PART 30 INSPECTION

DEPARTMENT OF THE NAVY U. S. Naval Hospital Radioisotope Laberatory St. Albans, New York

Dates of Inspection: December 29, 1965, January 28, 1966, Announced

Persons Accompanying Inspector:

Mone

Persons Contacted!

Dr. Walter F. Hansen, Captein, USN, Chief of Radiology (12/29/65, 1/28/66)
Dr. Hario Rosa-Garcia, RSO (12/29/65, 1/28/66)
David Shaw, Chief EMC (12/29/65 only)
James Gatewood, EM-3 (12/29/65 only)
Captein Relph Famoett, Executive Officer of the Naval Mospital (12/29/65 only)
William Penman, EM-2 (1/28/66 only)
Norman Olsen, EM-3 [1/28/66 only)

DETAIL

Background

- 9. An inspection of this license on 12/24/65 resulted in a 417. None of the items of semeompliance resulting from that inspection were found to be recurring or uncorrected in the current inspection, except for the citation for failure to leak test scaled sources at intervals of 6 ments or less which was found to be recurring (See paragraph 27). In regard to items in and 2a of the enforcement letter resulting from the last inspection, the licensee currently performs surveys of radioactive material before releasing to the sanitary severage system, and maintains records of these disposals. All of the other ideas in this letter (vis. 1b, 1c, 2b, 3a, and 3b) refer to a spill of Strontium-90-Ttterium-90 which occurred prior to the last inspection. The licensee has repeatedly cleaned the area where the spill occurred, has performed periodic direct resding surveys of the area, and maintains records of the results of these surveys. (See paragraph 16) (The licensee as longer persence any Strintium-90-Ttterium-90; the contaminated must accumulated from this area has been transferred to Radiological Services, Inc.).
- 10. In addition to the items of noncompliance for which the licensee was cited, the enforcement letter criticised the film badge program at this hospital and requested clarifying information on this

program. In particular, the letter questioned whether film badges and calibration films were always of the same emulsion lot, and whether the same procedures were used in developing the film worn by personnel and calibration films. The licensee's response stated that calibration curves are made from the same type film and emulsion lot number, but the inspector's examination of the film badge program on 1/28/66 did not indicate that new calibration curves actually have been provided for each new emulsion lot of film. (The most recent calibration curves available on 1/28/66 were dated July 1965, and the emulsion lot number was not specified on these curves.) For more details on the U. S. Havy film badge program, see the "Personnel Monitoring" and "Inspector's Evaluatium" sections of the report details.

11. At the time of the last inspection, the RSO was Genmander Pischnotte, but he was replaced less than Gamenths prior to the current inspection, by Dr. Rosa-Garcia. Alse, most of the other individuals invelved in the use of isotopes at the time of the last inspection had been replaced prior to the current inspection. Mowever, an exception to this is Captain Walter F. Hansen, Chief of Radiology, and head of the Eadioisotope Laboratory who was transferred to St. Albans Hospital a few months prior to the last inspection, and is still at St. Albans at the present time. The chain of command for the current staff of personnel involved with isotopes is as follows: Technicians report to David Shaw, Chief EMC. Chief Shaw, as well as doctors at the hospital are responsible to Dr. Resa-Garcia, as far as the use of isotopes goes. Rosa-Garcia reports to Captain Hansen, who in turn is responsible to the head of the Hospital, Captain John Albrittin, and his executive officer, Captain Ralph Faucett. In addition to being responsible for radiation safety, Dr. Rosa-Garcia actively participates in the use of isotopes. Captain Hansen stated that he had no longer directly participated in the use of isotopes since Rosa-Garcia arrived at the hospital.

Facilities and Uses

- 12. The rather extensive and completely equipped laboratory facilities for the use of isotopes are the same as those described in previous reports.
- 13. In general, the extent to which isotopes are currently being used at St. Albans Haval Hospital is appreciably less than at the time of the previous inspection. One reason for this diminished use of isotopes, according to Rosa-Garcia, is the surrent tendency at this hospital to discourage the shoice of an isotope technique for a given application, whenever an acceptable alternative method is available which does not involve the use of isotopes. For example, Rosa-Garcia stated that the written request for authorization to use isotopes therapy, which he is required to submit to the radio-isotope committee, sust include an explanation of why alternative techniques would not be satisfactory for this particular patient. Also the isotopes may be used only by or under the supervision of individuals designated by the radioisotope committee, as required,

by License Condition 12.

14. From review of use records by the inspector and statements by Shaw, Ress-Garcia, and Mansen, the scope of the current isotope program is indicated by the following. Since Rosa Garcia arrived in 8/65, I-131 has been used in the treatment of carcinoma twice, for cardiac condition once, and only five times for the treatment of hyperthyroid conditions, even though the frequency of hyperthyroid treatments have previously been on the order of several per menth. Similarly, Rosa-Garcia stated that he has had no request for therapy using collodial gold, celledial P-32, or soluble P-32 (or any other therapy), even though each of these had been performed on one or more occasions in the year 1964 prior to his arrival. The eurrent frequency of uses other than therapeutic is indicated by the list below for the month of Movember 1965, from the licensee's records.

Radiomedicine	Application		number of Patients vember of 1965
T-3	Thyroid diagnosis (in		59
I-131 as MaI	Thyroid diagnosis (in		
11	2 hour uptake		52
**	4 hour uptake		50
•	24 hour uptake		52
R	Scinti & Photo scans	• •	102
n	Polaroid Scans **	4	51
H ·	Conversion Ratio		48
Ħ	Saliva PBI		47
I-131 as IHSA	Blood Volume	11	13
I-131 as Hipputope	Renograms	۵	4
Hg-203	Renoscans		5
Au-198	Liver Scane	•	14
Hg-203	Brain Scans		16
I-131	Lung Soans	200	2
Co-60 as V1t. B-12			4
In131 as Triclein			3
I-131 as Oleic Acid			Ž
	· · · · · · · · · · · · · · · · · · ·	4	

- * All the invivo thyroid tests are run following a single administration of 50 us I-131 as MaI, according to Rosa-Garcia.
 **"Photo Seams" and "Polaroid Seams" do not represent actual additional scans run on the patient, but instead merely photographic records of the seam on X-ray film and polaroid film respectively.
- 15. As indicated above, there are several technicians who handle isetopes under the supervision of Chief Shaw. James Gatewood, EM-3
 has been at the St. Albans Maval Hospital since June 6, 1969. The
 handling of isotopes by Gatewood consists primarily of the performance of blood volume determinations and renograms. He is also
 responsible for the routine dubies connected with radiological
 safety, such as carrying out direct reading surveys, and the processing of film badges. Joseph Garney specialises in thyroid work,
 which includes thyroid scanning and assisting Dr. Homa-Garcia in
 thyroid therapy. Norman Olsen does the routine work sonnected with
 all scansing, except for thyroid scanning. William Penman, who

recently arrived at this hospital, carries out special diagnostic tests, such as fat absorption studies, etc. Chief Shaw and all the technicians under him had completed the six month training in isotopes given by the Navy at Bethesda, except for Olsen who took the course at San Diego, which is patterned after the one at Bethesda, according to Gatewood.

Radiological Safety Precautions and Procedures

- 16. A "Radiation Safety Guide" was drawn up by Captain Mansen and M. C. Posipanka, HMC in April 1964. (Posipanka, who is no longer stationed at this Naval Hospital, had been the counterpart of Chief Shaw; she was also directly responsible to the RSO.) A copy of this "Radiation Safety Guide" is included in the license folder. Inspector review of this guide and license application dated 5/5/64 indicated that byproduct material is possessed and used in accordance with these documents, as required by License Condition 18.
- Separate written instructions have also been drawn up for each treatment involving the administration of Au-198, 3-32, I-131, and so on. These include instructions regarding the hazard from radiation levels mear the patient, presautions necessary in handling excretions, and so on. Gepies of these instructions have been attached to the inspection notes. Some of the general procautions taken were stated by Rosa-Garcia to be as follows: No one is allowed in the petient's room, except personnel necessary for care of the patient. Linen is menitored, and held for decay if necessary. The 2 mr/hr line is marked on the floor of the patient's room with tape, as determined by direct reading surveys using a GN survey meter. (Records of such surveys were reviewed by the inspector.) Personnel required to be in the patient's room, such as nurses, wear self-reading pocket dosimeters. Specific instructions pertaining to an individual case are written on the patient's chart.
- 18. Rosa-Garcia stated that he follows a rule requiring that each patient to whom 30 mc or more have been administered will remain hospitalised until only 10 mc or less remain in the patient, even though the official requirements, according to the Radiation Safety Committee and according to License Condition 16, is that the patient remain hospitalized until 30 mc or less remain. License Condition 15 states that patients containing Go-60 and/or Ir-192 shall remain hospitalized until the implants are removed. Captain Hansen stated that neither Co-60 or Ir-192 implants have been used since before the last inspection, and he knows of no case when Co-60 implants have ever been used. Lisense Condition 17 requires that scaled sources containing byproduct material shall not be opened. Hansen and Rosa-Garcia stated that scaled calibration sources are never tampered with in any way, and scaled Co-60 sources for therapy are met used at all.
- 19. Rosa-Garcia stated that the policy at St. Albans Respital is to keep the setivity of doses administered to patients as low as

practicable. He stated that the dose for treatment of hyperthyroid conditions has usually been 4 - 6 mc, with a maximum of 8 mc. The dose of I-131 administered to each of the two patients treated by Rosn-Garcia for carcinoma of the thyreid was 100 mc. In the case of Au-198, a dose of 100 mc was administered to a patient on 3/17/64 and 80 mc was given to another patient on 4/13/64. In a case where P-32 as sedium phospate was used in the treatment of bone metastaces, 1.5 mc was administered intravenously each day for six consecutive days. In a case where P-32 as colledad chromic phospate was introduced into the pleural cavity of a patient, the dose was 10 mc. The largest dose of bypreduct material noted by the inspector to be used for diagnostic purposes was 700 mc Hg-203 for brain scans. (For genel scans, 100 - 150 mc Hg-203 in used.) According to Rosa-Garcia, Hg-197 will heaceforth be used instead of Hg-203 for brain and remains.

- 20. Ress-Garcia stated that Hg-203 is injected into the patient using a disposable syringe. He stated that the process requires only 10 seconds or less, and no exposure has been noted by a selfreading desimeter (or film badges) worn on the chest pocket fol-lowing this procedure. Ross-Garcia stated that this technique is in line with the instructions give to him at the Bethesda Maval Training School, and since leaving this school he has not given any further consideration to an estimation of the dose to which the hand might be exposed in such an administration. The evaluation of the Naval Training School of this technique as being permissible is supported by the inspector's approximate calculation of the expense to the hands, at least to the extent that it indiestes the exposure per calendar quarter should be much less than the limit for the hands in part 20. (This calculation was made using assumptions for time and frequency which are more con-servative than the figures for these two parameters obtained from the licensee's records and statements by Resa-Garage, as follows: Assuming more than twice the number of injections per quarter than would be derived from the table in paragraph 16, where 16 injections are listed for November 1965; at 30 seeinds per injection, compared to Rosa-Garcia's estimate of 10 speconds or less (v.s.); and source-to-hand distance of % cm, the total exposure for a calendar quarter would be approximately 3 R. After discussing this question of exposure to the hand from injecting Rg-203 with the inspector, Rose-Garcia stated that he would give serious consideration to the use of a wrist badge in estimate the exposure in a future administration such as this.
- 21. Rosa-Garcia stated that colloidal P-32 and colloidal gold are introduced into cavities of patients by the standard technique whereby a saline solution forces the colloidal isotope by a gravitational feed through a tubing connected to a syringe which had previously been placed properly into the patient. Therapeutic doses of I-331 in the liquid form are administered grally by means of a straw placed in the original bottle in which the radiomedicine was shipped to the licensee.

Instrumentation and Surveys

22. According to Gatewood, a GM survey meter with the May designation

AMPDR-27F is used for direct reading surveys. The licensee also possesses many other instruments for surveying and laboratory counting. These are listed on sheets no. 1 and 2 attached to the license application dated 5/5/64. Rosa-Garcia stated that most of these counting instruments are not used; often an instrument would be procured by some predecessor, and then never used after that individual left the hospital. Several calibration sources are available for shecking these instruments.

- 23. Gatewood, Esotope Technician, conducts direct reading surveys, around areas where isotopes are stored and used on a weekly basis. These surveys include readings taken at many specified points, and the results of these readings are recepted on data sheets with diagrams on which these points are designated by numbers. The inspector reviewed records of the results of some of these surveys. For the survey dated 12/27/65, for example, the inspector noted that for mest of the readings other than those taken mear stored radioactive material or under were between 0.02 and 0.06 mr/hr, including all readings the unrestricted areas. An exception to this was the hood where a still of 8r-90-I-90 had occurred prior to the last inspection, for which 3 5 mr/hr beta was recorded. These reports of routing surveys also include results of swipes taken at some of the points where direct reading surveys are made. In the case of the report of one of the surveys conducted in October 1965, the laster of magnitude of all swipe results recorded was 10 or 10 ms.
- 24. The inspector conducted a direct reading survey of the isotope lab and the area where waste is stored. According to Rosa-Garcia, these areas are restricted to personnel authorized to handle isotopes, and are kept locked at night. In sort areas, so significant reading above background (i.e. less than 0.05 mr/hg was obtained with AEC No. 5573 GM survey meter, with the following exceptions:

 (All readings obtained with this AEC #5573 GM meter (end window) with shield off unless otherwise noted) -

Appreximately 1 mr/hr maximum at the surface of lead bricks behind which byproduct material is stored in a refrigerator.

Approximately 0.7 mr/hr maximum at the electrical of the refrigerator.

0.2 - C13 mr/hr at the table next to the refrigerator.

Approximately 20 mr/hr near a large plastic mattle containing urine being held for decay.

Less than 0.5 mr/hr at the top of the garbage man containing solid waste, with the top removed, and approximately 1 mr/hr at the open top of another such can.

Approximately 0.3 mr/hr at the surface of the lead brick wall in front of these cans (this lead brick wall was approximately 7 bricks high.)

0.2 - 0.3 mr/hr maximum at surface at floor the front of hoed where Strontium-90-Fitterium-90 spill had occurred prior to the last inspection.

More than 20 mr/hr at one spot on bottom surface of this hood. (Reading taken with shield off.) Using ABC #5655 June survey meter, the radiation level at this spot was found to be approximately 14 mr/hr beta reading, and 1 mr/hr gamma reading.

Waste Dispesal

- 25. Liquid waste is poured into sinks in the hot lab, which are connected to a large metal hold-up tank. Since the lisensee was cited fellowing the last inspection for failure to sonduct surveys before releasing liquid from this tank to the sanitary sever, the licensee has been following a practice of counting 1 all samples from this liquid waste to determine the value of concentrations in us/all and maintaining a written record of the results along with the date the determination was made. Home-Garcia stated that the value of concentrations for I-131 listed in Table I, Appendix B, of Part 20 (6 x 10⁻⁵ us/al) has been used as the criterion for release, since this figure is lower than the values of concentrations listed in Table I for all other isotopes that are ever disposed into the sinks at this hispital. Gateweek stated that he measures these concentrations by counting a representative 1 all sample in a laboratory counter with a GM tube detector. He briefly explained the calculations involved in this determination. The inspector reviewed written records of these results. These records showed, for example, the most recent release from this tank, on October 25, 1965, when it contained 450 gallons of liquid at a concentration of 2.75 x 10⁻⁵ us/al.
- 26. Solid waste is stored for decay in two large covered metal trash cans in a room at one end of the isotope labe complex. The stored waste is labeled with kind, quantity, and date. Afterding to Rosa-Garcia and Hansen, direct reading surveys are tenducted periodically on this waste held for decay until it is finally disposed along with other hespital trash after the radiation level had decreased to what they consider an acceptable value. (v.t. and paragraph 34) Written records of these surveys include the date of survey, the isotopes included in the waste, the instruments used for surveying, the maximum radiation level found at the surface, that the average radiation level found at the surface. The mest region transfer of solid waste to general hospital trash was on Regimber 30, 1965. The inspector's review of the survey records indicated that the maximum radiation level at the surface of this waste was 3.0 mr/hr, and the average radiation level at the surface was 1.62 mr/hr, using a GN survey meter with the U. S. Havy designation APPDR-27F.

