### DRAFT INSPECTION REPORT

 Kerr-McGee Corporation Kerr-McGee Building Oklahoma City, Oklahoma 73102

Place of Use: Sequoyah facility near Gore, Oklahoma

- 2. License No. SUB-1010 (Docket No. 40-8027), Category I, Priority II
- 3. Date of Inspection: April 9, 10, 11, 1973 Routine, unannounced, reinspection
- 4. Persons accompanying inspector: None -- State of Oklahoma Dept. of Health was notified
- 5. Persons contacted:

Burnell E. Brown, Facility Manager C. A. (Chuck) Grosclaude, Manager, Health Physics and Industrial Safety G. J. (Jerry) Sinke, Coordinator of Health and Safety, Nuclear Division

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#### Summary of Inspection Findings

6. The Sequoyah conversion plant was not in full operation during the time of this inspection. Both the fluid bed hydrofluorinator and the denitrator were undergoing routine maintenance. A tour of the facility revealed that it was in an excellent state of cleanliness. No violation of AEC regulations were noted during this inspection, and Form AEC-591, indicating such, was presented at the conclusion of the inspection.

- 7. Date of Previous Inspection: September 20, 21, 22, 1971
- 8. No proprietary information contained in this report.

James E. Hyder Inspector Initials Date/ Glen D. Brown Reviewer nitials

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## DETAILS

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### Inspection History

9. Last previous inspection of the activities authorized by SUB-1010 was conducted on September 20, 21, and 22, 1971. No items of noncompliance were noted during that inspection and Form AEC-591 indicating a clear inspection was issued at the conclusion.

#### Scope and Conditions of License

10. There have been no changes in the license since the date of the previous inspection. However, a note of interest - the licensee is preparing an application for amendment to this license proposing to install an evaporator to decrease the volume of the raffinate which is currently being discharged to a holdup pond.

### Organization and Administration

11. Several minor changes have been made in the licensee's organization and administration as it pertains to the Sequoyah facility. At the present time, Mr. George B. Parks is Executive Vice President for the Nuclear Operations Division; Mr. Parker Dunn is Group Vice President for Nuclear Operations; Mr. William J. Shelley is now Director of Regulations and Controls and reports directly to Mr. Dunn; Mr. Burnell E. Brown is the Sequoyah Facility Manager and reports to Mr. Dunn; Mr. C. A. Grosclaude is Manager of Health Physics and Industrial Safety of the Sequoyah Facility and reports to Mr. Brown; Mr. G. J. Sinke is the Coordinator for Radiation Health and Safety for the Nuclear Division. Mr. Sinke's office is located in Oklahoma City. Mr. Sinke is charged with the responsibility of making periodic audits of Mr. Grosclaude's activities. 12. Since the previous inspection, Mr. Allen Valentine, Coordinator of Health Radiation Health and Safety, and Mr. George Wuller, Licensing and Regulation Officer, have both departed the Kerr-McGee organization.

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- 13. Mr. Grosclaude stated that the Sequoyah facility employed between 100 and 110 individuals. He explained the plant operated on a continuous basis, with the bulk of the employees divided into four equal rotating shifts.
- 14. Mr. Grosclaude explained he currently had three health physics technicians and that health physics coverage was provided on a seven-day-per-week basis on the first and second shifts. He explained that the second shift technician had the responsibility of briefing the third shift crew as to potential problems that had been identified and also to prepare any hazardous work permits that would be needed during third shift operations. Mr. Grosclaude explained that during the third shift, health physics technicians or himself were available and could be on the site within less than 30 minutes after being called.
- 15. Mr. Grosclaude stated that his work was still divided approximately 60% health physics and approximately 40% industrial safety-industrial hygiene type activities. Mr. Grosclaude's previous health physics experience is documented in the September 1971 report.

### Facilities and Equipment

16. During a tour of this facility, it was revealed that the equipment contained therein is essentially as described in the licensee's application and as described in previous inspection reports. The one noticable improvement involved the construction of a main plant dust-collecting exhaust. The main plant vacuum system, the UF4 vacuum system exhaust, and the sampling plant dust-collecting system all, now, exhaust via an additional common dust-collecting system. This common exhaust is now continually sampled.

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17. At the time of this inspection, the facility was not in full operation rather, due to maintenance operations required in the fluid bed hydrofluorinator and some additional preventive maintenance in the denitrator, only limited portions of the plant were in operation. The tour, however, revealed that there was very little surface contamination visible and there was no visible dusting. In addition a review of the licensee's air sampling and smear surveys tended to confirm that airborne activities nor surface contamination were significant problems during normal operations.

