

INSPECTION REPORT

1. Name and address of licensee
 Ken-McGee Nuclear Corporation
 Ken McGee Building
 Oklahoma City, Oklahoma 73102
2. Date of Inspection July 28, 1975
3. Type of Inspection Reinspection No. 5
4. License number(s), docket number(s), number and date of last amendment for each license. Category and Priority of each licensee.
 SUB-1010, Docket No. 408027, Category I, Priority II, Amendment 6 dated April 15, 1975
5. Date of previous inspection June 4-6, 1974
6. Proprietary information
 None
7. Scope of inspection if other than routine
 Routine
8. Participants (Licensee representatives and titles, State representatives, etc.)
 C. A. Grossclaude, Manager, Health Physics and Industrial Safety (Sequoyah)
 B. E. Brown, Sequoyah Facility Manager
9. Management Interview (Information required for N/C cases)
 The three items of noncompliance identified during the present inspection were reviewed with Messrs. Brown and Grossclaude at the conclusion of the inspection. Mr. Brown indicated all items of noncompliance would be corrected. The Notice of Violation was explained by the inspector.
10. Action and Date: Letter to Licensee Appr. July 24, 1975
 AEC-591 Clear _____
 AEC-591 N/C _____
11. Recommend reinspection date July 1976
12. Richard L. Bancroft July 25, 1975
 Inspector Date of Report
G. W. Mann 7/28/75
 Reviewer Date of Review

Inspection Summary

13. Three items of noncompliance were identified during the present inspection: 1) overall health and safety program audits were not performed at quarterly intervals as specified in Appendix A of the license application (see para. 19), 2) not all employees were submitting urine samples on a monthly basis as required by the licensee's routine internal dosimetry program specified in Appendix A of the license application (see para. 22), 3) MSA canisters, model 88182, now used in full-face mask respirators without having been evaluated by the licensee or approved by the U.S. Bureau of Mines as required by License Condition 11 and paragraph 1.1.D. of Annex A of the license (see para. 21).
14. A clear 591 was issued at the conclusion of the previous inspection on June 6, 1974.

Summary of Licensed Program

15. See the inspection report for the June 1974 inspection for a description of licensed activities. Construction has begun to increase throughput of the plant. Jack Rothfleisch of Licensing has been informed of this by W. J. Shelley and Rothfleisch stated to the inspector via telephone on 7/23/75 that Sequoyah has been granted an exemption from the requirement to file an Environmental Report. See plant flow sheet, attached.
16. One amendment has been issued since the last inspection. This amendment, no. 6, authorizes the use of treated raffinate as nitrate fertilizer on certain Sequoyah test plots of grass.

Organization and Administration

17. See Attachment No. 1 to the June 1974 inspection report for an outline of the organizational structure. A change took place in the Health Physics organization since the last inspection. Technician K. G. Ghee resigned and was replaced by P. A. Rogers. Glenda Barnes now serves as secretary and handles most of the records.
18. Mr. Grossclauder stated that he is performing audits of the licensed program continually in that he observes daily the activities being performed and is reviewing data to identify unusual items or looking for developing trends. Grossclauder's monthly progress reports, which go to D. E. Brown, P. S. Dunn, G. J. Sinke, and W. J. Shelley, serve as a report of his monthly (ongoing) audits.
19. G. J. Sinke, Corporate Health and Safety Officer performs the ^{quarterly} overall health and safety audits required by License Cond. B and p 11, Appendix A of the Sept 23, 1969 license application, as amended by Jan. 14 and Feb 3, 1970 supplements. A review of records documenting these audits indicated an overall audit was performed on Sept. 5 and 6, 1974 and that "OSHA style" audits were performed on March 11 and 12, 1975 and June 24 and 25, 1975. The licensee appeared to be in apparent noncompliance with License Cond. B in that no overall health and safety was performed during the 4th quarter of 1975 and the 1975 audits did not include most components of the health physics program.

Radiological Procedures

20. The Hazardous Work Permit procedures remain as described in the June 1974 inspection report. A review of selected Hazardous Work Permits and discussions with personnel revealed

that the major maintenance which involves the most potential for radiological hazard occurred in Nov. 1974 and the spring of 1975 when work on the life support took place. It appeared the required approvals had been received on the HRP's which was reviewed by the inspectors.

The Respirator Program is as described in the June 1977 inspection report, except for those items which follow. The licensee has converted from MSA to Honeywell for the full face respirator used in the program. Discussion with Mr. Grossiclaude revealed that the carrier used with the full face mask is MSA model 8812, which is neither approved by the U.S. Bureau of Mines nor evaluated by the licensee. In addition, it provides the required protection factor. This is contrary to paragraph 1 D of license annex A which is incorporated into the license through license condition 11.