Loak Tests

27. License Capatition 13C states that each sealed source containing

byproduct material, other than tritium, with a half-life greater than 30 days, in any form other than gas, shall he tested for leakage at intervals not to exceed six months. Fallowing the last inspection, the licensee was cited for failure to leak test either the Strentaus-90 eye applicator or the two scaled Co-60 sources at intervals of six menths or less. At the time of the current imspection, the licenses still possessed the same 8r-90 eye applicator, and the same two scaled Co-60 sources, which are is the ferm of wires. (Rosa-Garcia stated that the Sr-90 eye applicator is used at a frequency much lower than thee a month. He and Captain Rensen concurred in a statement this the sealed Co-60 sources have not been used since the last impection, and Captain Ranson further stated that he had no knowledge of them ever being used.) Both the Sr-90 source and the 65-60 sources were tested for lenkage on the date of the last impection (12/24/63). Since the last inspection, the \$5-90 source has been leak tested at approximately 6 month intervals except that the most recent test was 6/9/65. In the case of the Co-60 sources, the first leak test subsequent to the last inspection was dated 2/17/64; and the mext one more than nime months later on 11/30/64; and finally the most recent test was conducted less than six months later on 5/21/65. Before the inspector left the heapital on the date of imprection, he was shown paper work on which had just been drawn up by Chief Davis for leak tests to be conducted on both the Co-60 sources and the Sr-90 sources. Look tests have been performed by the Radium Chemical Company, except for leak tests of the Ar-90 sources by Tracerlab. The inspector a review of records of leak tests showed that all results were background . less than 2 sigma.

Posting and Labeling

28. Resa-Garcia stated that he knew of no additional signs posted since the last inspection. Signs noted by the implictor to be posted in the Isotope Lab area were noted to include "Caution - Radioactive Material", "Caution - Radiation Area", and "Caution - High Radiation Area" signs. Stored byproduct material was noted to be labeled with "Caution - Radioactive Material" and the kind, quantity, and date of assay. All signs had the standard symbol and colors. A Form ARC-3 is posted near the entrance to the radioisotope section of the hospital.

Procurement

29. Ross-Garcia stated that byproduct material is preciped from Squibb and Abbott, as per License Condition 14. Orders the byproduct material must be signed by Ross-Garcia and then conter-signed by Captain Manson; they are the only two individuals authorised to order radioactive material. When isotopes are residved, they are delivered to the receiving station first; they are monitored outside, and then brought directly to the refrigerated in the Isotope Leb where they are stored behind leak bricks. The imspector reviewed records of receipt. These records included notations of the dates when residual quantities were transferred to the "have" where waste is held for decay.

Personnel Monitoring

- 30. Film bedges are precessed at this hospital for the use of all personnel at the hospital whe are considered likely to be exposed to redistion, as well as for personnel of may other military facilities. The processing of these film badges, including maintaining records of results, is one at the responsibilities of James Catewood, Lastope Technician. Exposure results are recorded on forms equivalent to Formille-5. Exposures are reported on a mouthly basis. The inspector reviewed exposure records for the period subsequent to the last inspection. He quarterly exposures greater than 300 mress were noted for any personnel using isotopes. The highest exposure for any one month noted by the inspector was 110 mress for Captain Engage.
- 51. Bendix direct readings pocket desimeters are available for use.
 Ross-Gerein stated that these are worn by the personnel likely
 to receive an exposure in the course of the therapeutic use of
 isotopes.
- 32. On 1/28/66, the inspector returned to the St. Albans Haval Hospital to obtain additional information regarding the film monitoring program carried on these in conjunction with Bu Med. Shortly after the inspector's original visit them, James Gatewood was transferred and William Pennan, HM-2, we selected to replace him. (See paragraph 15)
- 33. Pennan stated that he attempts to run this film badge program according to instructions given by Bu Med in MAYMED P-5055, as supplemented by "Instructions for the Interpretation of Calibrated Curves", which is attached as Exhibit A. According to Pensan, he knews of no deviation from these instructions other than the fact that film developing is not done at the specified temperature of 68°F. Instead, an attempt is made to cool the processing solutions to as near 68°F as possible by running hap water in the sink in which the processing tanks are used. He stated that processing is usually carried out at a temperature in the range of 70° - 75°F, and to compensate for this higher Semperature, the developing time is decreased below the specified minutes (Item 6, Exhibit A) by an amount indicated by a correction chart furnished by one of his predecessors. (The arrangement for sooiling is such that the level of the cooling water in the sink is permitted to rise to a level only 5 inches above the bettem egithe processing tanks, whereas the walls of the tanks are approximately 21" high and they are filled with solutions to within leng than 1 inch from the top.) Perman stated Mis intention of triing several measures to increase efficiency of cooling, after discussing this problem with imspector.
- 54. Penman stated that from solutions are made up for the batch of films processed each month. Approximately 100 films are processed each month (ever the course of a week), of which is little more than half are films from badges worm by hospital personnel. Penman stated that a control film of the same type and emulsion number

is precised on each rack along with 7 films from film bedges. Continuous gentle sgitation is provided using in the paidles during development. An average of 5 density residings under the shielded pertion of the film and 5 readings under the open area are taken relative to the central developed on the same rack. One Vector Model 273 density enter is used, re-maining the instrument immediately before reading each film. The tensity the instrument immediately before reading each film. The tensity enter is checked using density vedges supplied by Bs Mode Tennan stated that the agreement is "very goed". The exposured corresponding to the density readings obtained are estimated all per instructions on Exhibit A, using calibration curves attached as Exhibits B, C, D, & E. These curves are dated July 1965, and Pennan stated that they are the most recent ones supplied to him. As indicated on these surves, Type 556 film is now being used.

- 35. According to both Pennan and Mansen, Bu Med has hever provided any expected calibration films to be developed along with films wern by personnel as a check on the validity of the results obtained when density readings from personnel films are applied to the calibration curves supplied by Bu Med. (Although Pennan concurred with the desirability of such checks, Gaptain Hansen could not understand, at first, why the density wedges supplied by Bu Med (id not serve the same purpose.)
- 36. Penman stated that he was not guare of any check by Bu Med on the manner in which he film bedge program was being senducted at the \$1. Albans Maval Respital. Meither Penman nor Hausen would give any information on pensible impreventable in the Mavy's procedures for storage and distribution of film designed to ensure that the film delivered to field installations is of the correct emulaion number and fresh. At \$1. Albans, the "Oak Ridge type" film badges, with one filter, (1 am animum) is still being used.
- 37. In regard to the reporting of exposures, Hansen stated that the surrent procedure is to notify the Commission, as well as Bu Med, of film badge exposures exceeding limits specified in Part 20. Also according to Pennan, the current procedure for distribution of records of routine film badge exposures is as believe: Annual reports are transmitted to Bu Med, with a copy kept on file at the field installation. In addition, when an individual is transferred to a new duty station, a completed copy of DD-112 (Exhibit F) is sent to the new duty station with the individuals.

Management Discussion

- 58. The items of moncompliance were discussed with Captain Hansen and Captain Relph Faucett, Executive Officer. (Captain Faucett is second in Command in the U.S. Naval Maspital under Captain J. Albrittin, who was set available.) Both Mansen and Faucett indicated willingness to comply with the regulations and to take appropriate corrective action.
- 39. As stated above in the section on look tests, payer work for the overdue look tests on Sr-90 and Ge-60 sources had already been

drawn up before the end of the inspection, and both Hansen and Fausett minted their intention to ensure that left tests be conducted henceforth at intervals of not more that aix months.

40. In regard to the unauthorized transfers of waste to hespital trash after a direct reading survey revealed a reliation level of many times background near the surface of the mate. Captain Enneau stated that he had considered the reliation level that had been measured to be low enough to varying disposal to trash, especially since it was suspected that relian stored in another part of the same room might have contributed to the survey mutag tradings. However, he stated that no although was made to parfirm this by taking another reading entite waste after mering it away from the radium before displing of it. (detually, the inspector's interpretation of reduces by both Manson and Mosa-Garcia during the inspection was that both of them judged a reading of 2 m/hy or so to be low hough to justify the disposal to general trash.) Manson moded during the management discussion that henceforth waste till either be held untill a survey never gives pasentially a background reading, or also transfer it to an impherized waste tiposal service.

REGION I, DIVISION OF COMPLIANCE NEWARK, NEW JERSEY

SPECIAL LIMITED INSPECTION

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	U.S. Naval Hospital	3.				Leuro un cerc	
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	License number(s), docket number(s), for each license. Category and Prior	ity	of each	licens	e:		
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Licensee:

Summary

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Noncompliance and Safety Items

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none referted

Status of Previously Reported Noncompliance or Safety Items

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Management Interview

clear 591 form issued to commanding officer; no significant discussion

DETAILS

A. Participants

Cot. Edward Co.I. Ping. 127 . R S.D. Capt. W. F. Namen, Radsologist Capt. R. E. Faucett, Commanding officer

- B. Scope of Licensee Program
 See "Uses of Material"
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- D. Administrative Control

E. <u>Vac of Material</u>
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H.	Radiological Safety Procedures Cos par license, affolication attachments.
	as per license affolication attachments.
	Par a Dolt int as a so it to 4 a D H before honoring
	Paul Deft must see RSO signature + Dr. L. Dr. H. before honoring . Plago recol by this office.
more	ings need by the office.
	ρ , ρ
T.	Personnel Monitoring and Exposure to External Radiation
N	
8	
7	willer Forley. Jome is action point.
(Labort .
	ohler mothy below detectable -
	ingebrelde Dr. Hansen brigh: ~ 100 mm/yet
	Eingebrelde Dr. Hansen bryh: ~ 100 mm/yer
7	he names shore are those of all the individual reported to have
4	my involvement with the license of program. Their p. m. records
	the names shore are three of all the individual reported to have my involvement with the licensed program. Their p. m. records eviewed, no significant exposures. Films processed at USA medical Contr., Md.
	The state of the s

endore anote

Effluents to Unrestricted Areas

L. Disposals Transfers to Radiological Services Que Nestwood, N.J. - no incineration, of solid wastes. Sever flow reported at a 10 sgul/day, or a 4 x 108 ml/day. Light was to timited to thorapy patient a was a water from justett weather keld in tank + concertration, more world a recorded hispore declaringe to since. Concentrations all found to be recorded at a 10 Enefore. actual reduced of liquid descharged is not recorded but de har go one at about me the internals and lack rolumn is only 550 gd, therefore a maximum monthly discharge of a 20 uli

Miscellaneous Surveys, Evaluations and Re-

1/4/69-3-30 gal drues, 2,55 gal drums - 200 uli I,3, pen at. Dose rates measured weekly 24 location *ANPDR. 27 C 28 " toletterfy mit Dose rates mostly . O4 mm/hr. "hot" sports - 34 mm at radion storage to 3il" at court hood for struge

Wifes all is range of 10-5 wh

	•
Licensee:	

N. Special License Conditions

License Conditions I Glass right 20 and occurs disciplination of settle or blessed. 2 Charles some sach as f1965, and 1 Sra, seried source, 25 mile as of s/13/52, refer took to have converted in setting a server last lesk testel on april 65. Records on band about no removable actionly or any of their 3 received received on them with that of or own the internals since last inspection through april 68.

O. Posting and Labeling

CRM . CRAperiting moted at intrances to with the land and and at maladel storage bookling. CHRA protery moted in one storage location despite dore rates ranging, from background levels, n.04 mi/hi to 2 mr/hir at 3' from redium strage container. Dr. Hansen said he had justed high radiation area signs because he considered this great a be one in which high radiation levels could exect for at times.

P. Independent Messurements

all use areas monitored by inspector many Bucker Measuret gm survey meter. The levels of the entrances to restricted areas did not exceed background rates, a . 05 mm/hr; the highest dose rate noted mes the 2 mm/he found at 3' from the radium stones container.

Q. _Operations Observed

Intidents, Overexposures, Theft or

U. S. NAVAL HOSPITAL
ST. ALBANS L. I. . . N. Y. 1142.5

PAGE

ADDRESS REPLY TO COMMANDING OFFICER AND REFER TO:

22/mp 6470/1 ser:'ブス-レッ MAR 3 1964

Mr. Eber R. Price Assistant Director Division of Licensing and Regulation U. S. Atomic Energy Commission Washington 25, D.C.

Dear Sir:

In reference to your letter dated 24 February 1964 relative to non-compliance with AEC's "Standards for Protection Against Radiation", Part 20, Title 10, Code of Federal Regulations, the following corrective procedures have been done. The below statements refer to sub-headings 1, 2, 3 and 4 of your letter.

- a. Radioassay of contents in the liquid storage tank was performed on 31 January 1964 using both a Nuclear-Chicago gas flow counter and a scintillation well counter. The samples were removed from the tank after an opening, provided with a closing valve, was installed into the top of the tank which allowed for adequate mixing of all contents. Sample counts with gas flow counter were 0.0004 microcuries/ml. and those from the scintillation counter were less than 0.0004 microcuries/ml. No radioactive material has been dispensed into this tank since the inspection of 24 December 1963.
- b. An extensive radiation safety program has been instituted and carried out since inspection of 24 December 1963, utilizing the following corrective measures and procedures.
- (1) All areas and floor spaces in the radiation controlled area where contamination was found were decontaminated by Radiacwash solution conducted 2-3 times weekly for the past 2 months with all swipe tests and survey monitoring of areas recorded and logged. Present counts received for these areas are now within the normal background range.
- (2) Appropriate storage of radioactive waste for non-disposal until at least 10 half-lives have elapsed.
- (3) Daily radioassay and logging of liquid contents in storage tank since 31 January 1964. This now to be conducted at weekly intervals with records maintained.
- (4) Maintenance of records on all survey areas, radiation monitoring and disposal of any radioactive material when done.

ACKNOWLEDGED

PAR 3-5-64

22/mp 6470/1 Ser:/32.64 MAR 3 1964

- c. No definite information can be found or available to present personnel as to why the Radiological Safety Officer at the time of the alleged spill in 1962 did not inform the Radioisotope Committee of this incident, or as to why the decontamination of the affected areas was not carried out according to Section VII "Operating Procedure and General Instructions for the Radioisotope Imboratory". At present the limited areas where contamination was found have been decontaminated under present Radiation Safety Officer supervision as stated in para. b(1) above. In the future, if any such incident should occur, the Radioisotope Committee and all pertinent personnel shall be so informed and records maintained of all procedures and surveys conducted thereon.
- d. In regards to Item 4 of your letter concerning sealed sources containing byproduct material, calibration and leak test on the Cobalt-60 wires were performed by the Radium Chemical Company on 17 February 1964, Test No. WA-109-64. These sources were compared to a radium standard and found to have a gamma equivalent of 11 millicuries each. The leak test showed that Wire #1 counted 0.0036 microcuries and Wire #2 counted 0.0008 microcuries. Calibration and leak test of the Strontium-90 Medical Applicator is currently being conducted by the Tracerlab Corporation. These tests will be conducted at least twice a year with records and certification that the tests have been made maintained in units of microcuries as required by license condition No. 28(D). None of the above sealed sources have been in use for the past year.

The personnel monitoring program conducted at St. Albans involves the wearing of film badges, processed every 4 weeks or less and pocket dosimeters read daily, of all personnel who are working with ionizing radiation or engaged in the handling of radioactive materials and by those entering a radioactive area.

