EC-417 48)	U ED STATES ATOMIC ENERGY COMMISSION	
	COMPLIANCE INSPECTION REPORT	TIN

Name and address of licensee	2. Date of inspection April 18, 1963	
Veterans Administration Center Radioisotope Service Wilshire & Sawtelle Boulevards Los Angeles 25, California		
	3. Type of inspection Reinspection	
	4. 10 CFR Part(s) applicable 20 and 30	

5. License number(s), issue and expiration dates, scope and conditions (including amendments)

License No.	Date	Exp. Date	Scope and Condition
Amend. #27 4-181-4 (Rein. 1)	9-17-62	7-31-64	
Amend. #28	9-19-62		
Amend. #29	11-16-62		
Amend. \$30	11-29-62		
Amend. #31	1-29-63		
Amend. #32	3-4-63		
Amend. #33	3-14-63		

6. Inspection findings (and items of noncompliance)

Form A

1.

The subject licensee is a large Veterans Administration Hospital which has a patient population of approximately 17,000. The radioisotope service provides diagnostic and therapeutic radioisotope services to the Hospital. The radioisotope service unit also supervises the use of licensed materials in the various research projects which are underway at this facility. The licensee is authorized to possess a large number of isotopes in many different forms with a fairly high possession limit. The licensee has an active radiation safety program and an isotopes committee composed of hospital staff physicians and outside consultants.

The inventory, restricted area, signs, labels and signals and records of surveys, personnel monitoring, receipts, transfers and disposal all constitute a portion of this program and were reviewed. The only items of noncompliance observed or otherwise noted during the course of this inspection are as set out below:

# License 4-181-4 - Condition 6 - Byproduct Material Authorized

The subject licensee possessed 0.500 millicuries of iodine-125. The license issued to the subject licenses does not authorize the possession of this isotope. See paragraph 13 of report details. (continued to page 2) S. L. Martinesse

<ul> <li>7. Date of last previous inspection</li> <li>8. Is "Company Confidential" information (Specify page(s) and paragraph(s)</li> <li>8. May 12, 1960</li> </ul>	ation contained in this report? Yes [] No 🖪	
DISTRIBUTION: Original of report - Division of Compliance, Hq.	ORIGINAL SIGNED BY	
One copy of report - Division of Licensing and Regulation, Eq. Annound by:	B. E. Book F. Z. DOX	
One copy of report - Region V, Division of Compriance	San Francisco	
204150555 820216 DR FDIA	(Operations after)	
ELSONB2-11 PDR	(Date report prepared)	
Ladditional space is required for any numbered item above, the continuation may be format, leaving sufficient margin at top for binding, identifying each item by numb appropriate item. RECOMMENDATIONS SHOULD BE SET FORTH IN A SEPARA	extended to the reverse of this form using foot to her ber and noting "Continued" on the face of form und sectors is a sector provide the TE COVERING MEMORANDUM	

# b. Inspection findings (and items of noncompliance) - continued

## License No. 4-181-4 Condition No. 7 - Chemical and/or Physical Form

The subject licensee possessed a 250 microcurie cobalt-60 sealed source, Tracerlab Model No. R-30 which contained a nominal 1 millicurie of cobalt-60 when received in 1952. The subject license did not authorize possession of a sealed source of cobalt-60. See paragraphs 13 and 28 of report details.

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#### SECTION I GENERAL INFORMATION, ORGANIZATION AND INSPECTION HISTORY