Personnel Monitoring

Film badges are supplied monthly by U.S. Testing Laboratory. The highest 1974 yearly whole body exposure was 510 mrem; the highest 1975 yearly whole body exposure was 590 mrem. Badge results through 4/30/75 were reviewed. Grossiclaude stated that most employees did not have completed film REC-4's. All information requested by film REC-5 was included on the vendor reports.

Bioassay

Urine samples are now collected twice per month from all plant workers except clerical help. Sample bottles go home with the individual and samples are generally submitted Monday evening and Monday morning. Analysis is performed in the procedure in personnel files. The last analysis was performed in Oklahoma City. An action item which includes daily monitoring is set at 20 mg/liter. No work is

allowed in areas where there is potential for uranium contamination until the urine sample results return to less than 20 $\mu\text{g/liter}$ of U.

24. The results of the bioassay program were reviewed by the inspector and approximately 50 samples had exceeded the 20 $\mu\text{g/liter}$ action level during the inspection period. The highest samples were submitted by Gary Jackson after an H_2 release which occurred on 11/7/74. His highest urine sample was 3090 $\mu\text{g/liter}$ on 11/7/74 and lowered to 37 $\mu\text{g/l}$ on 11/11/74. Calculations by the licensee showed his exposure to be ~~about the~~ 36.7 MPC hours ~~exceeded~~; 210 MPC hours is the 40 hour limit in units of $\mu\text{g/liter}$ in the urine.

25. The licensee's routine program prior to 1975 has been to collect urine samples from each employee each month; now samples are collected twice per month. A review of employee urine sampling results indicated that approximately 30 employees missed at least one month's sample submission during the inspection period. Several employees ~~that~~ ~~that~~ skipped sample submissions for two months in a row. This is contrary to the requirements of the routine internal dosimetry program described in Appendix A, p 8, of the license application dated September 23, 1969 and incorporated into the license through License Cond. No. 11.

Effluents

26. Gaseous effluent are sampled from the same locations as described in the June 1974 inspection report. The ~~continuous~~ ^{HV-70} filters are analyzed for gross alpha particulate matter. All gross alpha average concentrations were below the unrestricted area uranium MPC.
27. Liquid effluent streams are routed to one of two raffinate ponds, as described in the June 1974 inspection report. The level of raffinate in raffinate pond one has been reduced substantially through

He used a submerged combustion burner to enhance evaporation. The "combination stream" is the only stream of liquid effluent leaving the plant site. It drains into the Illinois River. The average uranium concentration in this effluent at the point of water discharge was approx 600 $\mu\text{g/liter}$ during the inspection period.

Waste Disposal

28. Two burials were made during the inspection period at an on-site location. On 12/13/74 40 55-gal barrels containing an estimated 40 kg of U were buried, and on 4/4/75 70 55-gal barrels containing an estimated 50 kg of U were buried.

29. No incineration of contaminated material took place during the inspection period, according to Mr. Grossland.

In-Plant Air Sampling

30. Air samples are collected continuously at 36 sampling stations throughout the plant. The HV-70 filters are changed every 24 hrs and counted for gross alpha activity which is assumed to be U. Sampling heads are located approx 5 ft above the floor and draw approx. 1 ft^3/min of air. Any 24 hr sample which exceeds 0.5 MPC is listed on a daily status sheet and the cause is investigated and corrected. If a daily sample exceeds ~~0.5~~ 3 MPC, then an Incident Report is filed. The concentrations for each sampling station are plotted on graphs. Process area concentrations have averaged approx. 0.2 MPC throughout the inspection period.

Smear Surveys

31. Smears are performed weekly at approx 100 locations and counted for gross alpha activity by the Sequoyah H.P. Techs. The plant is divided into three contamination control zones: unrestricted - $< 100 \text{ dpm}/100 \text{ cm}^2$; uncontrolled - $< 1000 \text{ dpm}/100 \text{ cm}^2$; controlled - $< 2000 \text{ dpm}/100 \text{ cm}^2$. Approx 60% of the controlled area smears are above $2000 \text{ dpm}/100 \text{ cm}^2$ and require cleaning measures.

Spill Surveys

32. Once per shift "walk throughs" are made by the H.P. Techs to look for spills. Approx 55 spills per month are noted. To initiate cleaning action a report is made to the shift supervisor with a copy to the Production Mgr and the H.P. file.