Films for our program are obtained from the U. S. Navy Supply Depot and are of the Dupont SX-222, SN6665-531-2763 type which contain component films No. 508 and 510 for X-ray, beta and gamma radiations. Calibration curves are made from the same type film and emulsion lot number and are provided by the Bureau of Medicine and Surgery. These curves are used in conjunction with a densitometer, Weston Photographic Analyzer in the measurement of the film densities. A minimum of three pairs of unexposed control films are processed simultaneously with each batch of exposed film. The average density of the control film is subtracted from the observed density of each of the processed personnel films. The resulting net densities are then read from the calibration curve and the exposure data in rep or roentgens is obtained.

22/mp 6470/1 Ser:/32 44 MAR 3 1964

A photodosimetry log is maintained of all exposures received. In addition, a permanent and continuous record of exposure is made by entries on Form DD-1141, Record of Exposure to Ionizing Radiation, on each individual. An annual photodosimetry report, NAVMED 1432, Personnel Exposure to Ionizing Radiation, on all personnel exposures is submitted to the Bureau of Medicine and Surgery at the end of each calendar year. In the event of an overexposure to ionizing radiation, NAVMED 1433, Personnel Overexposure to Ionizing Radiation, is forwarded to the Bureau of Medicine and Surgery as soon as possible after overexposure.

It is believed that these series of actions will bring this activity into full compliance with AEC regulations.

Sincerely yours,

CAPT MC USN-

Commanding Officer

Copy to: Chief, BUMED (Code 74) This page

separates

documents.

LR: GHK 31-76-6

FEB 2 4 1964

Commanding Officer
U. S. Haval Hospital
St. Albane 25, New York

Beer Sir:

This refers to the inspection conducted on December 24, 1963, of your activities authorised under ABC Byproduct Material License No. 31-76-6.

It appears that certain of your activities were not conducted in Add prophisms with license would be and the populations of the state of the second section against the second section 7 Test 20, 71110 10, Code of Federal Regulations, in that:

- 1. Contrary to 10 GFR 20.301(b), "Surveys," surveys were inadequate to determine:
 - a. the quantities and concentrations of radioactive materials disposed of by release into the aguitary severage system;
 - b. the rudiation house incident to a spill of strentium 90-yetrium 90 in the "Not" laboratory which reportedly occurred during 1962; and
 - e. the quantity and airborne concentrations of strontium 90-yttrium 90 released from the exhaust head into unrestricted areas as a result of the spill of strontium 90yttrium 90 during 1962.
- 2. Contrary to 19 67% 20.401(b), "Records of surveys, radiation menitoring and displaci":
 - records were not maintained showing the unterials disposed of via the samitary soverage system; and

OF RESE	STURED MAIL	11 12 12 <u>1</u>		
SURNAME >]			
DATE	 			

FEB 2 4 1964

2. continued

- b. records were not maintained of surveys made pursuant to 10 CFR 20.201(b) in connection with the possession and use of strontium 90yttrium 90.
- 3. Contrary to License Condition No. 43, which incorporates your license application dated March 22, 1962:
 - a. the rediclogical safety of floor did not assess the extent of the strontium 90yttrium 90 contamination following the spill which reportedly occurred during 1962, and did not assertion the descentamination of the structure many or specific in section VII of your "Specific Procedure and Constal Instructions for the Redicioscope Laboratory;"
 - b. the radiological safety officer did not inform the Radioisetope Counittee of the spill of atrentium 90-yttrium 90 referred to above as specified in paragraphs 3(f) and 3(g) of MAYROW ERST. 6470.2.
- 4. Several scaled sources containing byproduct material had not been leak tested at intervals of six mouths or less as required by License Condition No. 28(8). Also, resords of those tests conducted were not maintained in units of microsuries as required by License Condition No. 28(8).

This metics is cent to you pursuant to the provisions of Section 2.201 of the ABC's "Bules of Practice," Part 2, Title 10, Gode of Federal Regulations, a copy of which is enclosed. Section 2.201 sequires you to submit to this office, within twenty (20) days of your receipt of this metics, a written statement or explanation in reply including (1) corrective stops which have been taken by you, and the results achieved; (2) corrective stops which will be taken; and (3) the date when full compliance will be achieved.

OFFICE ▶		 	
SURNAME >	 	 	
DATE >	 	 	

We understand that your method of evaluating film badges, developed at St. Albane Nevel Hospital, involves a comparison of exposed film with film standards furnished by the National Havel Hodical Center at Bethesda, Haryland. Your radiological safety officer reportedly did not know whether the film bedges and film standards were of the same emulsion and whether the same development procedures were employed in developing the film bedges and film standards. We believe that your film bedge munitaring program should be re-evaluated to establish that there are no unnecessary errors being introduced in the evaluation of radiation does received by individuals. We would appreciate elerifying information concerning the adequacy of your film bedge menitoring program with your reply to this letter.

to have received a copy of a recent letter from Captain V. P. Honoen to the AMS Regional Compliance office in May York Fitz, which to latter to be companied to or expand upon the information in this letter in your reply.

Yery truly yours,

ther A. Price Assistant Director Division of Licensing and Regulation

teclesures:

- 1. 18 CFR 20
- 2. 10 CFR 2

en: Department of the Mary Chief, Bureau of Medicine and Surgary Vachington 25, D. C. Attention: Count. John H. Schulte, MC Code: 74 (Cudr. Boll)

> Capt. V. J. Mades LCM. V. O. Pinchastte

bcc: Compliance Div., HQ Compliance Div., I

Public Document Room

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SURNAME ▶	2/13/64				

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PORM NT-93 REV. 8-1-88

UNITED STATES ATOMIC ENERGY COMMISSION NEW YORK OPERATIONS OFFICE

HEALTH AND SAFETY LABORATORY

S76 HUDSON STREET NEW YORK 14, N. Y. SAMPLE REQ.

D

3713

DATE RECEIVED 12/27/68
DATE REPORTED 2/3/63

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FORM NY-09 REV. 0-1-89

UNITED STATES ATOMIC ENERGY COMMISSION NEW YORK OPERATIONS OFFICE

HEALTH AND SAFETY LABORATORY 376 HUDSON STREET

NEW YORK 14, N. Y.

DATE SENT 12/27/63

DATE RECEIVED 13/27/63

DATE REPORTED 12/38/63

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, Form AEC-98 (Rev. May 1	(P 4, 1947)	See me about this. Note and return.	For signature	For action. For information.					
R. G. Page, Chief	INITIALS	REMARKS Attached is a copy of a letter dated 2/12/64 showing corrective action on items of noncompliance noted for the U. S. Naval Hospital, St. Albans, N. Y.							
Enforcement Branch DL&R,HQ	DATE								
FO (Name and unit)	INITIALS	REMARKS License 31-76-6 on form AEC-417 transmitted 1/24/64.							
	DATE	Enclosure: cy ltr dtd 2/1	2/64						
FO (Name and unit)	INITIALS	REMARKS							
	DATE								
R. S. Cleveland, Radiation Specialist (Review) CO:I	REMARKS								
PHONE NO. 2-382 2/14/64		<u> </u>							

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U. S. NAVAL HOSPITAL

ADDRESS REPLY TO COMMANDING OFFICER-

12 February 1964

U. S. Atomic Energy Commission Region I. Division of Compliance 376 Hudson Street New York, New York

414-31.76-6

Attention: Mr. Eugene Epstein

Dear Sir:

Radioassay of contents in the liquid storage tank in our laboratory was performed on 31 January 1964 using both a Nuclear-Chicago Gas-Flow Counter and a Scintillation Well-type Counter. Counts received from the gas-flow counter were 0.0004 microcuries and those from the scintillation counter were less than 0.0004 microcuries. The samples were removed from the storage tank after an opening (provided with a closing valve) was installed into the top of the tank which allowed for adequate mixing of all contents. No radioactivity has been dispensed into this tank since 24 December 1963.

An extensive radiation safety program has been established since your inspection of 24 December 1963. Some of the procedures being conducted are listed below.

- 1. Daily radioassay of liquid contents in storage tank.
- 2. Swipe tests of all areas twice weekly.
- 3. Storage of radioactive wastes and non-disposal until at least ten half-lives have elapsed.
- 4. Maintenance of records on all of the above procedures.

In addition to the above, calibration and leak tests on the Cobalt-60 wires and the Strontium-90 Medical Applicator are currently being performed by the Radium Chemical Company and Tracerlab Corporation. Report of these tests will be forwarded to you as soon as the results are received by this laboratory.

Decontamination of the floor spaces in the Radiation Controlled Area using Radiacwash solution have been conducted 2-3 times weekly for the last 2 months. Results of swipe tests show that counts received are now within normal background range.

We hope the above data is the information you requested.

Sincerely yours,

CAPT MC USN

Chief of Radiology

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During mainspact on on December 24, 1963, the question of contemibation limits a menu). The limits of removable contamination upon tird in the Machines are non-suscillo and therefore cannot be menually instituted by anorthment action. The inspection report and transmitts menual data samery 24, 1963 should be reviewed at the times of items are removed.

Y.W. Kur.

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Memorandum

TO

E. R. Price, Assistant Director

Division of Licensing and Regulation, HQ

DATE: JAN 24 1964

FROM

R. S. Cleveland, Radiation Specialist (Review)

Region I, Division of Compliance

SUBJECT:

TRANSMITTAL OF LICENSE COMPLIANCE INSPECTION REPORT -

10 CFR 30

CC:I:EE

Transmitted herewith is a license inspection report involving noncompliance:

DEPARTMENT OF THE NAVY U. S. Naval Hospital Radioisotope Laboratory St. Albans 25, New York

License No. 31-76-6

The items of noncompliance were discussed at a conference on December 24, 1963 with Captain Walter F. Hansen, USN, Chief of Radiology and Acting Base Commander in the absence of Captain J. Yown USN, Base Commandant. Hansen indicated his willingness to comply with the regulations and to take appropriate corrective action.

It was pointed out to Hansen that failure to maintain records of sewerage disposals and failure to perform tests for leakage at intervals not to exceed six months were recurrent deficiencies which had been noted at our inspection of License No. 51-76-4 on 9/14/59. Hansen and Pischnotte, the RSO, who also attended the conference, both stated they never saw the results of the previous inspection or the letters from DL&R dated 12/30/59 listing the items of noncompliance and the licensee's corrective action in the letter of 1/8/60. Hansen stated that this is partly due to the fact that supervisory control suffers from transfer of personnel without arrival of replacements for considerable time. He stated he would search for all the correspondence and stated prompt corrective action would be taken.

The items of noncompliance listed for failure to make an adequate evaluation of a spill of Sr-90-Y-90 and of the concentrations of Sr-90-Y-90 and I-131 disposed to the sanitary sewerage system were also discussed. It was pointed out to Hansen that, although the Sr-90-Y-90 spill occurred approximately two years ago, the floor drain through which floor washings are disposed still shows signs of removable beta contamination and it was evident that a large quantity of Sr-90-Y-90 had been disposed of without any record or evaluation of concentration.

Hansen stated they will no longer use the present hold-up tank. He stated that all operations will cease until the laboratory is thoroughly decontaminated with all washings collected and contaminated items disposed of by burial or transfer. He stated a new hold-up tank would be installed and that a full evaluation of concentrations and activity involved would be made of the hold-up tank's contents before release to the sanitary sewerage system.

Management control of the radioisotope program was also discussed with Hansen. The inspector pointed out that there appeared to be a breakdown in management control when they are not informed of spills of radioactive material, where decontamination efforts are made by subordinates without management knowledge and where it appears for periods of time there is no management control due to transfer of naval personnel. It was also pointed out that a subordinate assumed the duties of kSO without any supervision from the actual RSO. Hansen stated he would institute strict control and it was evident to him that there was a breakdown in management of the radioisotope program.

The licensee's administrative instructions were also reviewed with Hansen. It was pointed out that on page 4 of the instructions emergency dose of 10R and 25R are permitted. It was pointed out that these radiation doses exceed the limits

touchy subject

as expressed in 10 CFR 20.101(b). Item V on page 4 of the instructions refers to general surface contamination as being maintained below tolerance levels in 10 CFR 20. It was pointed out that 10 CFR 20 does not list specific limits of surface contamination. It is recommended that these procedures be further considered by L&R as to whether or not they should still be approved and required to be followed by License Condition 43.

It is felt that the licensee's method of evaluating personnel film badges is very inappropriate and subject to gross errors. Since the density on a developed film is affected by the strength of developer, temperature of developer, time in developer, and character of specific emulsion used in a given batch of film, it is most difficult to validly evaluate a given film without comparing it with other films of the same emulsion batch which have been given known exposures and developed under the same conditions (preferably along side) the film being analyzed. It is felt that this matter raises a question as to whether the licensee's film badges can be considered as "appropriate personnel monitoring equipment" meeting the requirement of 10 CFR 20.202 and that this may need to be discussed by L&R with the licensee.

It is believed that the items of noncompliance do not currently involve a substantial hazard. However, a reinspection will be scheduled to be performed in about six months.

Form AEC-592 was not issued to the licensee because two of the items of noncompliance noted during this inspection were deficiencies which remained uncorrected after the last inspection and because of the other control deficiencies discussed above.

License No. 31-76-7 was also inspected at the same time.
Form AEC-591 was issued to the licensee involving one item
of noncompliance, a record keeping deficiency.

Enclosure: 1 cy of Rpt.

cc: CO: HQ w/orig. of Rpt.

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Memorandum

TO E. Epstein, Region I - Division of Compliance DATE: January 20, 1964

FROM

N. Y. Chu, Chemist hald Radiochemistry Division - HASL

SUBJECT:

ST. ALBANS NAVAL HOSPITAL SMEAR SAMPLE #881 -- REQUISTION D-3713.

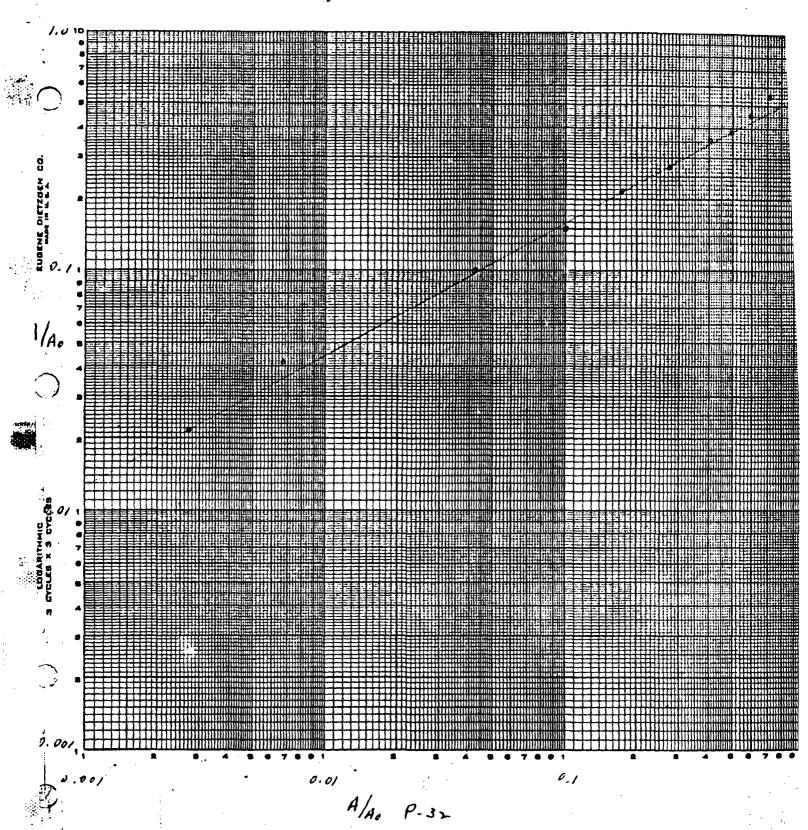
HSC:NYC

A beta absorption curve was run on Smear Sample #881 and the contamination was found to be purely Sr^{90} - Y^{90} . A Sr^{90} standard was used to check the sample. Copies of the curves obtained are attached.