- On April 18, 1963 an ennounced inspection of the subject licensee was conducted by 9. H. S. North, Radiation Specialist, Region V, Division of Compliance. There was no State representation during this inspection. The subject license was initially issued on July 19, 1956, and has been amended in its entirety by Amendment No. 9 issued July 30, 1958, Amendment No. 14 issued November 30, 1959 and Amendment No. 27 issued September 17, 1962. Subsequent to Amendment No. 27 the license has been amended on six occasions by Amendments Nos. 28, 29, 30, 31, 32 and 33. The subject license was initially inspected on May 12, 1960. In a letter from Division of Licensing and Regulation, dated September 8, 1960 the licensee was cited for noncompliance with the sollowing sections of part 20: 10 CFR 20.304 - Disposal by Burial in Soil, 10 CFR 20 .401(c) - Records of Surveys, Radiation Monitoring and Disposal, 10 CFR 20.203 -Caution Signs, Labels and Signals (a) (1) and (f) (1). The license as it presently exists authorizes the possession of 19 different isotopes of medical significance or interest in a minimum of 53 different specified forms with the use of certain isotopes suthorized in any form. The maximum possession limit of any of these isotopes does not exceed 500 millicuries. The use of licensed material covers the entire spectrum of medical diagnosis and treatment, with the exception of teletherapy and superficial skin and eye irradiations. The authorized uses also include the use of certain isotopes in studies with patients as well as in vivo animal studies and in vitro research.
- 10. During the course of the inspection, Mr. L. W. Wetterau and W. H. Blahd, M.D. were interviewed. Mr. Wetterau is a physicist and is the licensee's Radiation Safety Officer. He is also the administrative assistant to Dr. Blahd. Mr. Wetterau is responsible for correspondence relating to licensing, procurement and disposal of radioisotopes, performance of surveys, review of personnel monitoring data and waintenance of records. Dr. Bland is the Chief of the Radioisotope Service and has full responsibility for the use of licensed materials. Dr. Blahd is the license identified responsible user. Dr. Bland stated that the Manager of the Veterans Administration Center was Mr. L. Like and that the Hospital Director, Seymore Fisher, M.D. reported to Mr. Like. Dr. Bland in his capacity as Chief of the Radioisotope Service is responsible for the clinical uses of radioisotopes and reports to the Hospital Director. L. D. Guze, M.D. is the Chief of Research at the V.A. Center and reports directly to the Manager, Mr. Like. Dr. Blahd, as the Chief of the Radioisotope Pesearch Service reports to Dr. Guze. Dr. Blahd stated that the licensee has an isotopes committee. Committee member ship according to a February, 1963 membership list included:

Individual	Office	Hospital Function	Speciality
W. H. Blabd, M.D.	Chairman	Chief of the Radioisotope Service	Internist
Seymore Fisher, M.D.	Exofficio	Hospital Director, General Medical and Surgical Hospital	Internist
J. F. Ross, M.D.		Consultant	Internist & Hemotology
J. S. Clarke, M.D.		Staff	Surgery
B. G. Fishkin, M.I	).	•	Pathology
L. Fred, M.D.		•	Internist
W. A. Gore, M.D.			Rediologist
L. B. Guze, M.D.			Infectious diseases Internist

11. Mr. Wetterau stated that as the RSO he has control authority over the use of licensed material but that final authority rests with Dr. Blahd. It is noted that the license requires no specific procedures but the licensee has prepared a manual entitled "Radiation Safety Program Manual" which is distributed to all personnel who work with isotopes. Mr. Wetterau retains a list showing all persons to whom this namual has been given. Mr. Wetterau noted that at the present time he is presenting a course, on the use of radioisotopes, radiation safety and the regulations under which radioisotopes are used, to members of the staff of the V.A. Center. He noted that the course lecturers include staff physicians from the V.A. Center and lecturers from the UCLA Medical School as well as lectures which he himself presents. Mr. Wetterau stated that each individual who works at the V.A. Center, prior to receiving permission to utilize licensed material, must file with the Radiation Safety Officer a completed radioisotope research questionnaire. All proposals relating to the diagnostic or therapeutic use of radioactive materials also must be submitted to the BSO. These proposals are then submitted to the Radioisotope Committee for final disposition. Wetterau said that the purchasing office has received specific instructions that no purchase orders for radioactive materials are to be filled without the signature of the Radiation Safety Officer.

- 12. Wotterau noted that there have been no transfers and no exports of licensed materials from this facility. Records of receipt are maintained in a bound laboratory notebook in which special sections have been set aside for each of the various isotopes authorized by this license. The individual shipments are identified by labels furnished by the supplier of the isotope. Additional information noting the quantity and date of withdrawals and the date when a particular supply was closed out, and a reference to the disposal is entered in the notebook. Wetterau stated that he did not believe that the total procurement rate for this facility would exceed 10 curies per year. Dr. Blahd concurred in this estimate however, he noted that this would be an upper limit of usage.
- At the time of the inspection Wetterau stated that the licensee possessed the following materials.