Direct Radiation Surveys

33. Both gamma surveys are made monthly with a Cuto Pic at approx 18 random locations. Highest readings of approx 40 mR/hr are observed at the ash receiver house of the fluorene reaction tower.

Instrumentation

34. An Eberline RM-15 GM monitor is located at the "hot line" in both the men's and women's change rooms. Other survey instrumentation includes Eberline GM Model E120, Victoreen Model 740 ion chamber rate meter, and alpha (ZnS) survey meters (MNC 36), and Tech Associates C.P.
35. Gross alpha analyses are performed in the H.P. lab with a NMC internal proportional counter. Lab quality control is described

in the June 1974 inspection report, as is the calibration
procedure for all contamination. H.1 sample region

Off site shipment

Any piece of equipment that is going offsite and that might
have contamination is checked by surveying and counting with
an alpha scintillation survey meter. Count must be less than
1000 dpm/100 cm² removable and 2000 cpm/100 cm² fixed. A
strike a plan on the equipment to show it has been
surveyed and meet the contamination limits. A log is maintained
of the survey, date of survey, time of survey, type of equipment,
and the destination. Gamma readings must be less than 0.2 mR/h.

Received HF is sold to an Allied Chemical plant in Louisiana.
On the survey report see that tank gas was shipped.
While the tank truck is being filled, sample as collected
and analyzed for gross alpha activity. Nearly all samples have
a concentration less than 5 x 10⁻³ d.c./l. Before leaving the
storage tank the tank truck is surveyed to show fixed
contamination < 2000 dpm/100 cm², removable contamination < 2000 dpm/100 cm², and/or dose rate < 10 mR/h.

HF shipment on rail in August from 10 ton cylinders
by the State Tanking. Each cylinder was observed to be
labeled "Radioactive - LSA" and "Yellow III". The
maximum amount of HF shipped in any one month
was 318,000 kg.

Emergency Preparedness

Emergency procedures remain basically as described in the June 1974
inspection report. Updating during the present inspection period

included a visit on 3/17/75 by Lt D. Lindley of the Oklahoma State Highway Patrol and a commitment from him to assist in emergency situations. In addition, Dr J.C. Rogers at the Warner Medical Center, a Ken-McGee authorized physician, has been advised of radiological conditions at the plant.

Environmental Surveillance

40. The environmental surveillance program remains as described in the June 1974 inspection report. All unrestricted area samples were less than the applicable MPC, except for one residence well sample collected in February 1975. It showed a gross alpha concentration of 998 pCi/liter and gross beta concentration of 245 pCi/liter. The licensee believes the sample was somehow contaminated in handling, however, as the previous and subsequent samples show background concentrations.
41. The seepage from Raffinate Pond #2 that was apparent in seepage well #2314 has decreased, due to the lowering of the pond level with the submerged combustion burner. Uranium concentration in well #2314 seepage have decreased, but nitrates remain high. Licensing has been informed of these seepage well matters - see license file. Additional ~~seepage~~ seepage monitor wells have been drilled by the licensee. High nitrate concentrations have shown up in several of the seepage monitor wells, but the licensee claims it is due to fertilizer contents of surface runoff which is entering the wells.

Posting

42. The inspectors observed that entrances to the plant were posted with signs that stated: "Any Area Within This ~~Plant~~ Plant May Contain Radioactive Material." Both a form AEC-3 and document

to satisfy ~~§~~ 19.11(a) posting requirements were observed.

Independent Measurements

43. No independent samples were collected during this inspection. A copy of the report showing the comparison of independent samples analyzed by HSL and the licensee are attached to this report. Reasonable agreement is demonstrated.

Other

44. Construction is underway to double the plant capacity. Mr. Grosslecke stated that construction workers are given a safety indoctrination, which includes a floor sheet for change and lunch room use and written instructions entitled "Safety and Personnel Protection". Construction workers must follow HSL procedures, wear a respirator when necessary, wear film badges, wear protective clothing when necessary, submit urine samples when working in process areas, and have foot surveys when removing them from process buildings.

45. The licensee test program of using treated raffinate as a nitrate fertilizer is continuing during the summer of 1975. The licensee report of the 1974 test program showed some samples of applied raffinate which had ²³⁴Ra concentrations in excess of 10 pCi/liter; the concentration the licensee committed not to exceed. However, discussions with licensee personnel and results indicated that the feed raffinate averaged less than 10 pCi/l ²³⁴Ra and that the higher concentration analyses were the result of problems in the laboratory at Oklahoma City.

8th assigned to him



NO. 174120173