

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 39, 40 and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee		
1. Allied-Signal, Inc.	3. License number	SUB-526 Amendment 15
2. P.O. Box 430 Metropolis, Illinois 62960	4. Expiration date	June 1, 1990
	5. Docket or Reference No	40-3392
6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license
A. Natural uranium	A. "Yellowcake", U_3O_8 UO_2 , UF_4 , UF_6	A. 68 million kg (150 million lbs)
B. Cs-137	B. Sealed sources	B. 100 millicuries
C. Any licensed material between atomic numbers 1-100	C. Quality control samples	C. 1 μ Ci total
9. Authorized place of use: The licensee's existing facilities at Metropolis, Illinois.		
10. Authorized use: For use in accordance with the statements, representations, and conditions contained in Chapters C-1 through C-7 of the license renewal application dated December 9, 1983, and supplements dated March 7 and August 1, 1984; August 29 and November 13, 1985; September 10, 1986; April 9 and October 14, 1987; January 6, 1989 (submitted by letter dated January 10, 1989); February 18 and July 1, 1991 (submitted by letter dated June 27, 1991); and March 12, March 15, June 11, and July 30, 1993.		
11. In the conditions section of the license renewal application, the term "are" shall be interpreted as "shall be" in all instances where this term is used to denote services or actions by the licensee.		
12. Personnel with appropriate health physics training shall be present at the plant at all times when operations involving source material are being conducted. The licensee shall attain compliance with this condition on or before September 30, 1985.		
13. Health physics personnel shall be present whenever entry is made into containment structures, including ventilation baghouses, where the potential exists for exposure to airborne radioactivity concentrations greater than those specified in 10 CFR Part 20, Appendix B, Table 1. The licensee shall attain compliance with this condition on or before September 30, 1985.		

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14. The licensee shall prepare, on a semiannual basis, a report summarizing and evaluating all of the radiological measurements made at the facility, including airborne radioactivity, surface contamination, internal and external exposures, effluents, and environmental monitoring. This report shall be provided to the ALARA Committee, the Plant Manager, and other levels of supervision as necessary for appropriate action.
15. Prior to performing work for which a Radiation Work Permit is required, the employee shall be provided with specific instructions regarding the task, the necessary safety precautions, and any safety equipment required. Receipt and understanding of this information shall be documented on the permit and shall include the employee's signature.
16. Notwithstanding the statements made in C-2.7 of the license renewal application, the Health Physicist shall conduct quarterly a formal audit of plant operations which involve source materials in accordance with a preconceived written plan to determine compliance with regulations, license conditions, and licensee procedures. All areas involving source materials shall be audited at least annually. The findings of the audit, including deficiencies and the corrective actions taken, shall be documented in a formal report to the Plant Manager. The licensee shall attain compliance with this condition on or before July 31, 1985.
17. The licensee shall maintain operational survey instruments for personnel contamination surveys at all exit points from contamination controlled areas. These instruments shall be of a suitable type and sensitivity to detect the presence of contamination on the skin or clothing in excess of 1,000 dpm/100 cm². Individuals shall monitor daily upon exiting a contamination controlled area. If contamination in excess of 1,000 dpm/100 cm² is detected, decontamination of the individual shall be effected to reduce levels to background. The licensee shall not permit any individual to exit the contamination controlled area with contamination above 1,000 dpm/100 cm² without the specific approval of the Health Physicist.
18. Sealed byproduct material sources shall be subject to the testing and actions specified in the attached "License Condition for Leak Testing Sealed Byproduct Material Sources," dated April 1993.
19. Release of equipment or packages to the unrestricted area or to uncontrolled areas onsite shall be in accordance with the attached "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated April 1993.
20. On a semiannual basis, Allied shall take samples and perform uranium and fluoride analyses of bottom sediment from the liquid effluent drainage ditch from, at a minimum, locations approximately 700 and 1400 feet downstream of Outfall 002.

