continued and the the organ-rem doses to the population from the Sequoyah facility be calculated for the population distribution within a 50 mile radius of the plant.

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The applicant's environmental report and the draft statement indicate that the final disposal technique for raffinate solid wastes remains to be decided. The fluoride sludges are expected to be buried onsite; however, the quantities of uranium, radium and thorium which would be contained in the raffinate solids and fluoride sludges should be estimated in the final statement.

No details were given in the draft statement on the protective measures to be taken to prevent leakage from buried radioactive wastes. It was stated that burial of radioactive wastes at the Sequoyah site is practiced and therefore measures should be routinely taken to insure the integrity of the buried material. The protective measures should be reported so the adequacy of these measures can be judged. Section 13, paragraph 3 of the Oklahoma Radiation Protection Regulations requires approval by the Oklahoma State Department of Health for the procedures and burial of radioactive wastes, yet no mention of such approval was made in the draft statement. This omission should be remedied in the final statement.

### Environmental Monitoring

The draft statement indicates that the adoption of several changes in the monitoring program, as suggested by AEC staff, would permit more accurate assessment of the environmental effect of the plant discharges. EPA concurs in this conclusion and supports the adoption of the changes as listed on page V-22.

### Accidents

The rupture or valve failure of a hot  $UF_6$  product cylinder is listed as one of several possible accidents which could lead to the release of large quantities of uranium fluoride and hydrogen fluoride to the environment. However, the appropriate probability of occurrence of such an accident was not presented in the draft statement. The final statement should include an estimate of this probability. Any actual effects observed during past incidents involving  $UF_6$  product cylinder failures should be included in the final statement to offer a perspective on the extent of conservatism present in the assumed conditions.

### Decommissioning

Although decommissioning is generally discussed in the draft statement, no estimates of the environmental impacts that might be associated with this procedure are made. The final statement should include a consideration of the impacts from the alternatives available for reclamation of the site. Included in the discussion should be the retrievability of radioactive wastes buried onsite and the amount and character of solid wastes generated.

NON-RADIOLOGICAL ASPECTSBiological and Thermal

The amount of water usage by the cooling tower is not stated. The total effluent rate is given as 2.3 MGD, and the rates for the sanitary and process effluent are stated, but not for the cooling tower. Also, on page III-11, reference is made to 1100 gpm of "clean waste water", but the source or nature of this water is not stated. These items need to be clarified, and a table showing water usage rates would be useful.

The sanitary waste is treated by means of a stabilization lagoon, which, from the figures given, provides a high degree of B.O.D. and suspended solids removal. The waste is apparently not subject to disinfection, however, and no figures are given for fecal coliform in the effluent. Inasmuch as the Oklahoma State Department of Health has approved the design of the treatment facilities, this should be clarified.

A discussion of alternative waste heat dissipation methods is not given. Although the plant is in operation and the existing system has apparently been used since the beginning of the plant start-up, this would be a convenient time to assess the possibility of installing a new system or modifying the present one. This would involve, among other factors, a comparison of efficiencies and water consumption rates.

On page V-7 the statement notes that the concentration of several constituents of the undiluted combined discharge are above the 1962 U.S. Public Health Service Drinking Water Standards. The statement

points out, however, that "in all cases the excessive values are already in the intake water and should not be assessed against the plant performance." As Table V-6 indicates this does not appear to be the case for fluoride, which has a concentration of 0.1 mg/l at the untreated intake and a combined effluent discharge value of 1.54 mg/l. This is a substantial increase in concentration which exceeds the USPHS Standards of 0.7-1.2 mg/l. Although some dilution will take place at the point of discharge to the Illinois River, we do not believe that the required dilution for attaining standards will occur as close to the plant as suggested in the statement. Additional clarification and discussion of potential effects of fluorides on water quality and water usage downstream should be included.

We concur with the staff's recommendation (page V-22) for increasing the frequency of monitoring water wells in the vicinity of the plant. The statement mentions on page V-4 that analysis of water samples collected from wells since plant start-up has not provided conclusive information of significant raffinate or treated fluoride liquor seepage from the ponds. We believe this assumption would be better clarified by including a summation of the water quality monitoring data in the statement.

#### Air Quality

The release of hydrocarbons to the environment is discussed on page V-13. In the discussion, it is mentioned that ambient air quality of the region before the plant was constructed is not known. Although

this may be the case, we believe the statement should provide information on the existing ambient air quality in the vicinity of the facility. Although it appears that emission of nitrogen dioxide, sulfur dioxide and hydrocarbons will not exceed the National Ambient Air Quality Standards, it would be helpful to have a composite air quality analysis (emissions from the plant plus background concentrations) for evaluating the total effect of the facility on the regional air quality. Data on existing air quality conditions are available from the Oklahoma Department of Health.

In addition, because of the high rate of hexane releases (16 times the maximum allowable release rate for new installations covered in Oklahoma State Regulations No. 15), we believe the licensee should be required to develop a plan towards meeting the Oklahoma Regulation for controlling emissions of non-methane hydrocarbons as a prerequisite for continuation of the Source Material License. We agree with the staff recommendation, "Provision must be made for determining the release rate of hexane from the solvent rework and distillation systems to evaluate compliance with existing regulations governing release of hydrocarbons" (page V-22). These provisions should be included in the final statement.

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