Form AEC-668
(4-62)

UNITED STATES ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE

DOI II

1. LICENSEE	2. REGIONAL OFFICE
Department of the Army Headquarters, U. S. Army Alaska APO 949, Seattle, Washington	Region V, Division of Compliance U. S. Atomic Energy Commission 2111 Bancroft Way Berkeley, California
3. LICENSE NUMBER 50-10023-1	4. DATE(S) OF INSPECTION September 1, 1965

5. The following activities under your license (identified in Item No. 3 above) appear to be in noncompliance with AEC regulations or license requirements, as indicated.

(a) Labelling data present on drums of radioactive waste possessed by the licensee did not include the principle radioisotope, and the radiation level at the container surface and at one meter from the container. This is contrary to the requirements of license condition 4B, Labelling, of the license issued June 16, 1964.

(b) Records of receipt for licensed material were not properly maintained. This is contrary to the requirements of 10 CFR 30.51 (10 CFR 30.41 prior to August 25, 1965).

ORIGINAL SIGNED BY
ARTHUR G. JOHNSON

SEP 17 1965

Supplementary page None attached. A. G. Johnson, Radiation Specialist
AEC Compliance Inspector — Date

ORIGINAL: LICENSEE. COPIES: ☒ CO REGION ☐ CO HEADQUARTERS ☐ L&R HEADQUARTERS.

U.S. GOVERNMENT PRINTING OFFICE: 1965—O-805811

Department of the Army
Headquarters, U. S. Army Alaska
APO 949, Seattle, Washington
License No. 50-10023-1

A. G. Johnson Inspector 9/17/65
R. A. Bark Reviewer 9/20/65

SECTION I
INTRODUCTION

1. An announced reinspection of byproduct license 50-10023-1 was conducted by A. G.Johnson on September 1, 1965 at Headquarters, U. S. Army Alaska, Fort Richardson, Alaska. The licensee was represented by Col. Mantz, Commanding Officer for the USARAL Support Command; Lt. Col. Owen Osburn, Chief, CBR Division, and USARAL Chemical Officer; Major Turner, USARAL Radiation Safety Officer; and Captain John Tengler, Officer in Charge of the radioactive waste operation and alternate USARAL Radiation Safety Officer. Throughout the inspection the inspector was accompanied by Mr. Richard Mikkelsen, State of Alaska, Division of Public Health.

SECTION II
INSPECTION FINDINGS & ITEMS OF NONCOMPLIANCE

2. The licensee operates what can realistically be described as a radioactive waste collection and transfer facility. Radioactive waste is normally obtained prepackaged in accordance with ICC Specifications from various military installations throughout the Alaska area. This material is transferred, normally by common carrier truck, from outlying military installations to the radioactive waste collection and holdup facility at Fort Richardson, Alaska. When a quantity of radioactive waste sufficient to justify a shipment has been obtained Fort Richardson personnel transfer the material, normally by common carrier truck, to Edgewood Arsenal, Maryland. According to the licensee, final disposal is handled by Edgewood Arsenal by burial at a Commission licensed or Agreement State licensed facility. Since the last inspection conducted August 5, 1964 the licensee has received the majority of their radioactive waste from the U. S. Army Reactor Operation at Fort Greely, Alaska.

3. The only items of noncompliance noted or otherwise observed during the course of this inspection are set out below:

(a) Labelling data present on drums of radioactive waste possessed by the licensee did not include the principle radioisotope, and the radiation level at the container surface and at one meter from the container. This is contrary to the requirements of license condition 4D, Labelling, of the license issued June 16, 1964.

(b) Records of receipt for licensed material were not properly maintained. This is contrary to the requirements of 10 CFR 30.51 (10 CFR 30.41 prior to August 25, 1965).