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21. Notwithstanding the four steps for determining compliance with 40 CFR 190 (Section C-4.2, Page C-22), the licensee shall assure compliance with 40 CFR 190 as follows:

- a. If the average air concentration of total alpha radioactivity (the sum of natural uranium, radium-226, and thorium-230) measured from samples collected from existing Station No. NR-7 (adjacent to the home of the nearest residence north-northeast of the plant) exceeds 3.0×10^{-14} $\mu\text{Ci/ml}$ over any calendar quarter, the licensee shall, within 30 days, prepare and submit to the Commission a written report which identifies the cause for exceeding the limit and the corrective actions to be taken by the licensee to reduce radioactivity release rates. If the parameters important to a dose assessment change, a report shall be submitted within 30 days which describe the changes in parameters and includes an estimate of the resultant change in dose commitment.
- b. In the event that the calculated dose to any member of the public in any consecutive 12-month period is about to exceed the limits specified in 40 CFR 190.10, the licensee shall take immediate steps to reduce emissions so as to comply with 40 CFR 190.10. As provided in 40 CFR 190.11, the licensee may petition the Nuclear Regulatory Commission for a variance from the requirements of 40 CFR 190.10.¹ If a petition for a variance is anticipated, the licensee shall submit the request at least 90 days prior to exceeding the limits specified in 40 CFR 190.10.
- c. The licensee shall continue the existing environmental air monitoring program (committed to in Section C-4.2, first paragraph, pages C-21 and 22, including commitment to monitor fluoride). Continuous air sampling shall be conducted at all the stations and the air samples shall be composited at each station and analyzed at least monthly for uranium and at least quarterly for radium-226 and thorium-230. All radiological analyses specified above shall be performed with analytical sensitivity of at least 10^{-16} $\mu\text{Ci/ml}$.
- d. Samples taken at Station No. NR-7 shall be composited at least quarterly and analyzed for uranium solubility. The solubility analysis shall follow the methodology and procedures established by Battelle Pacific Northwest Laboratories (BNWL)^{2,3} or an equivalent method acceptable to NRC.

¹ The report or petition should be submitted to the Director, Office of Nuclear Material Safety and Safeguards, with a copy to the Director of Region III's Division of Radiation Safety and Safeguards.

² Solubility Classification of Airborne Products from Uranium Ores and Tailings Piles - D. R. Kalkwarf, BNWL, November 1978, USDOE Contract No. EY-76-C-04-1830.

³ Second Quarterly Report on Solubility Classification of Airborne Products from LWR-Fuels Plant - D. R. Kalkwarf, BNWL, October 15, 1979.

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- e. The licensee shall determine the particle size distribution of radioactivity in air at Station No. NR-7 using a multiple stage cascade impactor capable of fractionating particles in the respirable and non-respirable size ranges. The impactor shall be operated continuously except for those periods required for disassembly for particle size distribution analysis. The particle size distribution analysis shall be performed at least once per month as a minimum and more often if necessary to assure effective particle retention and fractionation.
- f. The actual particle size distribution, material solubilities, and air concentrations, determined as required in Condition 22 c, d, and e above shall be used to calculate the dose to the public for purposes of Condition 22 b.
22. Notwithstanding the statements made in Section C 6 of the license renewal application and the referenced general decommissioning plan dated August 14, 1978, no licensed material shall be buried onsite without specific approval by the Commission.
23. The licensee shall be exempted from the requirements of 10 CFR 20.203(e)(1), 20.203(f)(1), and 40.60(b)(3), as provided in Section C-1.8 of the license.
24. The maximum fill limit for the Model 480M cylinder shall be 27,030 pounds.
25. If the weight of UF_6 in a 30- or 48-inch diameter cylinder exceeds by more than 100 pounds or 500 pounds, respectively, the maximum fill limits specified by ORO-651, Revision 5 (September 1987), the License Condition No. 26, heating the cylinder shall not be allowed without specific procedures approved by the Plant Manager. The licensee shall notify NRC of any cylinder filled in excess of these weights and of planned remedial actions. Heating of other cylinder types containing UF_6 in excess of the ORO-651, Revision 5 (September 1987), limits shall not be permitted without specific procedures approved by the Plant Manager.
26. Audits required by the MTW Management Assurance Program shall be conducted at intervals not exceeding 13 months. A report of audit activities and findings shall be made monthly to the Plant Manager.
27. The average concentration of uranium in calcium fluoride released to each commercial organization, for any consecutive 12-month period, shall not exceed 212 pCi/gram.
28. The licensee is hereby granted a schedular exemption from the requirement of 10 CFR 40.36(e), that specifies acceptable financial assurance mechanisms, until completion of the self-assurance mechanism rulemaking.

FOR THE NUCLEAR REGULATORY COMMISSION



Date: 26 Aug 1993

By: Robert Pierson
Division of Fuel Cycle Safety
and Safeguards
Washington, DC 20555

Attachments: As stated