#### Radiological Safety Precautions and Procedures

18. A rather detailed smear survey is conducted weekly. This licensee designates three different types of areas; one conventional unrestricted area, as defined in part 20. His restricted area is divided into two sub-descriptions, one being a so-called uncontrolled (meaning no particular safety precautions are required for production personnel in these areas) and a so-called controlled area. Contamination levels have been established as follows: the unrestricted area - less than 500 dpm/100 cm<sup>2</sup>, the uncontrolled area - less than 1,000 dpm/100 cm<sup>2</sup>, and a controlled area limit of 3,000 dpm/100 cm<sup>2</sup>. The cleanup in the uncontrolled area sis conducted by the production crew. Excessive levels in uncontrolled areas are to be cleaned up immediately, higher levels than those

established for controlled areas are cleaned up as time permits. A review of the records indicate that between 15 and 20 smears are taken weekly in the licensee's unrestricted area. The uncontrolled area which is primarily passageways, etc., in the production facility total between 20 and 25 smears weekly and in excess of 100 smears are taken in the controlled area. A review of records indicate that most unrestricted smears were less than 200 dpm/100 cm<sup>2</sup> and most controlled area smears are in the range of 2,000 to 5,000 dpm/100 cm<sup>2</sup>. A few smears have been taken in the controlled area that were on the order of 6,000 to 8,000 dpm/100 cm<sup>2</sup>; however, routine cleanup efforts apparently soon reduced these to less than the operating level of 3,000 dpm/100 cm<sup>2</sup>.

19. In addition, so-called spill surveys are conducted once or twice per shift by each health physics technician. These surveys are actually inspections looking for visible signs of uranium spills. A written report is prepared of each of these spill surveys with a copy being given to the operating foreman. In the month of November, 1972, it was indicated that a total of 138 spills or leaks were identified by the health physics technicians. These are identified as to types or causes of spills and are as follows:

16	Improper material handling
15	Draining and refeeding systems
4	Ash receiver handling and removal
10	Maintenance work
54	Equipment leaks, (other than packing)
24	Packing leaks
13	Sampling Spills
2	Over filling tanks and boildown and digestion
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These leaks and spills are reportedly promptly investigated by the routine operating crew and corrected.

20. As described in the previous inspection report, this licensee had initiated a program of hazardous work permits. These hazardous work permits, in addition to and including radiological problems, also are issued for any type of hazardous operation and, as an example, in January, 1973, a routine operating month, a total of 58 hazardous work permits were issued. A copy of the form utilized is attached to the previous inspection report. These hazardous work permits were spot-checked during this inspection and all appear to be filled out in an appreciable amount of detail to identify potential hazards and specify the type of safety equipment that should be required. In addition, this licensee also maintains what they call "incident reports". These include all instances in which Anterni levels of 3 x MPC or more are detected. A review of these revealed that a total of 28 incident reports have been prepared since September, 1971, the date of the previous inspection through April 9, 1973, the beginning of this inspection. A typical incident report resulted from an accident on November 5, 1972. In this case, an equipment failure - (in fact, a gasket failure and resulted in UF4 contamination in an area of about a 20-foot radius around a conveyor. Airborne levels of approximately 8.7 x MPC were detected in the immediate vicinity. Three operators were half-masked during the cleanup operation. Urine samples following the accident revealed levels of uranium of 6, 15, and 25 micrograms of uranium per liter of urine. This licensee's limits of permissible concentrations in urine have been lowered from the previous value of 150 micrograms per liter to

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two consecutive samples in excess of 35 micrograms per liter, or one single sample in excess of 150 micrograms per liter.

- 21. In excess of 1,000 routine air samples are collected monthly at fixed locations. This involves 35, 24-hour samples collected at the rate of one cubic foot per minute. This flow rate is checked two times per week. In addition, approximately 40 to 50 hi-vol samples are collected in the uncontrolled and unrestricted areas each month. The MPC in restricted areas is 6 x 10<sup>-11</sup>, the MPC in the unrestricted area is 2 x 10<sup>-12</sup>. Whenever the daily fixed filter indicates concentration in excess of one-half of MPC an attempt is made to identify the possible cause or source of radioactive material.
- 22. In an effort to identify possible trends, the sample results in each area are averaged and plotted. These consist of five collecting heads in the sampling area, four located in the digestion area, three in the vicinity of the denitrator, seven sampling locations in the reduction-hydrofluorinator and 11 sampling locations in the fluorination areas.
- 23. During a tour of the facility it was noted that all individuals in the process area were carrying a half-mask respirator; however, none were noted to be using them. Mr. Grosclaude explained that because of the possibility of sudden releases all individuals had with them the respirator to be utilized while evacuating the areas, etc. Mr. Grosclaude stated the respirators are cleaned and inspected by the health physics technician after each use.

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#### Personnel Monitoring and Bioassay