Isotope	Form	Quantity
C-14		16.63 mc
E-3		383.075 mc
1-125		0.500 mc
Au-198		20.000 mc
Cr-51		1.150 mc
1-131	NaI	142.000 mc
Se-75		0.209 mc
1-131	RISA	4.060 mc
C0-57		0.015 mc
Kg-197	Neohydrin	2.000 mc
Fe-59		0.080 mc
1-131	Triolein ,	0.169 mc
I-131	Oleic Acid	0.078 mc
Na-22		0.160 mc
Zn-65		0.020 mc
2-32		13.000 mc
1-131	Hippuran	6.000 mc
I-131	Rose Bengel	2.760 mc
Co-60	sealed source, Tracerlab, Model R-30	nominal 250 microcuries

#### SECTION II FACILITIES AND EQUIPMENT

- 14. Mr. Wetterau stated that the restricted areas consist of some of the areas of use and storage of licensed materials. He noted that many of the research programs use very small quantities of licensed materials in the form of counting samples or liquid scintillation counting samples in which the count rate is very low. He stated that areas in which various low level samples are kept are not considered to be restricted areas, however, access is controlled because of the value of equipment and the presence of hazardous materials. He explained that the V.A. Center houses a neuropsychiatric bospital and for this reason it is important that areas, such as laboratories, containing valuable and/or hazardous equipment and materials must be protected from unauthorized access. Access to areas whether restricted or controlled for other purposes is by personnel surveillance during the working hours and by lock and key control during non working hours. Specifically restricted areas are located in Building 114. It was noted that the licensee had posted numerous copies of Form AEC-3 at various locations throughout the facility in which licensed material were used. Posting locations included Employee bulletin boards in various offices and hallways throughout the buildings. Rooms 211 and 212 in building 114 are restricted areas. It is noted that one room number may actually identify several rooms in that rooms are organized into suites such as room 212 which includes room Nos. 212 and 212A.
- 15. The facilities occupied by the radioisotope service consist of a portion of room 209, Mr. Wetterau's office; room 211 a general laboratory associated with the radioisotope service; room 212, the ante-room to the hot laboratory and low level material storage area, and room 212A the hot laboratory and bulk radioisotope storage area. Mr. Wetterau noted that access to rooms 212 and 212A is limited to 5 or 6 members of the staff of the V. A. Center.
- 16. Room 212 and the hot laboratory 212A contain two lead lined sheet metal boxes, with counter weights 1 lids, which are used for radioactive material storage. Wetterau stated that the boxes are rated for a 2 hour fire. The box located in room 212, is used to store diagnostic doses of various radioisotopes and radioisotopes which do not require refrigeration prior to administration. This room is essentially a low level storage area. The box in Room 212A, the hot laboratory, is used to store bulk iodine-131 and supplies of other uprefrigerated radioisotopes which have higher gamma emission rates. The equipment located in Room 212 consists of a Jones Research, Radiation Level Alarm, a specially built GM Area Monitor which is set to alarm at 2 mr/hr. The licensee also has in this area a Tracerlab, Hodel SC-56, Source Calibrator equipped with model SC-56P1 and SC 56P2 Well Ionization Chambers with which calibration of samples in the range of 5 microcuries to 500 millicuries can be performed. Room 212A is equipped as a general chemical laboratory and corporates the isotope storage box, benchs, a sink and a chemical style fume hood. Shielding in the form of sheet lead and lead bricks is located at various areas within the room. Bench top shadow shields have been fabricated by the licensee for work with isotopes on the benches and work in the hood is done behind a wall of lead bricks. Wetterau stated and the survey records confirmed that the dose rate in the hot laboratory is normally 2.5 mr/hr.
- 17. Mr. Wetterau stated that the hood had recently been thoroughly reconditioned. The duct work was replaced or repaired and was coated on the interior surface with an epoxy plastic lining. He stated that the hood blower exhausts above roof level which is two stories above the location of the hot laboratory. He stated that the exhaust from the hood is not filtered and that due to the design of the duct work and the type of air monitoring equipment available it was not possible to collect samples from the hood exhaust stack. A review of the survey records reveals that the concentrations of airborne radioactive material in the hot laboratory are less than that specified in 10 CFR 20 Appendix B, Table 1 for soluble icdine-131 which appeared to be the most likely airborne contamination.
- 18. Room 134 in the temporary building to the rear of building 114 is a complex of rooms used by the research program. Several individuals working in this area use licensed materials. The total quantity of material in the area is approximately 100 micro-curies of carbon-14 and 3 millicuries of tritium in the form of organic compounds. It was noted that the licensee has a Barber-Coleman Cas Phase Spectrometer which incorporates a 100 millicurie tritium ionizing source. This source is possessed under a general license. Licensed materials are stored in a large number of rmall vials and bottles in two refrigerators in the research laboratory area. The only materials which are not in storage in the refrigerators are those which are in use by a researcher or are in a piece of counting equipment. It was noted that automatic sample changing, liquid scintillation, counting equipment is used almost exclusively by the