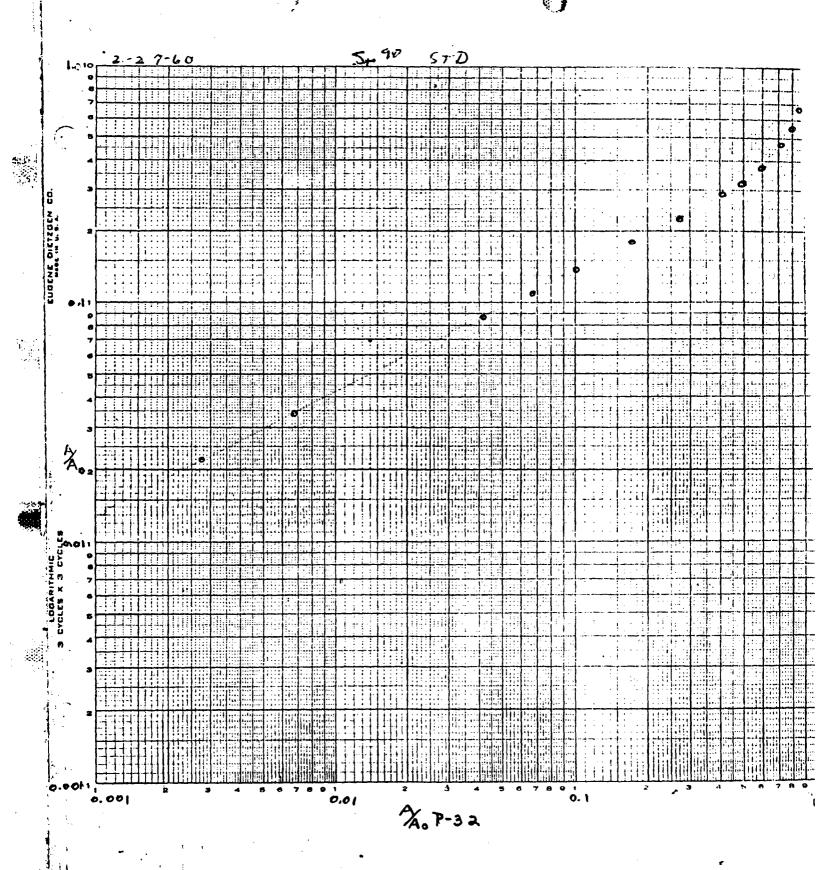
Enclosures - 2

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D-3713-881



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370 3ND-NH59-5216'1 U. S. NAVAL HOSPITAL ST. ALBANS L. I., 25, N. Y. ADDRESS REPLY TO COMMANDING OFFICER AND REFER TO: EE. Epstein 13 January 1964 U. S. Atomic Energy Commission Region I, Division of Compliance 376 Hudson Street New York, New York Attention: Mr. Eugene Epstein Dear Sir: This is to acknowledge receipt of the Inspection Findings and Licensee Acknowledgement on License Number 31-76-7 dated December 24, 1963. The Dresser Industries, Inc. Model No. A-6804 accelerator and Model No. A-6800 neutron generator used for research on fast neutron activation analysis as stated in the above license were on loan from the Picker X-ray Corporation. This equipment was returned to Mr. Walter L. Seibyl, Picker X-ray Corporation on April 12, 1963 because of the discontinuance of the research project. Please advise us if there is anything further to be done at this time. Sincerely yours, CAPT MC USN Chief of Radiology WFH: mp

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Form AEC-591 (11-62)

UNITED STATES ATOMIC ENERGY COMMISSION DIVISION OF COMPLIANCE

INSPECTION FINDINGS AND LICENSEE ACKNOWLEDGMENT

Department of the Mavy U. S. Haval Hyspital Radielsotope Laboratory St. Albans 25, New York	2. REGIONAL OFFICE U. S. Atomic Energy Commission Region I, Division of Compliance 376 Hudson Street New York, New York 10014
3. LICENSE NUMBER(S) 31-76-7	4. DATE OF INSPECTION December 24, 1963 (Initial)
S. INSPECTION FINDINGS	
A. No Item of noncompliance was found.	<i>,</i>
B. Rooms or areas were not properly posted to indicate th 10 CFR 20.203(b) or 31.302	e presence of a RADIATION AREA.
C. Rooms or areas were not properly posted to indicate th 10 CFR 20.203(c)(1) or 31.302	e presence of a HIGH RADIATION AREA.
D. Rooms or areas were not properly posted to indicate the 10 CFR 20.203(d)	e presence of an AIRBORNE RADIOACTIVITY AREA.
E. Rooms or areas were not properly posted to indicate th 10 CFR 20.203(e)	e presence of RADIOACTIVE MATERIAL.
F. Containers were not properly labeled to indicate the pre 10 CFR 20.203(f)(1) or (f)(2)	sence of RADIOACTIVE MATERIAL.
G. Storage containers were not properly labeled to show in the containers. 10 CFR 20.203(f) (4)	the quantity, date of measurement, or kind of radioactive material
H. A current copy of 10 CFR 20, a copy of the license, or made available. 10 CFR 20.206(b)	a copy of the operating procedures was not properly posted or
I. Form AEC-3 was not properly posted. 10 CFR 20.20	06(c)
J. Records of the radiation exposure of individuals were n	ot properly maintained. 10 CFR 20.401(a) or 31 203(b)
K. Records of surveys or disposals were not properly ma	intained. 10 CFR 20.401(b) or 31.303(d)
L. Records of receipt, transfer, disposal, export or invento 10 CFR 30.41, 40.61 or 70.51	bry of licensed material were not properly maintained.
M. Records of leak tests were not maintained as prescribe	d in your license, or 10 CFR 31.105(c).
N. Records of inventories were not maintained. 10 CFR 3	31.106
O. Utilization logs were not maintained. 10 CFR 31.107	
Eugene	Epstein (AEC Compliance Inspector)
6. LICENSEE'S ACKNOWLEDGMENT	
of noncompliance will be corrected within the next 30	nderstand the items of noncompliance listed above. The items days. LTER F HANSEN, CAPT. MC. USN
(Date)	(Licensee Representative - Title or Position)
COPIES: LICENSEE: COMPLIANCE REGION;	

INSPECTION NOTES

		BACKUP SUR STI	Inspector E. EPSTEIN
			Approved by
	LIC	DEPARTMENT OF THE NAVY U. S. Naval Hospital Radioisotope Laboratory CENSEE: St. Albans 25, New York	Lic. No. 31-76-7
	Typ	pe Inspection: (I) (RI) (Announced) (Unannounced)	Date December 24, 1963
ı.	GEN	MERAL INFORMATION	
	۸.	<u>Inspection on</u> : 10 CFR (20) (30) (31) (40) (70)	
	В.	Persons Accompanying: Name Position	n/Organization
		1. None	
		2.	
	c.	Persons Contacted: (inc. name, title, rad duties, rad	eports to)
		1. WatteRF. Hanson, Capt. USN, Chief of Radiology Experience:	
		Experience:	
		2. William O. Pischnotte, LCDR USN, Radiologist and	RSO
		Experience: Pischnotte has had courses in radiation	on safety given by the
		Bethesda Naval Medical Center.	
		3.	
		Experience:	
		•	
		For person(s) acting as RSO summarize authority: R	eports to Capt. W. F. Hanson
		who reports to Capt. Joseph Yown, USN Hospital C	ommandant.
		· ·	
	D.	Radiation Safety Comm. (Yes) (No). Meetings Yes	Minutes Yes
		Members, 1. Capt. Haskill Wertheimer, Chief of Surge Position &	ry
		Who report2. Capt. I. Errion, Chief of Medicine to.	
		3. Commdr. G. Szakacus. Chief of Pathology	

E. Organization and Administration: 1. Supervoi Ocal and Program (as pertains to lic. materials)	
Neutron Generator used briefly for a sax month period between	veen
Sept. 1963 and April 1963x by Dr. James R. Brown, M. D., B	Radiologist and
Dr. L. Zimser, M. D. of Columbia University, for activation	analysis of
rare earths. Generator was on hour from Picker	2 GORSIX MONTES
hor used only one menta	
	•
None None	
2. Affiliations: None	
7. Facilities & Uses of Byproduct/Source /Special Nuclear Material	
I. Isotopes: Material/Form Lic. Limit Qty on Hand Qty/Assay Suppli	er <u>Use/rate/quantil</u>
A. H-3 5 c none Picke	r Used 1 afternoor
Titanium Tritide foil	each week for 2 hours between
in a Picker-Dresser Industries	arking one mouth Sept. 27, 1962
Model A-6800 neutron generator	and April 1, 196 Returned to
	Picker 4/1/63
• • • • • • • • • • • • • • • • • • •	······································
	· · · · · · · · · · · · · · · · · · ·
2. Persons using Material(s): (inc.: name, title, duties, tra	ining, experience)
(a) Lt. James R. Brown USN, M. D., Director Depat. of Nuclear	Medicine
trained at Bethesda.	
(b) Dr. L. Zimser, M. D., Columbia Medical Center	
(b) Dr. L. Zimser, M. D., Columbia Medical Center	
(b) Dr. L. Zimser, M. D., Columbia Medical Center	
(b) Dr. L. Zimser, M. D., Columbia Medical Center (c) Generator using reaction $1T^3 + 1D^2 \rightarrow {}_{2}He^4 + oN^1 + Q$ was	used to

3.	Facilities: Licensee uses: (X) Lab () Counting room () Fume hood () Dry box
	() Table/bench (χ) remote hand. equip. () protective clothing
	() other A subbasement room is described in licensee's
	Describe checked items: application. Entrance door was interlocked with control
	console, a red warning light on the outside flashed when the generator
•	was on. Opening of the door would automatically cut off the electrical supply &
	de-energize the generator
•	METERICAL THE GENERATOR
•	
-	
i. S	Summary of Handling Procedures/Operations:
	Operation was from without the room by a remote controlled console.
)
•	
•	
-	
-	
. 3	nstrumentation & Calibration Procedures:
	Two Picker fast neutron monitors calibrated by Picker prior to installation.
•	1,450 - 1010 - 100
•	
•	
	•
•	

Rad	liation Safety Precautions & Procedures (Summary of Scope)
1.	Instructions, oral & written: None - only Brown and Zimser under Brown's
	supervision were allowed to handle unit. A copy of the license togethe
	with copies of 10m CFR 20 - 30 were in one folder. Pischnotte stated
	the file was available to all personnel upon request.
	The file was available to da-
_	
	The same and the s
	Licensee not complying with written procedures as follows: N/A
-	
2.	Surveys (working areas, storage facilities, etc.) (records & dates)
2. (a)	
	Direct reading - restricted areas Pischnotte stated no survey records are
	Direct reading - restricted areas Pischnotte stated no survey records are
2. (a)	Direct reading - restricted areas Pischnotte stated no survey records are available. He stated that Picker representatives shortly after instal of the Generator made surveys using neutron survey meters as well as
	Direct reading - restricted areas Pischnotte stated no survey records are available. He stated that Picker representatives shortly after instal of the Generator made surveys using neutron survey meters as well as gamma survey meters. He stated that they could detect no neutron; outs
	Direct reading - restricted areas Pischnotte stated no survey records are available. He stated that Picker representatives shortly after instal of the Generator made surveys using neutron survey meters as well as gamma survey meters. He stated that they could detect no neutron outs of the shielded facility and no gamma levels above background during
	Direct reading - restricted areas Pischnotte stated no survey records are available. He stated that Picker representatives shortly after instal of the Generator made surveys using neutron survey meters as well as gamma survey meters. He stated that they could detect no neutron outs of the shielded facility and no gamma levels above background during irradiation. He stated Picker did not leave the results of their surv
	Direct reading - restricted areas Pischnotte stated no survey records are available. He stated that Picker representatives shortly after instal of the Generator made surveys using neutron survey meters as well as gamma survey meters. He stated that they could detect no neutron outs of the shielded facility and no gamma levels above background during irradiation. He stated Picker did not leave the results of their surveith the naval facility.
	Direct reading - restricted areas Pischnotte stated no survey records are available. He stated that Picker representatives shortly after instal of the Generator made surveys using neutron survey meters as well as gamma survey meters. He stated that they could detect no neutron outs of the shielded facility and no gamma levels above background during irradiation. He stated Picker did not leave the results of their surv
	Direct reading - restricted areas Pischnotte stated no survey records are available. He stated that Picker representatives shortly after instal of the Generator made surveys using neutron survey meters as well as gamma survey meters. He stated that they could detect no neutron outs of the shielded facility and no gamma levels above background during irradiation. He stated Picker did not leave the results of their surveith the naval facility.

) Smear samples: (rest. & unrest. areas) NO
_	
(c)	Air samples: (rest. & unrest. areas) No
3.	Locking/securing of areas: Yes - room completely interlocked and locked
_	when not in use.
	Person ordering/responsible & method: Browne
_	
2.	Person insuring limits not exceeded: Brown
3.	Supplier: Picker
4.	Summary of procurement & receipt method: (records)
	record maintained showing receipt and transfer
5.	() Preassayed:
5.	() Preassayed:() Sterilized:
5•	() Preassayed:
	() Preassayed:() Sterilized:
Sto	() Preassayed: () Sterilized: () Leak Tested:
Sto	() Preassayed: () Sterilized: () Leak Tested: prage & Security of Material
Sto	() Preassayed: () Sterilized: () Leak Tested: prage & Security of Material n) restricted Area (Un)locked space Summary: In locked neutron
Sto	() Preassayed: () Sterilized: () Leak Tested: prage & Security of Material n) restricted Area (Un)locked space Summary: In locked neutron

	Sanitary sewer
	
2.	Burial
3.	Transfer Yes - to Bicker 4/1/63 of generator solid waste generally
	licensed quantities of Al and Si retained in storage area of "Hot"
	lab.
4.	Traincration
•	THE THE LACTON
' _X)	Posting of Areas CRA CHRA CRM CARA
	Posting of Areas CRA CHRA CRM CARA Labeling Containers () Tagging Sources
()	Labeling Containers () Tagging Sources
() (_X)	Labeling Containers () Tagging Sources AEC-3 posted & where: at entrance to neutron generator room was so that all
() (_X)	Labeling Containers () Tagging Sources
() (_X)	Labeling Containers () Tagging Sources AEC-3 posted & where: at entrance to neutron generator room was so that all
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() (_X)	Labeling Containers () Tagging Sources AEC-3 posted & where: at entrance to neutron generator room was so that all
() (_X) Summa	Labeling Containers () Tagging Sources AEC-3 posted & where: at entrance to neutron generator room was so that all
() (_X) Summ	Labeling Containers () Tagging Sources AEC-3 posted & where: at entrance to neutron generator room man so that all ary: persons entering could see the notice.
() (_X) Summ	AEC-3 posted & where: at entrance to neutron generator room was so that all ary: persons entering could see the notice. Sommel Monitoring Program (Yes) (No) - () AEC-4 () AEC-5
() (_X) Summ	AEC-3 posted & where: at entrance to neutron generator room was so that all ary: persons entering could see the notice. Somnel Monitoring Program (Yes) (No) - () AEC-4 () AEC-5 Film Badge: supplier Picker - Neutron badges and U. S. Navy tape Frequency Dupont double packet baxdges
() (_X)	AEC-3 posted & where: at entrance to neutron generator room we so that all ary: persons entering could see the notice. Dennel Monitoring Program (Yes) (No) - () AEC-4 () AEC-5 Film Badge: supplier Picker - Neutron badges and U. S. Navy tape Frequency Dupont double packet baxdges review of records: (persons & readings)
() (_X) Summa	AEC-3 posted & where: at entrance to neutron generator room we so that all ary: persons entering could see the notice. Somnel Monitoring Program (Yes) (No) - () AEC-4 () AEC-5 Film Badge: supplier Picker - Neutron badges and U. S. Navy tape Frequency Dupont double packet baxdges review of records: (persons & readings) Eker neutron badges were possessed monthly and showed no neutron tracks.
() (X) Summa	AEC-3 posted & where: at entrance to neutron generator room we so that all ary: persons entering could see the notice. Dennel Monitoring Program (Yes) (No) - () AEC-4 () AEC-5 Film Badge: supplier Picker - Neutron badges and U. S. Navy tape Frequency Dupont double packet baxdges review of records: (persons & readings)