SECTION III
GENERAL INFORMATION & ORGANIZATION

4. The licensee's organization for this program is divided into two separate sections, both of which report to Major General George A. Carver, Commanding Officer, U.S. Army Alaska. One side of the organization is under the Command of Col. Donald C. Rubottom, Staff G-3 for General Carver. Lt. Col. Owen Osburn, Chief, CBR Division, and USARAL Chemical Officer reports to Col. Rubottom. Major Turner, USARAL Radiation Safety Officer, reports to Lt. Col. Osburn and is responsible for coordinati radiation safety matters with respect to this licensed program. The second portion of the organization is under the command of Col. Mantz, Commanding Officer, USARAL Support Command. Captain John Tengler, Officer in Charge of the radioactive waste operation, and alternate USARAL radiation safety officer, reports to Col. Mantz in the normal chain of command, but only for administrative and information purposes in the waste program. Capt. Tengler reports to Lt. Col. Osburn through Major Turner for operations relating to the radioactive waste facility. Capt. Tengler has two laboratory specialists (enlisted men) under the supervision of one noncommissioned

officer, a Sergeant Baxley. A brief diagram of the organization is attached as Appendix A. It was noted in reviewing the licensee's organization that operations of the waste facility is being conducted under the supervision of the Chief of the Radiochemical Laboratory, Fort Richardson, Alaska, and under the supervision of the radiation protection officer, U. S. Army Alaska.

5. The licensee stated that there has been no export of licensed material and that procurement is primarily from other military installations throughout the Alaskan area. Normally, radioactive waste is prepackaged in accordance with ICC specifications by the outlying military installations, and then transferred by common carrier truck to the radioactive waste holdup facility at Fort Richardson, Alaska. The majority of radioactive waste is received in conventional 55 gallon steel drums with lids welded on. As noted previously, most radioactive waste currently passing through the Fort Richardson waste holdup facility is being generated by the U. S. Army Reactor at Fort Greely. It was pointed out that since the previous inspection on August 5, 1964 their entire waste supply has come from Fort Greely except for one AN/UDM-1 radiac calibrator containing a decayed cobalt-60 source of approximately 4.5 curies, and one 55 gallon drum of radioactive and non-radioactive radio tubes. According to the licensee, the tubes were obtained from the Fort Richardson Ordnance Operation and consisted of a small percentage of tubes which actually contained radioactive material.

6. Each receipt of radioactive waste is documented in an individual file which normally contained correspondence between Fort Richardson and the waste supplier, listings of individual drums by numbers, radiation levels in mr/hr at the surface and at one meter from each container, radiation units contained in each drum, a statement

regarding compliance with ICC specifications for packaging, and a radioactive materials shipment form, Form DA-2791, which included information regarding the date of receipt at Fort Richardson and usually data indicating the total millicuries in the shipment. In reviewing the licensee's records of receipt it was observed that there was a noticeable lack of information in each individual file regarding the type of radioactive material received. In each case licensed material was classified as "Chemical Waste, Not Otherwise Specified" rather than designating the principle radioisotopes involved. In addition, data relating to the amount (pounds, grams, or millicuries) of material received was sometimes extremely difficult to obtain from information on receipt records currently being maintained. Recent receipts at Fort Richardson included 10 drums of radioactive waste received from the Fort Greely reactor on 17 August 1965, and 17 drums of waste from Fort Greely reactor on April 23, 1965. The August, 1965, receipt totalled approximately 74.2 millicuries of byproduct material while the April, 1965, receipt totalled approximately 40 millicuries.

7. Transfers from the Fort Richardson holdup facility to Edgewood Arsenal, Maryland are conducted by common carrier truck over the Alcan Highway, and are coordinated through the Seattle, Washington U.S. Army Transportation Officer. The Post Transportation Officer at Fort Richardson coordinates with Canada prior to shipping down the Alcan Highway. The licensee maintains records of transfer in a series of files which are similar to those maintained in conjunction with receipt of radioactive material. Data present on transfer records are compiled at the time a group of drums is being prepared for shipment. Information is generally obtained from drum labelling, but is often confirmed by communicating with the supplier or by direct measurements. Data present on transfer records normally included the date of transfer, number of drums transferred, the total activity in terms of millicuries,

the approximate millicuries in each drum, radiation survey results at surface and at one meter, and an indication of the type of radioactive material involved. In reviewing the records of transfer it was observed that the licensee shipped approximately 22 drums on May 10, 1965 with a total of approximately 68.9 millicuries of byproduct material, and 35 drums totalling approximately 80 millicuries of byproduct material on July 15, 1965.

8. At the time of inspection the licensee's inventory of waste material totalled approximately 4.652 curies. A more detailed breakdown of this activity showed approximately 4.5 curies of cobalt-60 as a decayed sealed source present within an AN/UDM-1 Radiac Calibrator packaged in accordance with ICC Regulations and ready for shipment, 70 millicuries of cobalt-60 as two 35 millicurie Model M-3 radioactive sealed source sets, and a total of approximately 82.225 millicuries of byproduct activity present in sixteen 55-gallon drums of radioactive waste.