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research staff. Based on a review of the licensee's survey records it was determined that no levels of radiation in escess of 2 millirems/hour or 100 millirems per 7 consecutive days existed outside of the licensee's defined restricted area.

- 19. Room 2094, a counting row in building 114, used by radioisotope mervice contained a Fackard Automatic Gamma Liquid Scintillation Counter, series 314E and two Tracerlab Scalers, Nodels Superscaler and Autoscaler. The health physics staff has available for its use in room 209 an El Dorado Electronics, 40 channel analyzer and a Nuclear Neasurements Corp., Nodel PC-3A gas flow counter, which may also be used as a scaler with an external GN Detector. Room 327 in building 114 is used by the radioisotope service for the performance of uptakes and scans. The available equipment included a small lead lined storage box which was identified as being a temporary storage location for disgnostic doses, Magnascanner, a Baird Atomic Dual Channel Renagram and Atomium Transicord Renal Scanner, Nuclear Chicago Uptake equipment and two Tracerlab Uptake units.
- 20. Wetterau stated that as NSO he had received excellent cooperation from Dr. Blahd and that there was no difficulty in acquiring any equipment which he desired. He displayed two Nuclear Chicago Survey instruments which were recently acquired and identified them as being the instruments used in performing radiation surveys. The instruments were a model 2650 GM Survey Meter, serial number 65 with scale ranges of 0 - 0.3, 1, 3, 10, 30 and 100 mr/hr and a Nuclear Chicago Cutie-Pie, Model 2538 with scale range of 0 - 25, 250 and 2500 mr/hr. Mr. Wetterau stated that each user of licensed material at the V.A. Center is required to have his own equipment for performing surveys and that the RSO performs regular dose rate, area contamination and air monitoring surveys of the various locations of use, as well as being available to assist during unusual applications or in the event of trouble. The licensee possesses a Staplex Air Sampler and Mr. Wetterau stated that the use of this device is restricted almost exclusively to the hot laboratory since this is the only area in which he feels there is any potentiality for air contamination.
- 21. Wettereu stated that a film badge service is supplied by R. S. Landauer Company on a monthly basis and that pocket dosimeters manufactured by Landsverk Electrometer Company, Model L-50 with a range of 0 - 200 mr are available but are not presently being used. He noted that there were 60 individuals on the film badge list as of April 1, 1963.