Records: 3. Dosimeters: Supplier: No Read by: Records (persons & readings) 4. Surveys: () Bloassay () Breath Anal. () other Describe: No No No AEC CONTRACTS (): Or Radiographers: Leak tests: (31.105) (a) performed by: (b) persons lic. to perform: (c) description of method:	2.	Wrist badge: supplier No Frequency
Records (persons & readings) Describe: No No No No Records (persons & readings) No No Records (persons & readings) No No No Records () Bloassay () Breath Anal. () other Describe: No No Records () Bloassay () Breath Anal. () other No Records () Bloassay () Breath Anal. () other No Records () Bloassay () Breath Anal. () other No Records () Bloassay () Breath Anal. () other No Records () Bloassay () Breath Anal. () other No Records () Bloassay () Breath Anal. () other No Records () Bloassay () Breath Anal. () other No No Leak tests () Bloassay () Breath Anal. () other No No Records () Bloassay () Breath Anal. () other No No No No Records () Bloassay () Breath Anal. () other No No No No Records () Bloassay () Breath Anal. () other No No No No Records () Bloassay () Breath Anal. () other No No No No No Records () Bloassay () Breath Anal. () other No No No No Records () Bloassay () Breath Anal. () other No No No No No Records () Bloassay () Breath Anal. () other No No No No No Records () Bloassay () Breath Anal. () other No No No No Records () Bloassay () Breath Anal. () other No No No No Records () Bloassay () Breath Anal. () other No No No No No Records () Bloassay () Breath Anal. () other No No No No Records () Bloassay () Breath Anal. () other No No No Records () Bloassay () Breath Anal. () other No No No Records () Bloassay () Breath Anal. () other No No Records () Bloassay () Breath Anal. () other No No Records () Bloassay () Breath Anal. () other No No Records () Bloassay () Breath Anal. () other No No Records () Bloassay () Breath Anal. () other No No Records () Bloassay () Breath Anal. () other No No Records () Bloassay () Breath Anal. () other No No Records () Bloassay () Breath Anal. () other No Records () Bloassay () Breath Anal. () other No No Records () Bloassay () Breath Anal. () Other No Records () Bloassay () Breath Anal. () Other No Records () Bloassay () Breath Anal. (a .	Records: Supplier: No Read by:
Describe: No No No No No No No No No N	٠,	
Describe: No No No No No No No No No N		
Describe:No 5. Further information on AEC_4, -5, other related to personnel program:No No DEC CONTRACTS ():		
Describe: No No No No EC CONTRACTS (): Pr Radiographers: Leak tests: (31.105) (a) performed by: (b) persons lic. to perform:		
No No No No REC_4, -5, other related to personnel program: No No REC_CONTRACTS (): Or Radiographers: Leak tests: (31.105) (a) performed by: (b) persons lic. to perform:		
No Rec Contracts (): Leak tests: (31.105) (a) performed by: (b) persons lic. to perform:		
EC CONTRACTS ():		
EC CONTRACTS ():	 i.	Further information on AEC-4, -5, other related to personnel program:
EC CONTRACTS ():		
DEC CONTRACTS (): Or Radiographers: Leak tests: (31.105) (a) performed by: (b) persons lic. to perform:		
EC CONTRACTS ():		
Leak tests: (31.105) (a) performed by:		
Leak tests: (31.105) (a) performed by:		
Leak tests: (31.105) (a) performed by:		
Leak tests: (31.105) (a) performed by:		
Leak tests: (31.105) (a) performed by:		
Leak tests: (31.105) (a) performed by:	FC.	CONTRACTS ().
Leak tests: (31.105) (a) performed by: (b) persons lic. to perform:		OUNTEROLD ().
(a) performed by: (b) persons lic. to perform:	r R	ladiographers:
(b) persons lic. to perform:	I	eak tests: (31.105)
	(a) performed by:
(c) description of method:	(t) persons lic. to perform:
(c) description of method:	_	
	(0	e) description of method:

1

	rces & container_records (31.303) m badge records (31.203)	
	rces & container_records (31.303)	
Securing of sou	rces & container_records (31.303)	
Securing of sou	•	
		
Utilization Log	s: description - identity - site (31.)	
-		
Quarterly Inven	tory (31.106)	

- 11. Security and surveillance during rad. operations (31.301)
- 12. Radiation levels on devices & containers (31.101) (inspectors survey readings)

Note: Describe noncompliance items on back & reference applicable section of Part I.

II. Compliance with 10 CFR

A. 10 CFR 20:

N/C	<u>0K</u>	NA	Paragraph	<u>Topie</u>
	_ <u>x</u> 	<u>X</u> X X X	101(a) 101(b) 102(b) 102(c) 103 104(a)(b) 105(a)(b)	Exposure limits in Rest. Area Exposure exceptions - AEC-4 Determ. Acc. Dose & AEC-4 Records & Prep. of AEC-4 Exp. to Conc. in Restr. Area Exposure of Minors - Material/Airborne Levels in Unrestricted Areas - Except
		X X X X X X X X X X	106 108 201(b) 202(a) 203(b) 203(c) 203(d) 203(e) 203(f) 204	2 mr/hr, 100 mr Effluents in Unrestricted Areas Orders Requiring Bicassays Surveys = 201(a) describes Personnel Monitoring Requirements Posting Rad. Areas w/CRA "High Rad. Areas w/CHRA "Airborne "w/CARA "Require. Rooms/Areas w/CRM Labeling Containers (ref. Append C) CRM Lists posting exceptions = sealed/hospitals/
	x x x 	X X X X	205 206(a) 206(b) 206(c) 207 301 302	8 hour limit Exceptions for RM shipments Instruction of Personucl in Restrate Procedures, Regulations, License Available AEC-3 posted in/near Restrate Storage Security of Licensed Material Gen. Waste Disposal Requirements Methods of obtaining approval for waste disposals
		X	303(b) 303(c)(d) 304 305 401(a) 401(b) 401(b) 402 403(a)(b) 404 405 406	Disposal to Sanit. Sewer - daily limits " " " - monthly/yearly limit " by burial - limits in (a)(b)(c) " incineration - must be licensed Records - AEC.5 for persons req. per 202 Survey records per 20.201(b) Disposal records per 302, 303, or 304 Reports of theft or loss Notification of incidents (a) (b) Report to former employees of exposure Report of overexposure/excessive levels Employees request for annual exposure
ITEM OF	HONCOM bl.	ance		

20.40lb - in that the licensee idid not maintain records showing the results of surveys required under 20.20lb. (See paragraph G-2).