SECTION IV
FACILITIES AND EQUIPMENT

9. The facilities associated with the licensee's radioactive waste operation have remained essentially unchanged from the previous inspection on August 5, 1964. These facilities were described in H. S. North's Form AEC-591 notes dated October 7, 1964, a copy of which was provided for the files of DML. In general, however, the facility consists of an area approximately 100 feet by 80 feet which is enclosed by a chain link and barbed wire fence approximately 8 feet high. A gate into this area was constructed of the same material and was locked with a large padlock. A 60 foot by 40 foot concrete pad was located in the center of the fenced area, and has been constructed with a surrounding drainage ditch leading into sumps

located at corners of the pad. According to the licensee, the pad construction included slight central elevation to assure drainage to the outer edges of the pad. At the time of inspection most waste drums were being stored under canvas on the concrete pad, while other waste materials were present inside several temporary-type structures on the concrete pad. These structures included the enclosed van portion from a van-type truck, a skid mounted building (approximately 25 feet by 20 feet) resembling a field construction office, and a wooden framed canvas covered structure used for storing a variety of empty waste drums and other containers. It was observed that signs were posted around the perimeter of the waste facility reading "Caution Radiation Area" with the conventional radiation symbol in magenta and yellow and "Caution Radioactive Material" with the conventional symbol in magenta and yellow. Additional signs of the above types were posted at numerous locations within the waste facility. In addition, the gate to the facility had a large sign reading "Do Not Enter, USARAL, Phone Number, Film Badge Must Be Worn." Signs posted around the perimeter of the waste facility also contained information regarding the radiation level at that particular point. It was observed that these levels did not exceed 0.2 mr/hr.

10. It was noted that drums present within the waste facility were labelled with the wording "Caution Radioactive Material" with the conventional radiation symbol in magenta and yellow, plus additional information relating to the amount of activity in millicuries, grams, or pounds, the name and address of the licensee, a reference date, and the number of radiation units in the container. It was also noted, however, that container labelling did not include information relating to the principle radioisotopes, and radiation levels at surface and at one meter from the container. License Condition 4D, Labelling, of the license issued June 16, 1964 requires the presence of this information as part of the container labelling

data. The licensee stated that most waste had been received at their facility labelled as "Chemical Waste Not Otherwise Specified", but that they would coordinate with their suppliers so that in the future principle radioisotopes would be listed on the labels. It was also explained by the licensee that radiation survey data at surface and at one meter was available, but had not been transferred onto the drum labels. Captain Tengler agreed to inform the suppliers of the need for including this information on each drum label.

11. The licensee described the waste facility itself as the restricted area, but pointed out that the waste facility was within an ammunition storage area which was also considered to be a restricted area. During the trip from Captain Tengler's office to the waste facility it was necessary to pass through an active guard station established primarily to control access into the ammunition area, but equally effective for controlling access into the area around the waste facility. As noted, the waste facility was locked with keys under the control of Captain Tengler. It was observed that Form AEC-3 was posted at several places around the radiochemistry laboratory office building. It was also noted, that in addition to Form AEC-3, copies of the license, Part 20, and operating procedures were posted on the main bulletin board in this building. According to Captain Tengler, each individual within the section is required to read and continually review these documents, especially the operating procedures.

12. The licensee possessed a variety of instrumentation which included many of the conventional military monitoring instruments. Among these were several AN/PDR-27, 0 - 500 mr/hour survey meters, several AN/PAC-60-1S Eberline Scintillation Counters, and an SAC-2 Scaler, combined with a scintillation well counter. Captain Tengler stated that portable monitoring instrumentation is calibration on a 30-day interval by the Fort Richardson Signal Maintenance Group. Instruments are tagged after

calibration with a sticker showing the most recent date of calibration. Additional instrument calibration records are maintained by the Signal Maintenance Group.