- 24. Film badges are obtained monthly from U. S. Testing Laboratory. A review of the reports indicate that generally less than 50 millirem gamma per month and less than 400 millirem beta per month are received by employees. A few monthly 707 100 FTT exposures on the order of 707 30 millirem beta have occurred. The maximum exposure for calendar 1972 was to one maintenance employee who received a total of 780 millirem gamma plus 6,800 millirem beta. The second highest exposure for 1972 totalled 740 millirem gamma plus 5,190 millirem beta. All others totalled less than 600 millirem gamma and less than 4,000 millirem beta. The summary finance. Interpret of 1971 indicated summary finance.
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  Market and the first two months of 1973, most exposures were less than 200 millirem beta per month. Mr. Grosclaude with explained that due to previous problems contamination all badges are cleaned and monitored prior to badge exchange.
- 25. Bioassays are obtained from all production and maintenance employees on a monthly frequency. In addition, following any suspected uptake of uranium, urinalyses are also performed. The licensee currently uses the limits for restricting an employee from potential uptake areas as two consecutive samples in excess of 35 micrograms per liter or a single sample of 150 micrograms of uranium per liter. Restriction if removed only after the employee is able to submit two consecutive samples of less than 35 micrograms uranium per liter. Urinalysis results were reviewed and, although several individuals had single samples on the order of 200 to 300 uCi uranium per liter of urine, they have quickly dropped to less than 30 micrograms of uranium per liter by the time of resample. Thus, because no one has exhibited a prolonged body retention of natural uranium, it is a clear indication that the uranium is in a highly soluble form and very readily eliminated from the body.

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#### Effluents

- 26. The gaseous effluents are monttored by sampling each of the principal effluent streams daily. These include the main plant dust collection exhaust which is a composite stream from the sample plant dust collector, the main plant vacuum system and the UF<sub>4</sub> vacuum system exhausts. Other individual samples are the pulse-air exhaust, the sample prep and laboratory exhaust, the HF off-gas scrubber and the main plant stack. In addition, there are twelve roof vents. These are sampled one each day on a rotating basis. In addition, there are two sample stations located at the edge of the restricted area. These latter stations have indicated no concentration in excess of 0.5 x MPC for unrestricted areas. Most of the daily stack exhausts have indicated levels of less than MPC. On occasion, isolated samples have been several times MPC; however, samples collected in the environs have not indicated excessive concentrations.
- 27. There have been no releases of raffinate from the ponds. The newest raffinate pond is approximately half-filled. According to Mr. Grosclaude it is estimated that its current capacity will allow operation until sometime into the fall of 1973. The licensee is exploring some method of reducing the volume of the raffinate solutions. The only liquid release is known as a combination stream. This is sampled on a continuous basis. The composites being analyzed monthly.

#### Disposal

28. This licensee is disposing of some contaminated equipment, etc., by burial. Since the previous inspection in September, 1971, there have been a total of six burials in the corner of the licensee's property. These burials have ranged

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in size from approximately four kilograms of natural uranium to a maximum of 30 kilograms of natural uranium. Mr. Grosclaude explained much of this was in the form of contaminated paper, Kimwipes, glassware, etc.

29. In addition, this licensee disposes of a weak solution of hydrofluoric acid which has a potential of being slightly contaminated. On the order of one tanktruck per week of this weak acid solution is generated. Samples are collected from each tanktruck. Most have been on the order of 1/10 of MPC or less. On one occasions, one tank had to be diluted, however, to meet the release limits. On all other occasions, the process has been such that the uranium content has produced no problems.

# Environmental Monitoring

30. The licensee's environmental monitoring program includes samples collected from nine surface water bodies, including the facility effluent; fourteen seepage wells which are sampled monthly; six soil samples which are collected quarterly and, since May, 1972, vegetation samples which are collected monthly.at ten locations. It was explained that during the non-growing season, dry foilage is collected. Air samples are collected weekly at four locations on the approximate points of the compass on the order of 1,000 feet from the facility. These samples are also analyzed for fluorides. The licensee has recently planted approximately 700 Southern short-needle pines in the general vicinity of the facility. Mr. Grosclaude explained these were chosen because they were reportedly extremely sensitive to fluoride. Pages 15 through 22 of the licensee's environmental report, supplement 2, dated December 1972, contains the results of samples collected through October, 1972.

The more recent results of samples collected in November-December, 1972, and January-February, 1973, were spot-checked. No deviations in excess of those already indicated were identified.

#### Independent Measurements

31. At the time of this inspection, much of the facility was inoperative for maintenance operations. Inspection of these areas indicate no visible dusting, etc., consequently, no effort was made to obtain air samples. Liquid samples are being obtained and split with the licensee. These are to be the April, 1973, composite stream and from seepage well #2310, which is north of raffinate pond #2 and seepage well #2312 which is approximately due west of raffinate pond #2. These three samples will be analyzed for the present natural uranium, radium 226, gross alpha and gross beta.

#### Management Interview

32. At the conclusion of the inspection, it was acknowledged that no violations of AEC requirements or license conditions had been identified during this inspection and Form AEC-591 indicating a clear inspection was issued.

INSPECTION DATA Category \_\_\_\_\_ Inspector: Hujder 1.. Date of Enspection: \_ 4/19-11/73 Priority IL 2. 3. Licensee: Kin - mc Lu Initial as (SEGULYAH) Reinspection # 3 Maress: 1K4-himy. City Followup Inquiry License No. SUB- 1010 Docket No. 40-8027 Investigation Noninspectable Date Dispatched \_\_\_\_\_ 5. AEC-591 Clear / Noncompliance Regional Office Letter verifying 6. Regional Office Enforcement Letter corrective action Noncompliance with 10 CFR License Condition(s) 7. Referred to HQ for Action Reason:

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