B.	10 CF	R 30			•	
	N/C	<u>ok</u>	<u>na</u>	Paragraph	<u>Topic</u>	
		<u>x</u> <u>x</u>	- - - -	3 9 23 24 41(a)	License requirements - use as lic. stipulates Exempt Concentrations per 30.73 Reg. for issuance of specific lic general Reg. " " " specific i.e., human use by inst & phys, radiographerse Records - receipt, transfer, export, disposal	
c.	License	Conditi	ons: (1	efer by no.)		
10.	_	<u> X</u>	- 1	use at location listed in item 2 of the license.		
12.		<u>X</u>	i	byproduct material wasused under the supervision of James R. Brown.		
13.	_	. —	_ ;	use in accordance with license and application of July 11, 1962		
		-	<u>.</u>	•	•	
			_		•	
		• .		•		
D.	Previou	18 N/C, s	tatus, a	discussed with:		
	~~~		_			
			_			
	<b>—</b> .					
		<u>.</u>	_			
 =						
e.	10 CFR	3:1 - Rad:	Lographi	c operations		
	· · · · · · · · · · · · · · · · · · ·			101 102	Limit of rad. level for devices & containers Locking requirements for " " "	
•				103 104	Storage precautions Instruments, calibration & calib. record	
				105(a) 105(b)	Auth. personnel handle etc. sealed source Leak test - 6 mo. interval	
				105(c) 105(d)	Detectable level .005 uc - record of tests Level greater than .005 uc - withdraw & report	
	<del></del>	_		105(e)	Tag for loose sealed source (i.e. not in/fastene	
	·		_	106 107	Quarterly Inventory Utilization Logs (description/person/site)	
			_	201(a) 201(b)	Qualifications for radiographer " asst. radiographer	
		_	=	202 203(a)	Licensees operating & emergency procedures	
	سىنىد خىنت	_	_	203(ъ)	Film badge & dosimeter requirements for rad. Badge & dosimeter records	
			<u></u>	301 302	Security of high rad. areas Posting radiographic areas	
	<del></del>		_	303(a)	Calibrated & Operable instr. at exposure site	
		_	_	303(b) 303(c)	Survey of device after each exposure Survey when securing device & also contains	
	-		-	303(a)	Records of surveys conducted per 303(c	

Note: Explain L&R's meaning of an adequate instrument calibration procedure. Check sources mt adequate.

separates

FORM NY-99 REV. 8-1-59

#### UNITED STATES ATOMIC ENERGY COMMISSION NEW YORK OPERATIONS OFFICE

#### HEALTH AND SAFETY LABORATORY

376 HUDSON STREET NEW YORK 14, N. Y.

SAMPLE REQ.	$\mathbf{D}$	3714
DATE SENT	12/27	163
DATE RECEIVE	D _10/2	
DATE REPORTE	ED	<i></i>

PLANT S+	AL	BANS	, HA	wal Hosp:	Exhibit "A"	1		us,
MAILING	ADDRESS		)	•	·	B Su	cintilation entitation	ounter
ROUTE RE	SULTS TO	Com	phano	. е	ANALYZE FOR SR 90 - Y90 - 5	SAMP RATE	TIME DOM	RESULTS
SAMPLE NO.	DATE	HO START			SAMPLE DESCRIPTION			
()	12/24			floor	AROUND , Orain		49	
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² 879					neer Sink		186	
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8					Co 40 '		<del>0, 0</del>	
9 13				wipe p	ig containing Pow wires		0.0	
COLLECT	ED BY	، تا	EPSTE	114 .	ANALYZED BY		<del>,                                    </del>	

separates

FORM N7-99 REV. 8-1-59

#### UNITED STATES ATOMIC ENERGY COMMISSION NEW YORK OPERATIONS OFFICE

## HEALTH AND SAFETY LABORATORY

376 HUDSON STREET NEW YORK 14, N. Y. SAMPLE REQ.  $\mathbf{D}$  3713

DATE SENT ____

DATE RECEIVED 12/27/63_DATE REPORTED 12/3/163

GPO 959255

Exhibit "A" TYPE OF SAMPLE PLANT ST ALBANS NAVAL HOSPITAL SMEAR METHOD OF DETERMINATION manual & Scentillation Counter ANALYZE FOR SAMPLING RESULTS ROUTE RESULTS TO Se40.490 _B Combliance RATE TIME HOUR SAMPLE SAMPLE DESCRIPTION DATE START | STOP 5352 12/24 881 Ledge of hood (490 cow) 100 cm2 148 880 314 878 928 rut between rocing 7/3 Sink tray (stainless) 185 Ploor near Y 40 cow 3 91 (look near year Strage noom 98 tob side floor drain grill 1203 UNDERSIDE (LOR drain 4711/ 6 1072 Inside Floor drain COLLECTED BY E. Epstein

separates

## APPLICATION FOR BYPRODUCT A

INSTRUCTIONS.—Complete Items 1 through 16 if this is an initial application. If application is for renewal of a lice only Items 1 through 7 and indicate new information or changes in the program as requested in Items 8 through 15. "Use supply mental sheets where necessary. Item 16 must be completed on all applications... Mail two copies to: U. S. Atomic chergi Commission, P. O. Box E, Oak Ridge, Tenn. Attention: Isotopes Extension, Division of Civilian Application. - Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30 and the licensee is subject to Title 10, Code of Federal Regulations, Part 20. 2 4 2 คร. คร. กอา เรอร กาซ เห**รื่อนกลักสาร** 

1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital,

(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED, SITH different from 1 (a).)

U. S. Naval Hospital St. Albans, New York U. S. Naval Hospital St. Albans, New York

2. DEPARTMENT TO USE BYPRODUCT MATERIAL-

Radioisotope Laboratory

PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a

31-76-4 (Amendment thereto)

4. INDIVIDUAL USER(S). (Name and title of individual(s) who will use or directly rise use of byproduct material. Give training and experience in Items 8 and

5. RADIATION PROTECTION OFFICER (Name of person designated as radiation pro

SO ENDERTON DETACTORY INSTRUMENTS

AUGUST THE ST. AND THE COURT OF ITS

H. C. Dudley. CAPT MSC USN

H. C. Dudley, CAPT MSC USN

6. (a) BYPRODUCT MATERIAL.

(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND/OR PHYS ICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME. (If sealed source(s), also state name of manufacturer, model

Sr90

500 millicuries Sr90 as the chloride. divided equally into 250 millicurie units and used to produce two  $Sr^{90} \longrightarrow Y90$  generators. The  $Sr^{90}$  once adsorbed on a resin column will remain in situ.

7. DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If byproduct material is for pleted in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in rhich the source will be stored and/or used...)

The Y90 will be selectively leached off the units leaving the Sr⁹⁰ in situ. The apparatus process, and quality control will be that utilized by the Abbott Laboratories, Oak Ridge, Tennessee. Their entire procedure, and apparatus will be duplicated. experience of this company has been made available since they are ceasing production of Y90. (See attached sheet)

AFC	2:2 (2/57)			the section of	The second second		and the second second		
orm AEC-	-313 (2/57) TRAINING AND EXP	ERIENCE OF F		IAI NAMED IN IT		Charles Marie	ACCUPATION OF THE PARTY OF THE		English on
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			WHERE 1	TRAINED	TRA	INING	ON THE 308	(2 to )	
z. Principl	les and practices of radiatio	n	·						10 10 10 10 10 10 10 10 10 10 10 10 10 1
protect	ion					A	Yes No	/ Yes	i ja
. Radioa	ctivity measurement standardiza			فروين وونيي		# 1 T 2	i .Bod E, c	holsein	
tion an	id monitoring techniques and in			applicati		<b>.</b> . <b>.</b>	Yes No	TYM.	No
	natics and calculations basic to th		2 0000	ber, 1956.	<u> </u>	<u>-</u>	B. 44.7	-	7
	d measurement of radioactivity .			and a second of the second	2		Yes No	- Yes	No.
								1000 ( p. 10	1
. Biologi	cal effects of radiation	·	<u> </u>				Yes No	Yes	No
	ENCE WITH RADIATION. (Actua	<del></del>	<u> </u>		. '	· · · · · · · · · · · · · · · · · · ·			~~ 16
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. RADIA	TION DETECTION INSTRUMENTS	. (Use supplem	ental sheets if ne	T	- <del></del>	<del></del>	هدا: عدا:		193
	TYPE OF INSTRUMENTS nake and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE	WINDOW THE			ISE PROPERTY MODE	
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		266	previo	s applica	tion.		i tij — Altigijair Tij Tuak ka telesi	Charles (S. 18) International Control	9 . di . d
. METHO	D, FREQUENCY, AND STANDARDS				tion.		i By Alting Acr	Charles of the	
. METHO	D, FREQUENCY, AND STANDARDS	USED IN CALIBRA	LTING INSTRUME		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	7	Atom Are the Atom Are the Atom Are the Atom Are	A Company of the Comp	
	• • • •	used in caubra Soo	NTING INSTRUME Previol	AS SEPPLICA	tion		The solution	Let's Long	
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31-76-4

### 7. Resume of extraction procedure

- a. Sr⁹⁰ as the chloride is adsorbed on a Dow-X resin column.
- b. By elutriation with sodium citrate solution of pH about 3.2; the daughter  $Y^{90}$  is selectively removed, leaving the  $Sr^{90}$  in situ.
- c. The citrate solution is slightly acidified, carrier Y⁸⁹ added, and readsorbed on a smaller resin column, washed carefully, and then removed by control of the acidity of the eluting solution.
- d. The final product is a colorless, slightly acid solution, of Y⁹⁰, containing some carrier Y⁸⁹. The content of Sr⁹⁰ is determined by precipitating added carrier as Sr sulfate, and then counting. The ration found is one (1) part of Sr⁹⁰ to 10⁶ parts of Y⁹⁰ or less. When the final product reaches 5 parts Sr⁹⁰ per 10⁶ parts Y⁹⁰, the material is rejected and the Y⁹⁰ generator either discarded in toto, or the Sr⁹⁰ recovered and a new resin column formed.

The clinical use of the  $Y^{90}$  to be generated is in no way altered or changed, either in dosage or method of administration, as shown in License No. 31-76-4, Amendment 1, dated June 10, 1957 and License No. 31-76-4, Amendment 3, dated July 18, 1957. Since Amendment 7, date, December 17, 1958, now allows 900 millicuries of  $Y^{90}$  to be on hand, there is no need to increase this upper limit, since the yield of the

two  $Sr^{90} - Y^{90}$  units will be no greater than 600 millicuries at a single run.

## 15. Waste Disposal

Any  $Y^{90}$  waste is set aside and allowed to decay thirty (30) days or more before disposal to sewer. (half life - 61 hours).

Any Sr⁹⁰ waste will be collected and held for transmittal to some AEC agency or Brookhaven National Laboratories for approved disposal.

No animal studies using  $Sr^{90}$  are contemplated or nor any chemical procedures, in millicurie quantities, except the first forming of the resin column.



DEPARTMENT OF THE NAVY BUREAU OF MEDICINE AND SURGERY

WASHINGTON 25, D. C.

BURED-742:GCB:000 6470/18t Albers Serial: 5051 21 March 1960

Chief, Bureau of Medicine and Surenzy.

Commanding Officer, U. S. Raval Hospital, St. Albans, LI, 25, New York To:

Applications for license to possess byproduct material; comment concerning Bubj:

(a) USBH St. Albans 1tr 3-mls 6470/15041 Ser: 30 to UBAEC with copy to Ref: **EXECUTO of 8 Jan. 1960** 

(b) that let laribing (2525/2536) of her 2, 1960

(b) USEE St Albane itr 22 mile 6401 Ser 250 to USANI via High 26 Feb 1960

1. An application to generate Yttriam 90 in an apparatus developed by Abbott Laboratories, Cak Ridge, Tenn., was forwarded to U. S. Atomic Energy Commission, Division of Licensing and Regulation, requesting approval. By reference (a), the Commending Officer, U. S. Neval Hospital, St. Albans, forwarded a letter to the A. Atomia Decryt Commission, enewaring some questions on the operation of the

- 2. Reference (b) requests additional information on the operation of the species tus, as the end product, Ittrium 90, is to be administered to patients. It is requested that the following information be submitted:
  - a. How the Maval Hospital, St. Albans, will determine the ratio of Strontium 90 to Yttrium 90 in the final product.
  - b. How the Meval Hospital, St. Albans, will calibrate and sterilize the Yttrium 90 for administration to patients.
- 3. The Commenting Officer, U. S. Merel Bogstal, St. Albans, has also substitute aggineration on behalf of Dr. Rosald H. Jund, who desires to use Iridius 198. It is requested that the following information be substitud:
  - s. The maximum amount of Iridium 192 which the Hospital desires to obtain from E. R. Squibb & Sons, and from Dr. Ulrich Henschke of Memorial Bospital, New York City.
- 4. A third application, reference (c), has been received by the Bureau of Medicine and Surgery. The use of tritime in thunidine has been questioned by a midical research group at Brookhaven Mational Laboratory, since it is believed the tritium is incorporated into the DMA of cells, including germinal cells, and through cell divisions thus, the tritim does not undergo a biologi-A half life as signit be expected but continues to come midiation damage to the cell mailes throughour as manyousened, has approved plaint requests for the latter, v. S. Atomic Energy Commission, has approved that the use in patients be of tritium in thunidine, but has informally requested that the use in patients be essentially controlled. In light of present knowledge, we believe tritiated thunished thould not be used in individuals use are still emphase of reproduction. Reference (c) has been formarded to the U.S. Atomic Energy Commission, Division of Motoring and Regulation recommending approval.

P. P. MICKERS, JR. By direction

U.S. AND DAY. LAR

U. S. NAVAL HOSPITAL ST. ALBANS L. I., 25, N. Y.

> 3-mls (470 772) 6470 772 Serial: 15 Jenusry 1960

From: Commanding Officer, U.S. Naval Hospital, St. Albans, NY

To: Chief, Bureau of Medicine and Surgery (Code 742)

Subj: Radioisotopes, procurement of

Ref: (a) BuMed ltr BUMED 742:GCB:dfp, 6470/1-St. Albans, Serial: 5008 dtd ll Jan 1960

(b) USNH St. Albans ltr to AEC, Serial: 30 dtd 8 Jan 1960 (copy to Bulled Code 74)

Encl: (1) USNH St. Albans ltr Serial: 1844 dtd 18 Dec 1959

(2) AEC Forms 313 for Sr⁹⁰.

1. The requests contained in reference (a) have previously been complied with by reference (b).

2. All requirements of Atomic Energy Commission safety regulations have been complied with.

3. Enclosures (1) and (2) are herewith re-submitted.

23936

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# DEPARTMENT OF THE NAVY BUREAU OF MEDICINE AND SURGERY

WASHINGTON 25, D.C.

31-76-4)

BUNED 742:GCB:dfp 617071="ST ALBANS Serial: 5008 11 JAN 1960

From: Chief, Bureau of Medicine and Surgery
To Gommanding Officer, U. S. Naval Hospital, St. Albans,
Long Island 25, New York

ıs,

Subj: Radioisotopes; procurement of

Ref: (a) SECNAVINST 4220.2 of 27 AUG 1959 - "Procurement, Control and Disposal of By-product Material (Radioisotopes)"

(b) AEC's ltr, DIR:ROF of 30 DEC 1959 to 00, USRH, St. Albans regarding violations of License No. 31-76-4

Engl: (1) 00's ltr. USHH, St. Albens, 22-dre over 6kOl. serial libk of 18 DEC 1959 to AND wie MONED

100 Rootowe (1) requesting authorisation for construction of a 27 YO Roow is herewith returned pending your corrective action in regard to violations of License 31-76-h reported by the Division of Licensing and Regulation, U. S. Atomic Energy Commission by reference (b). Reference (a) promulgates policies and procedures concerning procurement and control of radioisotopes within the Neval Establishment.

- 2. With regard to items 1-7 of reference (b). you are requested to forward your cubes it is although the black of the first of the base of the property of the your receipt of reference (b).
- 3. Your request (enclosure (1)) may be resulmitted at such time as you have complied with conditions of License 31-76-4 and admendments thereto and with applicable AEC requirements as set forth in reference (b).

C. B. GALIOWAY Assistant Chief for Research and Military Medical Specialties

Copy to: DIR/AEC w/o enol(1)

separates

3ND-NH59-168

### U. S. NAVAL HOSPITAL ST. ALBANS L. I., 25, N. Y.

3-mls 6470/5041 Serial: 8 January 1960

U. S. Atomic Energy Commission Washington 25, D. C.

Re: License 31-76-4

#### Gentlemen:

In reference to your letter dated 30 December 1959 relative to non-compliance with AEC standards for protection against radiation, the following statements are made. The numbers refer to approximate paragraphs of your letter:

- Y-90 as Y203, obtained from Brookhaven National Laboratory will now be standardized, using the method just completed to monitor a Sr - Y'90 generator.
- 2. The application for the use of tritium gas was an oversight in preparing the application (Lic. 31-76-4). H3 labeled compounds are what is needed. An amendment to existing license is being prepared. Note that 0.7 millicuries HJ were on hand while 5.0 millicuries were authorized.
- Sr90 medical applicator has been regularly leak-tested here, but not by the manufacturer. The unit has now been returned to TracerIab for calibration and testing.
- 4. Animal carcasses have been routinely held frozen until only microcuries of activity remained, and then incinerated. In the future, carcasses will be so held but delivered to a contractor or to Brookhaven Laboratory for disposal.
- 5. A few individual containers had no radiation label, but were dated and labeled as to content. All were stored in a cabinet or chest on which was an approved radiation label. All units are now labeled with approved labels.
- 6. The major radiation hazards of this command are due to diagnostic and therapeutic x-ray units, and 425 milligrams of radium. Radiation surveys carried out periodically over the past eight years show that radioisotopes contribute no significant amount of radiation. A monthly film badge service to all exposed personnel quickly shows any significant radiation exposure. Invariably, any over-exposure is due to x-rays. These records have been maintained for eight years. Entries are made monthly. Area survey records will be maintained in the future.
- 7. All radioactive materials are held in storage for several months, i.e., from six to ten half lives. Only microcurie quantities of any radioisotope has ever been disposed of by way of the sewer. Records of their dumping will be made in the future.

3-mls 6470/5041 Serial: 8 January 1960

8. The Thulium 170 on hand on 2 April 1959 amounted to less than 200 millicuries. The original license for ten curies was issued to the Armed Forces Medical Development Laboratory, Fort Totten, New York. After use, the sealed Thulium-170 pellets were held here for safekeeping, awaiting disposition by the licensee, who has transferred them to Brookhaven National Laboratory.

It is believed that these series of actions will bring this activity into full compliance with AEC regulations.

Sincerely,

Captain, MC USN

Commanding

Copy to: BuMed Code 74



separates

## U. S. NAVAL HOSPITAL

IN MEPLY MEPER TO 175

3-mls 6470/5041 Seriel: 8 January 1960

U. S. Atomic Energy Commission Mashington 25, D. C.

Re: License 31-76-4

PAN

#### Gentlemen:

In reference to worm letter dated 30 December 1959 relative to non-compliance with AMC standard in protection against radiation, the following statements are made. The numbers refer to approximate paragraphs of your letter:

- 1. Y-90 as Y. Stained from Brookhaven National Laboratory will now be standardized, sature the method just completed to monitor a Sr -> Y90 generator.
- 2. The application for the use of tritium gas was an oversight in preparing the application (Lic. 31-76-4). H³ labeled compounds are what is needed. An apendment to existing license is being prepared. Note that 0.7 millicuries H³ were on hand while 5.0 millicuries were authorized.
- 3. Sr⁹⁰ medical applicator has been regularly leak-tested here, but not by the manufacturer. The unit has now been returned to Tracerlab for calibration and testing.
- 4. Animal carcases have been routinely held frozen until only microcuries of activity remained, and then incinerated. In the future, carcasses will be so held but delivery to a contractor or to Brookheven Laboratory for disposal.
- 5. A few ind. the torowiners had no radiation label, but were dated and labeled as to notified. All were stored in a cabinet or chest on which was an approved radiation label. All units are now labeled with approved labels.
- therapeutic x-ray units, and 425 milligrams of radium. Radiation surveys carried out periodically over the past eight years show that radioisotopes contribute no significant amount of radiation. A monthly film badge service to all exposed personnel quickly shows any significant radiation exposure. Invariably, any over-exposure is due to x-rays. These records have been maintained for eight years. Entries are made monthly. Area survey records will be maintained in the future.
- 7. All radioactive materials are held in storage for several months, i.e., from six to ten half lives. Only microcuric quantities of any radioisotope has ever been disposed of by way of the sewer. Records of their dumping will be made in the future.