SECTION V
RADIATION SURVEYS, PERSONNEL MONITORING & WASTE DISPOSAL

13. The licensee conducts a variety of different types of radiation surveys. Complete radiation surveys are conducted on each container of radioactive waste received at the Fort Richardson facility. Surveys of this type include a check of radiation levels at surface and at 1 meter, and a wipe of each container to assure that no loose contamination is present. Records of these surveys are maintained by verifying initial survey data written up and sent with each shipment by the supplier. In the event that differences exist between the initial survey data and results obtained by Fort Richardson personnel, differences are noted on the initial survey results before the results are placed into the file. In addition, a complete radiation survey is conducted of the waste carrying vehicle, normally a civilian ICC common carrier truck. This survey includes direct radiation measurements and wipes of the carrier, and results of the analyses are obtained prior to allowing the truck to leave the Fort Richardson facility. Records of these surveys are maintained in the form of a series of statements indicating no radiation levels or contamination in excess of normal background. Normally, these documents are filed with the packet of receipt records. Captain Tengler stated that radiation surveys are also conducted prior to shipping waste containers. These surveys include a determination of the radiation level for each container at contact and at 1 meter, plus a wipe of each drum to determine that no loose contamination is present. Records of these surveys are maintained on DA Form 2502-R, and are maintained on file in the packet of transfer records. A copy of the information is also forwarded to Edgewood Arsenal, Maryland. In

reviewing the results of these surveys it was observed that no contamination above normal background had been detected on containers transferred from Fort Richardson, and that maximum radiation levels have been approximately 160 mr/hr at surface and 6 mr/hr at 1 meter. The vast majority of radiation levels on waste containers have been considerably less than these values, however. In addition to radiation surveys conducted during receipt and shipping operations, the licensee conducts a periodic radiation survey of the waste facility. Captain Tengler pointed out that at least once a month radiation measurements were taken around the perimeter fence of the facility, and at various points inside the facility near stored radioactive waste. In addition, a variety of wipe surveys are conducted within the facility to determine whether removable contamination is present. Results of these surveys are kept on a monthly radiation survey report which is filed in a separate portion of the licensee's records. A review of these showed that radiation levels at the fence have consistently averaged less than 0.2 mr/hr, and that no removable contamination has been detected within the facility. Additional statements on the radiation surveys note such items as "fences and signs have remained intact and secure."

14. The licensee uses both film badges and pocket dosimeters in their personnel monitoring program. At the present time approximately five individuals wear film badges which are supplied by the Sacramento Signal Depot and exchanged on a frequency of once per month. Pocket dosimeters are of the IM-9E/PD with a range of 0 - 200 millirem. Film badge results are recorded on individual Form DD-1141's which are kept by the medical detachment in each man's personal medical file. Captain Tengler's organization maintains a copy of the Sacramento Film Badge Report which shows personnel exposure for their organization. A copy of the film badge report is sent to the medical detachment so that data can be transferred from this report

to the individual DD-1141 Forms. A review of the film badge results showed essentially 0 millirem for each individual for the entire history of the operation. An occasional entry of 5 to 20 millirem was observed, but this was unusual. Pocket dosimeters are worn while work is being conducted within the waste area. According to Captain Tengler, the dosimeters are charged and zeroed prior to entering the area, and are read upon completion of work in the area. The results of the pocket dosimeters are not formally recorded since they are used mainly as an indication of radiation exposure. The licensee's film badge constitutes their official record of exposure. It was pointed out, however, that should the pocket dosimeters begin to indicate measurable exposure records of exposures from the dosimeters would be kept. It was pointed out by Captain Tengler that dosimeter exposures normally show from zero to one or two millirem exposure for a normal working session of 4 to 8 hours in the waste facility.

14. The licensee has generated no radioactive waste of their own in conjunction with the licensed operation.

15. According to Captain Tengler there have been no radiation incidents or unusual occurrences except for one drum of radioactive waste which arrived at their facility with a contact radiation level approximately equal to 200 millirem per hour. This was unusual since the majority of their drums are much lower than this level. The drum was being held from shipment to allow for decay. Captain Tengler stated that at contact the drum was currently reading approximately 150 mr/hr at the highest points, and would probably be shipped in the next group. The licensee also confirmed that they have no AEC contracts.

16. At the conclusion of the inspection a summary of the findings was provided for Colonel Mantz, Lt Colonel Osburn, Major Turner, Captain Tengler, and several other members of Colonel Osburn's staff. It was pointed out to the licensee that records of receipt should be maintained so that the type of radioactive material is listed or can be determined, and that all labelling data required by their license (license Condition D - Labelling) should be present on each drum of radioactive waste. The licensee agreed to take immediate steps to correct these apparent discrepancies.

APPENDIX A

ORGANIZATION