### SECTION III WASTE DISPOSAL, SIGNS AND RECORDS

22. The licensee stated that there is no intentional disposal of licensed materials to the sanitary severage system. He stated that in washing glassware which has been used in programs involving licensed material there is a certain unavoidable loss of material down the drain. He stated that this material is a minute fraction of the total material disposed. He stated that there was no incineration of licensed material. Wetterau stated that recently arrangements had been made to transfer radioactive wastes containing long lived radioisotope to U. S. Nuclear Company, Burbank, California for disposal. He specifically identified tritium and carbon-14 as being among those materials which were held for transfer to U. S. Nuclear. He stated that the remainder of the wastes accumulated by the radioisotope service are buried on the grounds of the V. A. Center. The buriel location is in an open area adjacent to the neuropsychiatric hospital unit. The burial area is doubly fanced since it is inside the fences enclosing the neuropsychiatric hospital and the V. A. Center. During 1962 a total of 6 burials were performed in this general area. The licensee's log book shows the following information with respect to burials of licensed material; date, location of burial in the NP dump site and the size and type of containers, the isotopes and quantities of materials contained. The most recent and the largest disposal of materials was performed on November 15, 1962. The record for this disposal showed the following information about the container types and materials disposed; 7, 10 gallon containers with a dose rate of 5 mr/br xiau; 2, 55 gallon barrels; 8, 1 gallon containers of liquid scintillator fluid; 20, 1 quart containers of dialysis solutions, which contained a total of 247.704 millicuries of tritium, 16 microcuries podium-22, 4 to 10 microcuries of chronium-51. 50 microcuries of iodine-131 and 4.01 millicuries of carbon-14. Calculations show that the amount of material in this burial is just within the quantities permitted by 10 CFR 20. Burials are made in bolcs greater than 4 feet deep and more than 6 feet spart. Wetterau said that the holes are prepared by a standard grave digger

mochine and that the holes are 3 feet vide, 6 feet long and 6 feet deep. It was noted from the licensee's records that a surveyed burial ground plan is not used and that burial locations are random rather than specific and according to plan. Mr. Wetterau stated that records have been maintained which show the locations of all burials. It was pointed out by the inspector that a surveyed location plot which would positively identify all waste burial sites could be of considerable value if new construction were planned which would require excevation in the area which is presently used for waste dispocal.

- 23. It was noted that room 212 and 212A the hot laboratory were posted with signs showing the conventional symbol and the words "Caution Radioactive Materials". Signs stating "Absolutely no Admittance" were also present on the doors to this area. Signs showing the words "Caution Rediction Area" and the conventional symbol were present in the hot laboratory. It was noted that all observed containers of radioactive material in the licensec's facility were labeled with the conventional symbol and the words "Caution Radioactive Material" and the isotope, date and quantity. This general statement concerning labeling does not apply to solution containers which were used in the liquid scintillation counting systems since these containers were exempt from labeling requirements because of the small quantity of radioactive material contained. The Tracerlab, Model E-30, 250 microcurie, cobalt-60, scaled source was labeled with the conventional symbol and the words "Caution Radioactive Material" 1 millicurie, cobalt-60 and 1952. The refrigerators used for storage of biological samples in the laboratory located in room 134 were both posted with the conventional symbol and the words "Caution Radioactive Material". It was noted that all containers were labeled using a printed masking tape label showing the conventional symbol and the words "Caution Radioactive Material" and the isotope, date and quantity. In room 327 the temporary storage box for uptake doses was labeled with the conventional symbol and the words "Caution Radioactive Material". At the time of the inspection there was no material located in this container.
- 24. The licensee's records of radiation surveys are maintained in a bound laboratory notebook entitled "Radiation Surveys and Wipe Tests". This record shows the results of special monitoring of spills and recorded instances involving minor contamination as well as the results of routine surveys of the various facilities in which isotopes are used. The licensee performs monthly tests for contamination using the smear or wipe technique in the rooms used by the radioisotope service, Booms 209, 212 and 212A. A total of 27 monthly smear samples are collected, each of which are collected from an area of 100 square centimaters. The location of the sampled area is shown on a sketch of the area. The results of counting of these samples is recorded in terms of the net counting rate of the sample, the efficiency of the detector used and the new disintegration rate shown by the wipe. Wipes are also collected from various other areas throughout the facility on a nonscheduled basis. The highest level of contamination shown in the record was during a period when there was extensive work in the hot laboratory. During this period wipe tests in the hot lab showed contamination ranging from 50 - 54,550 dpm per hundred square centimeters. It was noted in the record that following the survey the laboratory was closed to all processing and completely cleaned and resurveyed. The record also shows the results of a leak test of a small radiuz-226 sealed source, the results of contamination surveys of a spill of approximately 5 microcuries of calcium-47 on March 12, 1963 and a small spill of carbon-14 on September 20, 1962. With respect to the carbon-i4 spill it was noted that the total experiment contained only 5 microcuries of material. In both cases the record shows that the spills was decontaminated to background.
- 25. The results of dose rate surveys are recorded in a bound laboratory notebook entitled "Radiation Safety Surveys". The proface to this book contains the following statement concerning survey results:

"The dates of all area surveys on VA property are entered in this record. "Survey" is defined for the purpose of this record as a check of all benches, sinks, or any ride in reiradioisotopes are handled. \*Any area showing greater than 0.1 mr/c was decontaminated or shielded and reported in this record. Unless otherwise is do 's ground is from 0.02 - 0.05 mr/hr on Nuclear Chicago, Model 2650, thin of Monitor. Unless otherwise stated, surveys are to be conducted by the term of P. Thomas.

\*An exception to this 0.1 mr/hr ruling is the hot laboratory where backgrounds will not be permitted greater than 2.5 mr/hr. Where a person can normally work or stand."

The areas covered by the survey record include approximately 20 specifically identified laboratories within the Veterans Administration Center complex. The monthly survey

records maintained in this logbook show the following column headings of information: the date of survey, the initials of the person performing the survey, the maximum potential exposure in mr/hr, maximum contamination in disintegrations per minute per hundred square centimeters, states whether wipes were taken or not and identifies specific locations if samples were collected and provides spaces for remarks pertinent to the survey of the area. The records show the identity of the user of licensed material and the specific isotopes of interest, in each area. A complete review of these survey records showed that all dose rates were less than 1 mr/hr with the exception of the radioisotope service unit in building 114 room 212. In this area dose rates of from 3 - 10 mr/hr and contamination of from 50 - 54,550 dpm were reported.

26. Air sampling results are recorded in a bound laboratory record book entitled "Radiation Surveys and Wipe Tests". Sampling is performed by means of a Staplex Air Sampler. The flow rates and running times of the sampler are recorded. The counting of the samples is in appropriate detecting and scaling equipment depending on the isotope of interest. Air samples were collected from various areas used by radioisotope service unit and the results were recorded. The record provides the following information with respect to air sampling:

Date	Location (Restricted or Unrestricted)	Procedure	Concentration
2/5/62	Room 212A X (hot laboratory)	Unspecified	4 x 10 <sup>-11</sup> uc/ml
2/5/62	Room 210A X	Unspecified	2.2 x 10 <sup>-11</sup> to 1.8 x 10 <sup>-12</sup> uc/ml
2/26/62	Room 212A X (hot laboratory)	Unspecified	4.8 x 10 <sup>-12</sup> uc/ml
3/7/62 & 3/8/62	Room 212A (Hot laboratory) X	Faraiodoben- zoic acid synthesis	I-131 8 samples collected-varied from 5 x 10 <sup>-13</sup> uc/ml - 3.6 x 10 <sup>-5</sup> uc/ml

The records show that during the synthesis of paraiodobenzoic acid performed on March 7, 8, 1962, room 212A the hot laboratory became significantly contaminated and iodine-131 was ingested by both Wetterau and Tubis, a technician working in the radioisotope service. It is noted that following these synthesis both Wetterau and Tubis were counted on the whole body counter, at the VA Center. Counting results indicated that Wetterau had ingested 0.05 microcuries of iodine-131 and Tubis, 0.11 microcuries of iodine-131. The record shows the comment that the "air samples --- are not thought to be excessive since the workers in high concentration for a maximum of 1 hour". It is noted that the maximum permissible concentration of iodine-131 in air in a restricted area listed in appendix B, Table 1, column 1, is  $9 \times 10^{-9}$  uc/ml. It is noted that 10 CFR 20.103 Exposures of Individuals to Concentration of Radioactive Material in Restricted Areas (b) states that in the case of any exposure in which the total exposure time is less than 40 hours in one week the limit specified in the table may be increased proportionally. In view of the licensee's statements that the exposures did not exceed one hour at any one time and that only two exposures occurred in a week this would permit a proportionate increase in the concentration by a factor of 20 which would make the permissible air concentration 1.8 x 10-7 uc/ml. It is noted further that at no time did the concentration in the hot laboratory reach this level. Another occurrance reported in the survey records is dated May 2, 1962 in which it is reported that Mr. Endow had a spill while preparing 40 millicuries of Diethyl Stilbesierol. It is noted that during the preparation Mr. Endow did not use either shoe covers or gloves and that his hands, neck and hair became contaminated. The record notes that he was decontaminated to approximately 5000 counts per minute and was "sent home to shower-would have bathed him here if he had been any hotter". The record notes that tracked activity on the floor of the hot laboratory was up to 13,234 dpm as determined by wipe tests, that the licensee "cleaned the place up" and substantiated the results of the decontamination by means of wipes which indicated a maximum contamination on the floor of 150 dpm/100 cm