3-mls 6470/5041 Serial: 8 January 1960

8. The Thulium 170 on hand on 2 April 1959 amounted to less than 200 millicuries. The original license for ten curies was issued to the Armed Forces Medical Development Laboratory, Fort Totten, New York. After use, the sealed Thulium-170 pellets were held here for safekeeping, avaiting disposition by the licensee, who has transferred them to Brookhaven National Laboratory.

It is believed that these series of actions will bring this activity into full compliance with AEC regulations.

Sincerely,

Captain, MC USN

Commanding

Copy to: BuMed Code 74



separates

Serial: 1844 18 December 1959

From: Commanding Officer, U.S. Naval Hospital Siz Albani, N.

To: U.S. Atomic Energy Commission, Division of Licensing and Regulation

Isotope Branch, 1717 "H" Street, Washington 25, D. C.

Via: Chief, Bureau of Medicine and Surgery, Navy Dept., Att: Code 74

Subj: Radioisotopes, procurement of

Ref: (a) AEC Revised Licensing Procedures

Encl: AEC Form 313, original and two copies

1. In accordance with reference (a) A enclosure (1) is forwarded herewith

2. The request for authorization of the construction of a Sr-90 — Y90 "cow," is caused by the cessation of production of T-90 by the Abbett Laboratories. Due to insufficient demand, pressure of other production schedules, and lack of space, Abbott will suspend their production Y90 as of January 1960.

been studied in detail by captain H. C. Dudley, School Control of the purity at Oak Ridge. By duplicating the apparatus, procedures of production, and quality control, the purity (freedom from Sr-90), sterility and non-pyrogenicity will yield a final product of Y-90, suitable for human use. (Less than five (5) parts Sr-90 per 1,000,000 parts Y-90). The Abbott procedures can be readily duplicated in the Radioisotope Laboratory of this command.

- 4. This request in no way modifies the Y-90 clinical procedures which have been authorized under License No. 31-76-4. Amendment Number Three, dated 18 July 1957.
- 5. Because of the time element and so that Y-90 will be available for clinical use by 1 February 1960, it is requested that this application be expedited.

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# Office Memorandum • UNITED STATES GOVERNMENT

Harold L. Price, Director, Division of Licensing and Regulation, Headquarters

DATE: N

มกบ. 3 ก. 1959

**.** 

Robert W. Kirkman, Director

Inspection Division, NYOO

SUBJECT: TRANSMITTAL OF LICENSE COMPLIANCE INSPECTION REPORT - 10 CFR 30

SYMBOL: INS:RSC

Transmitted herewith is the following inspection report involving noncompliance:

UNITED STATES NAVY, DEPT. OF United States Naval Hospital St. Albans 25, New York

License No. 31-76-4 w/amend. 7

The following items of noncompliance were noted as a result of the inspection:

License Condition 13

- in that Y-90, procured from BNL for mining use, was not independently assayed. (See Item 10 of report details.)

License Condition 15

- in that leak tests have not been performed and records of results maintained. (See Item 13 of report details.)

20.203 (f)(1) and (4)

- in that storage containers were not all labeled with radiation symbol, radioactive materials warning, and information as to type, amount, and date of assay of contents. (See Items 13 and 16 of report details.)

20.305

- in that carcasses of animals used for radioisotope experiments are routinely disposed by incineration without specific Commission approval. (See Item 15 of report details.)

20.401 (c)

/- in that records of surveys and records of disposals by incineration and release to the sewers have not been maintained. (See Items 18 and 15 of report details.)

(continued)

Harold L. Price

30.3

- in that the licensee possessed Tm-170 and H-3 as thymadine without holding a valid license authorizing such possession. (See Item 11 of report details.)

The above-mentioned items of noncompliance were brought to the attention of Captain Dudley, who expressed willingness to take such corrective action as required. It is not felt that a serious hazard exists in the items of noncompliance or that a follow-up inspection is needed. It is recommended that a letter be sent to the Commanding Officer of the Hospital for the attention of Dudley setting forth the items of noncompliance and requiring corrective action to the satisfaction of the Commission.

Enclosure: 1 cy Rpt.

cc: Div of Ins, Hq. w/orig. of Rpt.

separates

Harold L. Price, Director, Division of Licensing and Regulation, Handquarters

Robert W. Kirkman, Director Inspection Division, MY00

TRANSMITTAL OF LICENSE COMPLIANCE INSPECTION REPORT - 10 OFR 30

#### SYMBOL: INSTRUC

Transmitted herewith is the following inspection report involving noncompliance:

UNITED STATES HAVY, DEFT. OF United States Heval Hospital St. Albans 25, Hew York

License No. 31-76-4 w/amend. 7

The following items of noncompliance were noted as a result of the inspection:

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- in that Y-90, procured from HML for human use, was not independently assayed. (See Item 10 of report details.)

#### License Condition 15

- in that leak tests have not been performed and records "
of results maintained. (See Item 13 of report details.)

#### 20.203 (f)(1) and (4)

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#### INSPECTION

Harold L. Price

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Enclosure: 1 oy Rpt.

ce: Div of Ins, Hq. w/orig. of Rpt.

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#### ITEM 5 (CONT'D)

Exp. Date Ligense No. Date

• . . .

31-76-4 amend. 7

> 35 m of P-32 as colloidal chronic phosphate for intra-cavitary treatment of malignant plental and peritoneal effusions and assites. Interstitial treatment of tumor Stope: J. masses.

- E. 900 me of Y-90 as exide and/or shlunds for intracavitary treatment of malignant serous affulines. Treatment of careinoma of the bladder. Preparation of soluble filaments and implantation of the filaments in tumors. Tissue distribution and excretion studies in terminal cancer patients. Treatment of polycythemic vera and leukemia.

  L. 100 ms of E-42 as earbonate for delimination of total exchangeable body potassium.

  M. 10 ms of E-22 as anybonate for delimination of selden.

- exchangeable body potassium.

  N. 10 ms of Ha-24 as earbonate for debinmination of sodium space, circulation times, and careful output.

  N. 10 ms of Or-51 as chromate and/or interide for determination of red cell mass and red cell survival times.

  O. 100 ms of Ga-73 as oxide for traces studies to determine chronic osteomyelitis, healing of instures, and bone lesions. lesions.
- P. 50 us of Co-60 as Vitamin B-12 for diagnosis of permisions

- Q. 15 mc of As-74 ms chloride for localization of brain tumors.

  R. 5 mc of G-14 as earbonate for metabolism studies.

  S. 5 mc of B-3 as gas for metabolism studies.

  T. 5 mc of Fe-59 ms shloride for diagrams of hematologic disorders.

  - U. 5 me of S-35 as sulfate for determination of body water.
    V. 2 me of Ca-45, may form, for laboratory studies in lower animals.
  - 3 ms of Hg-203 in any form for labor bory studies in
  - I over animals.

    I. 3 ms of In-65 in any form for laboratory studies in lower animals.
    - Y. 850 me of Au-196 as colloidel for intracevitary treatment of plaural and peritoneal effusions and ascites. Liver blood flow studies.
    - 2. 40 me of Sr-90 ms Tracerlab Model RATIA Scaled medical applies for treatment of tunors of the syelids, conjunctive, corneal vaccularisation, when a catarrh, and chronic infection of the lids and applicative. rnal caterrh, and

GOMETTICES: #11-Compliance with Part 20. #12-We use of hyprodust material in humans shall be by, or under the direct supervision of, Commander F. S. Burkle, M., T., or Captain C. Cartenlaub, M., USA. Byprodust material may also be used, I vision of, Commander J. S. Burkle, M., T., or Captain C. Gartenlaub, M., USE. Byproduct material may also be used, not in humans, by or under the direct superfluien of, Captain H. C. Dudley, MSI, USE, \$13-Byproduct material acquired from an Atomic Energy Commission facility shall not be used in humans until its pharmacontical quality and state have been independently established. \$14-Byproduct material as scaled source shall not be opened. \$15-The Filled source containing Stroutium 90 shall be tested for leakagement containing at Strontium 90 shall be tested for leakage and contamination at intervals of not norse than six (6) months and records of test results shall be maintained by the license. The leak test shall be performed by Captain H. C. Dudley. \$16-fotal amount of Hydrogen 3 (tritium) acquired under this license shall not exceed 100 mc.

#### THEN 6 (COMPAN)

- License Condition 15

  in that look tests have not been performed and records of results maintained. (See Item 13 of report details.)
- 20,203 (f)(1) and (4)

   in that storage containers were not all labeled with rediction symbol, sydioactive materials warming, and information as to type, ansumt, and date of assay of contents. (See Items 15 and 16 of report details.)
- 20.305
   in that pareasses of animals good for radioisotops experiments are routinally disposed by includeation without specials Commission approval. (See Item 15 of report details.)
- 20.401 (c)

   in that records of surveys and records of disposals by incineration and release to the severs have not been maintained. See Items 18 and 15 of report details.)
- o in that the licensee possessed Tm-170 and H-3 as the medine without holding a valid license authorizing such possession. (See Item 11 of report details.)

UNITED MAYES HAVY, DEPT. OF United States Mayel Hospital St. Alburg 25, New York

Bates of Dispection: April 2, 1959 (L.R. Adams) and September 14, 1959 (R. & Sleveland) Both prosemousced.

Secupenving Inspector

Persons Sentacted (April 2, 1999)

Captain . C. Dudley, PhD, MSC, Ton

Captain 23. Dadley, PhD, MED Commander S. Burkle, Clinical Mead, Radioisotope Charles E. Bransford, Hospitaling Pirst Class, UNI, h. plor Technician

#### and Administration

The St. Libins Haval Hospital uses byproduct materials in a number of diagnostic and therapeutic midical applications in research studies; interials are used in the Hospital's Radiof stope Laboratory. Generally as the Clinical Head of this Laboratory, while Captain Budley is the Technical Rivetor of the Laboratory. These two officers are the principal uses of byproduct materials at the Hospital. They are assisted in this sork by six enlisted Heavy personnel. C. L. Bunnsford is the laboratory's Senior Technicish, and he acts in a direct supervisory capitally over the actual headling of the radioastive materials in preparing doses. Captain G. Gertenlaub, MD, NC, USE, the Hospital's Origin of Radiology, occasionally uses byproduct material for patient transmit under the direction of Commander Burkla, Captain George Stocker, Assistant Chief of Radiology, also occasionally works with Gartislaub in using byproduct materials.

Hash use of hyproduct material for therapy must fireline thoroughly reviewed and approved by either the Hospital's Tumor Head or the Head and Heck Board. After this, the therapy treatment must also be reviewed and approved by the Respital's Radioisotoms Committee. The Radioisotope Committee is composed of the Chiefs of Radiology, Surgery, and Laboratories, plus the Technical and Cliffical Heads of the Radioisotope Laboratory. The personnel presently holding these positions are, respectively, Captain Gartenland Daptain Timmes, Captain Sarkisian, Commander Burkle, and Captain Dudling Work with X-ray units and radius sources is separate from that involving hyproduct materials, and the two radiologists mentioned above who occasionally use hyprodust materials are the only personnel reported to participate in both activities. Endley asts as RSO for the work with licensed materials in the Radiologope Laboratory and is responsible for placing orders and ensuring that license limits are not exceeded. Burkle and Budley have had a number of years experience in warking with radioactive materials and other radiation sources. Bransford has had about seven years full-time on-the-job experience in isotope work. He book courses and later taught at the Haval Hespital in Bethesda of uses of radiotectopes and radiation safety. All of the Radiologope Laboratory technicians were reported to have taken an eight months training course at the Bethesda Haval Hospital.

#### 10. Facilities and Uses of Byproduct Material

Pacilities of the Radioisotope Laboratory at the Statibans Hospital include several rooms used for administration of diagnostic doses and performance of up-take studies, plus a combined counting room and let laboratory, which is equipped with isotope handling fune hoods and a shielded storage closet. Remote handling tongs, plastic shielding for strong beta emitters, lead shielding, absorbent paper, and spill-catch trays were noted to be smallable and reported to be routinely used in handling procedures in the hot laboratory.

Materials on hand at the time of the 9/14/59 inspection visit included 165 us I-131 as triolein, 5 us I-131 as diodrist, 5 ms I-131 as RISA, 8.3 ms Au-198, 250 us Gr-51, 9.5 us Go-60 as Vitamin B12, 720 us B-3 as thymadine, 5 ms I-131 as iodide, and 46 ms Sr-90 in an eye applicator. In 1958, radioisotope diagnosis was reportedly performed on 3,192 patients, with 52 patients receiving therapeutic doses of hyprodust materials. Gurrent usage was described as involving about 250 diagnostic studies and one therapeutic application per month. Animal studies were also performed involving several dosen rabbits and dogs during the past year. The animal work has been performed by Commander Burkle and has mainly involved studies with I-90 and Au-198. Nost of the animal work was schousted with a maximum of 10 us I-90 or Au-198 given per animal. The experiment was reported to have involved application of 10 ms Au-198 per week for 14 weeks to a dog.

Iodine-IN as iodide has been routinely prosured at a rate of 5 mo per week for the diagnostic studies. Therapy doses are prosured individually as needed. IHM is used less frequently. Iodine-IN as rose bengal has been used at a rate of about 5 me per year, with none currently in use. Iodine-IN as triolein and/or eleic acid is procured and used at the rate of two shipments of 2 me each per month. Iodine-IN as diodrast has been used occasionally, with only four shipments of one to two me, each having been procured. Occasional use is also made of I-IN as mickon. P-IN as a soluble phosphate has been procured and used at the rate of the shipments of 10 me each in the past two years, Y-90 is being presured and used at the rate of 100 me per two weeks. Only one suppose that has been procured and used in 1959. Ha 22 has been procured and used in 1959. Ha 22 has been procured and used in insect to the extent the three shipments of \$10.7 me each in

the past two years. Hine shipments of 2 to 5 mc each of 0r-51 have been presured and used in the past two years. Four shipments of 10 us each of 0-60 as Vitamin Bi2 have been prosured and used in the past two years. Two shipments of 250 us each of H-3 is a gas have been presured and used in the past two years. Five shipments of 250 us each of Fe-59 have been obtained and used in the past two years. Occasional shipments no more than a few hundred milliouries Au-198 have been obtained and used.

No uses are being made of L-131 as Urcken, L-131 as filedothyronine, P-32 as solloidal chromic phosphate, Ga-72, As-74, Uria, S-35, Ga-45, Hg-203, or En-65. All uses were confirmed to be as a modified in Item 9 of amendment 7 of the license.

The major amounts handled were noted to be of Y-90, 2011, P-32, and Au-198. Fatient therapy with I-131 was reported to amount to a maximum of 8 mc per patient; P-32, 5 mc per patient and Au-198, 50 mc per patient. Considerable work is being done ith Y-90 in several treatment applications. A maximum of 30 mc 190 per patient has been administered intraperitencelly as a substitute for similar use of Au-198. About four patients per year have been administered intravenously to treat blood conditions in place of 32. I-90 as an oxide has been obtained from BML about six times if year in amounts of 100 mc each. This material has been made into tissue soluble filaments for tumor therapy. About 15 mc hat been implanted per patient in these filaments. This is the only material which has not been obtained from Abbett or Squibb. Budley sported that the yttrium made was checked by BML for assay, but that so independent assays of the material had been performed. Budley forther reported that arrangements were being made to obtain this material from Squibb in the future in a pre-assayed form.

#### 11. Thulima Rediography Sources

At the time of the 4/2/59 inspection visit, it was need that some Tm-170 radiography sources were in storage at the Healtal in a room located behind the million-volt K-ray facility. The purces were stored in a heavy metal each within a wooden shipping hox. The only label on the shipping box was an HG label which indicated the activity of the sources to be 16 suries. A shipping potice within the shipping box indicated that the sources were shipped from HHL to St. Albans Hospital, attention of Dr. Dudley, on 121/55.

Dudley said that the eask contained six Tm-170 sources and that this material was being stored for the Army installation of Pt. Totten in Queens according to special arrangement between the large and Dudley. Budley stated during this visit that he was merely string the material for the Army and that he expected the Army to attend in its disposal shortly. Budley said that this material was procured under a license issued to the Army naming Dudley as responsible usery but that he thought that this license had since expired. It was boted that License 11-76-1, which was issued to St. Albans Hospital on 3/16/56 and which expired on 3/31/58, authorized the Hospital to receive, store and load six Tm-170 sources of 20 curies each into specially designed lead shields for use as pertable field I-ray mits for redistribution to other AEC licensed Armed Forces installations.

Duriley stated during this first visit that he had recently checked the radiation level on the outside of the cask and sound it to be about 20 mm/hr at the surface of the wooden shipping case. This radiation level was confirmed by the inspector during the first visit using a recently calibrated Busicar Measuremaks Corporation Model GS-2 GM survey meter. NIOO \$5588.

Buring the second inspection visit on \$4/14/59, Bulley reported that he had arranged for transfer of these sources to BEL about 7/5/59. He stated that this transfer was made in emperation with the U.S. Army Experimental Laboratory at Ft. Tetter. St. Albans Hospital personnel and truck were used to make the transfer.

#### 12. Instrumentation

The Maval Hospital is a disaster control center and as such, maintains an inventory of 50 survey instruments of all types. In addition, two Mavy-type hand-and-foot laboratory menters are available. All these instruments are maintained by the Mavy and are calibrated and checked each six months. One of the instruments from this pool are kept on hand in the radiction ope facilities. The instruments used by the Endicisctope Laboratory arrownel are equipped with end window GM probes and have ranges from 0 - .5 mr/hr up to 0 - 500 mr/hr.

#### 13. Radiological Safety Precautions and Procedures

All technicians handling radiotectopes have received formal instruction in handling techniques and safety precautions. Additional instructions for specific operations have been issue has considered appropriate. No written general safety procedures have been drawn up.