27. The licensee uses fill balges supplied by R. S. Landauer on a monthly basis. Pocket dosimeters, manufactured by Landsverk, type L-50, 0 - 200 mr, are available but are not used at the present time. Mr. Wetterau stated that 60 individuals were on the film badge list as of April 1, 1963. A review of the film badge records shows the following exposures above the detection limit of the badges: During the first quarter of 1963, 4 exposures above the detection limit ranged from 10 - 40 mrem. During 1962, 13 fourth quarter exposures ranged from 10 - 200 mrem, 11 third quarter exposures ranged from 10 - 60 mrem, 11 second quarter exposures ranged from 10 to 50 mrem and 17 first quarter exposures ranged from 10 - 240 mrem. These exposures are only for

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X and gamma. It is noted that the report for the first quarter of 1962 reports that Mr. J. Endow received a total exposure of 240 mrem gamma and 2,950 mrem beta. A telegraphic report was received by the licensee from Landauer on February 20, 1962 stating that one badge for Mr. Endow showed a total gamma exposure of 160 mrem and 2,570 mrem beta. This badge was used during the month of January of 1962 and was returned to the film badge processor on February 5, 1962. With respect to this ' possible over exposure Mr. Wetterau made an entry in the personnel monitoring records which is attached as Annex A. It is noted that in the annex Mr. Endow's total quarterly exposure is reported as 3,070 mrem beta and gamma combined and his total past exposure is reported as 2.9 rem lifetime dose. It is noted that the licensee maintains complete Form AEC-4 and AEC-5 records on all individuals covered by the personnel monitoring program and that all items on the forms were completed and the entries on the forms were up to date.

28. The subject licensee is not authorized to possess sealed sources and therefore, has no condition of the license requiring leak tests of sealed sources. During the inspection it was observed that the licensee possesses a Tracerlab, Model R-30, cobalt-60, sealed source containing a nominal 250 microcuries of cobalt-60. Mr. Wetterau stated that this sealed source has been leak tested at intervals and presented records showing the results of two such leak tests. The initial record was dated November 24, 1961 and reported that the wipe was "145 cpm below background". The other leak test result was dated January 30, 1963 and reported that the wipe contained 30 dpm of removable activity when the wipe was assayed. This same record noted that the source itself was assayed for content of cobalt-60 on the basis of the gamma yield at 18 inches. The report notes that the dose rate at 18 inches wis 1.6 mr/hr which would be equivalent to a 0.25 millicurie source of cobalt-60.

29. Mr. Wetterau stated that there have been no incidents occurring which have not been reported and that the licensee has no AEC contracts.

Attachments: Annex A

((Suspect badge 007 and 014 accidentally Contaminated over P window. Isotope used Was I-131. Badge Stored ON CONTAMINATEd COAT (2Mr) OVERNITE. Badge Possibly had CONTAMINATION ON The & window and Nowhere else, Since & reading is 160 mr. Bared on telegram of Feb. 20, 1962 from landauer concerning hi exposure on film #7, I am removing Mr. Endow from any possible exposure during the remaindes of the quarter according to my calculations, his total quarterly exposure to dete is 3,070 Mr 1 and & combined . Lendauer gives Pas "skin dox, Hul less than I ma tissue". It is therefore believed that this doce is not reportable. There his past exposure has been so low - 2.9 rea total lifetime dore . 2-21-62 L. Wetteren Jr. Radiation Lafety Officer

ANNEXA