Rubber glaves and lab coats are routinely worn during preparation and administration of doses. Notes curveys are performed for all handling operations with therapeutic doses. These surveys were described to be of an informal nature, and no records are maintened of the measurements. Testope handling operations at the Hospital we been evaluated as involving little hazard, but no records have been maintained of these evaluations. Dudley was mare of the very high dose rates associated with unshielded milliourie amounts of I-dia His described handling techniques indicated that he relied on an air separation of only about one foot between his hands and the open-targed beaker in which up to 100 mc of I-90 would be incorporated into filaments. Budley stated that he had also mailtored his hands maintainally with wrist film badges, but specific records of these evaluations were not available.

Builey reported no major spills to have occurred analysis minor spills wave cleaned up with no difficulty. Sheets sail other bed clothing of patients being treated with Au-198, and 190 are monitored before laundaring. If contamination is foundable sheets are stored in the hot laboratory storage area for all less six half-lives before being sent to the laundry.

The 40 st 3r-90 eye applicator was stored in a cabine in one of the treatment rooms in the radiolshops laboratory. The applicator was obtained from Tracerlab in 1955. Seither the applicator's storage box new the applicator itself had a label bearing a sandard radiation symbol se information as to type, amount or date of them. Both the applicator and its storage box hore labels saying whation - Radiometricity. Dudley stated that the eye applicator had not been lack tested for about three years and that it had no been used during 1958, although it was used on one or two occasions early in 1959. Buring the 4/2/59 inspection visit, the recess in the storage case which accepts the 3r-90 capsule was surveyed for contamination using an end-window GM survey meter, but no contamination was observed. During the 9/14/59 visit, Dudley reported in new leak tests to have been performed or uses made of the unit.

#### 14. Storage and Security

Byproduct material was noted to be stored in a refrigerator in the administration room, on shelves in a closet off the ministration room, and in the hot lab, withall these areas local fraithin the Radioiseispe Laboratory. Entrances to these storage greas were reported to be kept locked when the department personnel were not present and supervising the areas.

#### 15. Maste Disposal

Radicastive wastes are routinely disposed of by storing for decay. Residual metivities in original shipping containers to routinely stored for about six months. Let level solutions at eventually released in soluble form to the sanitary severage sy am. Brain disposals were reported by Dudlay to have never exacted a total of one no is any one day. Careassas of animals used in larger experiments are disposed of by burning in the Hospital's influentary. Ho nore that a few microsuries are reportedly involved a such disposals. The careass of a dog which had received 10 m Au-198 per week for 14 weeks was disposed of by burial.

#### 16. Posting and Labeling

As noted previously in Item 13 of report details, the 18-90 eye application and its storage container were not labeled as required by Part 28. A bottle containing 900 us Au-198 and a find in the refrigeration in the dose administration room was noted to lack a label saying "Caution - Radioactive Materials" and attendaying a standard grabol, although information was included in the container stabel as to type, amount and date of assay the contents. Several other containers were also noted to like labels which fully complied with the Regulations of Part 20 shough most containers noted were observed to be properly labeled. Areas of use and storage were noted to be properly posted with addioactive unterials mution signs.

#### 17. Personnel Monitoring

Personnel monitoring is accomplished by use of fire badges which the Byal Hospital supplies and processes itself. The Haval Hospital obtains dental-type file from Dupont and processes a personnel monitoring service for Haval familities and fleet mits operating in the Atlantic coastal area. The Hospital processes its own films and uses calibration charts supplied by the manufacturer. Films are developed under standardised conditions along with control badges. One chest badge and one wrist badge are magalied to each radiofsetope worker. Exposure records showed a maximum of a few hundred mr/month to the badges for the past severe years.

#### 18. Records

Detailed records are maintained of procurements, it mentories, and uses. Records are also maintained of film bedge results. No records here available for surveys, leak test results, or any disposals other than for the buriel of one experiments, animal.

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## COMPLIANCE INSPECTION REPORT

Batted States Savel Scotted.  See Albana 25, See York  License number(*), issue and expinsion dates, sope and conditions (including amendments)  License number(*), issue and expinsion dates, sope and conditions (including amendments)  License number(*), issue and expinsion dates, sope and conditions (including amendments)  License number(*), issue and expinsion dates, sope and conditions (including amendments)  License number(*), issue and expinsion dates, sope and conditions (including amendments)  License number(*), issue and expinsion dates, sope and conditions (including amendments)  License number(*), issue and expinsion dates, sope and conditions (including amendments)  License number(*), issue and expinsion dates, sope and conditions (including amendments)  License number(*), issue and expinsion dates, so the condition of the condition of the condition of the conditions, and the conditions of the conditions, and in the conditions of the conditions, and in the conditions of the conditions, and expinsion of the labelete.  License is an including and expinsion of the labelete. Localization of particular of the labelete. Localization of particular dates are conditions, and expinsion of the labelete. Localization of particular dates are conditions, and expinsion of the labelete. Localization of particular dates are conditions, and expinsion of the labelete. Localization of particular dates are conditions, and expinsion of the labelete. Localization of particular dates are conditions. The conditions of appropriate particular dates are conditions, and expinsion particular dates are conditions. The condition of appropriate particular dates are conditions, and appropriate are conditions. The conditions are conditions and appropriate particular dates are conditions. Separate familiar and expensive for many particular are conditions, and expinsion particular are	1. Name and addre	ss of licensee			2. Date of inspection		. %
The control of the co	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		*		April 2, 199	(L.R. Allens	) and
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8. Is "Company Confidential" information contained in this report? Yes No Security page(s) and paragraph(s))  Bease.  Distribution:  Richard S. Gleveland  (Inspector)  Approved by:  Richard S. Gleveland  (Operations office)  (Operations office)		1 38 K N				(G ( T + T )	
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#### ITEM 5 (CONT'D)

Ligense No. Date

Exp. Date

31-76-4 amend. 7

- SCOPE: J. 36 mm of P-32 as colloidal chromic phosphate for intracavitary treatment of malignant pleural and peritoneal affusions and ascites. Interstitial treatment of tumor
  - K. 900 mc of Y-90 as exide and/or chloride for intracavitary treatment of malignant serous effusions. Treatment of carcinoma of the bladder. Preparation of soluble filaments and implantation of the filaments in tumors. Tissue distribution and excretion studies on terminal cancer patients. Treatment of polycythemia vers and leukemia.

L. 100 ms of K-42 as earbonate for determination of total emchangeable body potassium.

M. 10 ms of Re-24 as carbonate for determination of sodium space, circulation times, and cardiae output.

N. 10 mc of Cr-51 as ebromate and/or chloride for determination of red cell mass and red cell survival times.

O. 100 me of Ga-72 as oxide for tracer studies to determine chronic osteomyelitis, healing of fractures, and bone lesions.

P. 50 us of Co-60 as Vitamin B-12 for diagnosis of permisious

anemia. Q. 15 me of As-74 as chloride for localization of brain tumors.

R. 5 mc of C-14 as carbonate for metabolism studies.

5. 5 ms of H-3 as gas for metabolism studies.

T. 3 mc of Te-59 as chloride for diagnosis of hematologic disorders.

U. 5 mc of S-35 as sulfate for determination of body water.

V. 2 ms of Ca-45, any form, for laboratory studies in lower animals.

W. 3 ms of Hg-203 in any form for laboratory studies in lower animals.

X. 3 ms of Zn-65 in any form for laboratory studies in lower animals.

Y. 850 ms of Au-198 as colloidal for intracavitary treatment of pleural and peritonnal effusions and ascites. Liver blood flow studies.

3. 40 mm of 3r-90 as Transrlab Model RA-IA scaled medical applicator for treatment of tumors of the cyclids, conjunctive, corneal vascularization, vernal catarrh, and chronic infection of the lids and conjunctive.

SCHDITIONS: Al-Compliance with Part 20. \$12-The use of hyproduct material is humans shall be by, or under the direct supervision of Commander J. S. Burtle, M., USH, or Captain C. Carteniants, M., USH. Byproduct material may also be used, not in humans, by or under the direct supervision of, Captain H. C. Dellay, NSJ, USH, All-Byproduct material asquired from an Adenia Backyr Commission facility shall not be used in humans until its pharmaceutial quality shall not be used in humans until its pharmaceutial quality shall not be used in humans with its pharmaceutial quality shall not be ested for leakings and contamination at humans shall not be epomed; Al-Byproduct material as scaled source containing Standard shall not have the first and records of test results shall be maintained by the licenses. The leak test whill be partorned by Saptain H. S. Bulley, Al-Fotal mount of Refresson 3 (tritium) attracted miller this license shall not appear 100 ms.

#### ITEM 6 (CONT'D)

- License Condition 15
  - in that leak tests have not been performed and records of results maintained. (See Item 13 of report details.)
- 20.203 (f)(1) and (4)
   in that storage containers were not all labeled with radiation symbol, radioactive materials warning, and information as to type, amount, and date of assay of contents. (See Items 13 and 16 of report details.)
- 20.305
  - in that careasses of animals used for radioisotope experiments are routinely disposed by incineration without specific Commission approval. (See Item 15 of report details.)
- 20.401 (e)
  - in that records of surveys and records of disposals by incineration and release to the severs have not been maintained. (See Items 18 and 15 of report details.)
- 30.3
  - in that the ligenses possessed Tm-170 and H-3 as thymedine without holding a valid license authorising such possession. (See Item 11 of report details.)

#### PART 30 INSPECTION

UNITED TATES MAY, DEPT. OF United States Mayal Hospital St. Albans 25, New York

Dates of Inspection: April 2, 1959 (L.R. Adams) and September 14, 1959 (R.S. Cleveland) Both pre-announced.

Persons Accompanying Inspector:

None.

Persons Contested (April 2, 1959)

Captain H. C. Budley, PhD, M9C, USH

Persons Contacted (September 14, 1959):

Captain H. C. Malley, PhD, MSC, USE Commander J. S. Burkle, Clinical Head, Radioisotope Lab. Charles L. Brankford, Hospitalman First Class, USE, Senior Technician

#### DETAILS

#### 9. Organization and Administration

The 9t. Albans Raval Hospital uses byproduct materials in a number of diagnostic and therapeutic medical applications and in research studies. Materials are used in the Hospital's Radioisotope Laboratory. Commander J. S. Burkle, M.D. is the Clinical Head of this Laboratory, while Captain Dudley is the Technical Director of the Laboratory. These two officers are the principal users of hyproduct materials at the Hospital. They are assisted in this work by six enlisted Navy pursonnel. C. L. Bransford is the laboratory's Senior Technician, and he acts in a direct supervisory capacity over the actual handling of the radioactive materials in preparing doses. Captain C. Gartinlaub, MD, MC, USE, the Hospital's Chief of Radiology, occasionally uses byproduct material for patient treatment under the direction of Cumander Burkle, Captain George Stocker, Assistant Chief of Radiology, also occasionally works with Cartenlaub in using byproduct materials.

Rach use of bygrodust material for therapy must first be thoroughly reviewed and approved by either the Hospital's Tumor Board or the Head and Neck Board. After this, the therapy treatment must also be reviewed and approved by the Hospital's Radioisotope Committee. The Radioisotope Committee is composed of the Chiefs of Radiology, Surgery, and Laboratories, plus the Technical and Clinical Heads of the Radioisotope Laboratory. The personnel presently holding these positions are, respectively, Captain Cartenlaub, Captain Timmes, Captain Sarkisian, Commander Burkle, and Captain Dudley.

Work with K-ray units and radium sources is separate from that involving hyproduct materials, and the two radiologists mentioned above who occasionally use hyproduct materials are the only personnal reported to participate in both activities. Dudley acts as R30 for the work with licensed materials in the Radinisotope laboratory and is responsible for placing orders and ensuring that license limits are not exceeded. Burkle and Dudley have had a number of years experience in working with radioactive materials and other radiation sources. Bransford has had about seven years full-time on-the-job experience in isotope work. He took courses and later taught at the Maval Hospital in Bethesda in uses of radioisotopes and radiation safety. All of the Radioisotope Laboratory technicians were reported to have taken an eight months training course at the Bethesda Maval Hospital.

#### 10. Facilities and Uses of Byprodust Material

Facilities of the Radioisotope Laboratory at the St. Albans Hospital include several rooms used for administration of diagnostic doses and performance of up-take studies, plus a equipmed counting room and hot laboratory, which is equipped with isotope handling fuse heads and a shielded storage closet. Remote haddling tongs, plastic shielding for strong beta emitters, lead shielding, absorbent paper, and spill—catch trays were noted to be smallable and reported to be routinely used in handling procedures in the hot laboratory.

Materials on hand at the time of the 9/14/59 inspection visit included 165 us I-131 as triolein, 5 us I-131 as diodyset, 5 ms I-131 as RISA, 8,3 ms Au-198, 250 us Gr-51, 9.5 us Go-60 as Vitamin H12, 720 us H-3 as thymsdine, 5 ms I-131 as iodide, and 40 ms Sr-90 in an eye applicator. In 1958, radioisotope diagnosis has reportedly performed on 3,192 patients, with 52 patients receiving therapeutic doses of hyproduct materials. Gurrent usage was described as involving about 250 diagnostic studies and one therapeutic application per month. Animal studies were also performed involving several doses raphits and dogs during the past year. The animal work has been performed by Gommander Burkle and has mainly impolved studies with I-90 and Au-198. Most of the animal work was equivated with a maximum of 10 us I-90 or Au-198 given per animal. One experiment was reported to have involved application of 10 ms Au-198 per week for 14 weeks to a dog.

Iodine-131 as iodide has been routinely procured at a rate of 5 ms per week for the diagnostic studies. Therapy doses are procured individually as needed. IRSA is used less frequently. Iodine-131 as rose bengal has been used at a rate of about 5 ms. per year, with none currently in use. Iodine-131 as triolein and/or cleic acid is procured and used at the rate of two shipments of 2 ms each per month. Iodine-131 as diodrast has been used occasionally, with only four shipments of one to two ms. each having been procured. Occasional use is also made of I-131 as mickon. P-32 as a soluble phosphate has been procured and used at the rate of five shipments of 10 ms each in the past two years. I-90 is being procured and used at the rate of 100 ms per two weeks. Only one shipment of about 100 ms K-42 has been procured and used in 1959. Na-24 has been procured and used in 1959. Na-24 has been procured and used in 1959.

the past two years. Hine shipments of 2 to 5 mc each of Cr-51 have been procured and used in the past two years. Four shipments of 10 us each of Co-60 as Vitamin B12 have been procured and used in the past two years. Two shipments of 250 us each of H-3 as a gas have been procured and used in the past two years. Five shipments of 250 us each of Fe-59 have been obtained and used in the past two years. Occasional shipments no more than a few hundred millicuries au-198 have been obtained and used.

Ho uses are being made of I-131 as Urckon, I-131 as Writodothyronine, P-32 as colloidal chromic phosphate, Ga-72, As-74, G-14, S-35, Ga-45, Hg-203, or In-65. All uses were confirmed to be as specified in Item 9 of amendment 7 of the license.

The major amounts handled were noted to be of I-90, I-131, P-32, and Au-198. Patient therapy with I-131 was reported to amount to a maximum of 8 mc per patient; P-32, 5 mc per patient; and Au-198, 50 mc per patient. Considerable work is being done with I-90 in several treatment applications. A maximum of 30 mc I-90 per patient has been administered intraperitoneally as a substitute for similar use of Au-198. About four patients per year have been treated this way. A maximum of 20 mc per patient I-90 has also been administered intravenously to treat blood conditions in place of I-32. I-90 as an oxide has been obtained from BML about six times per year in amounts of 100 mc each. This material has been made into tissue soluble filaments for tumor therapy. About 15 mc has been implanted per patient in these filaments. This is the only material which has not been obtained from Abbott or Squibb. Bulley reported that the yttrium exide was checked by BML for assay, but that he independent assays of the material had been performed. Bulley further reported that arrangements were being made to obtain this material from Squibb in the future in a pre-assayed form.

#### 11. Thulium Radiography Sources

At the time of the 4/2/59 inspection visit, it was nated that some Tm-170 radiography sources were in storage at the Hospital in a room located behind the million-volt X-ray facility. The sources were stored in a heavy metal cask within a wooden shipping box. The only label on the shipping box was an EC label which indicated the activity of the sources to be 10 suries. A shipping motice within the shipping box indicated that the sources were shipped from EML to 9t. Albans Hospital, attention of Dr. Dudley, on 7/21/55.

Dudley said that the cask contained six Tm-170 sources and that this material was being stored for the Army installation at Ft. Totten in Queens according to special arrangement between the Army and Dudley. Dudley stated during this visit that he was merely storing the material for the Army and that he expected the Army to attend to its disposal shortly. Dudley said that this material was procured under a license issued to the Army naming Dudley as responsible user; but that he thought that this license had since expired. It was noted that License 31-76-1, which was issued to St. Albans Hospital on 3/16/56 and which expired on 3/31/58, authorized the Hospital to receive, store and load six Tm-170 sources of 20 curies each into specially designed lead shields for use as portable field I-ray units for redistribution to other AEC licensed Armed Forces installations.

Dudley stated during this first visit that he had recently checked the radiation level on the outside of the cask and found it to be about 20 mm/hr at the surface of the wooden shipping case. This radiation level was confirmed by the inspector during the first visit using a recently calibrated Nuclear Measurements Corporation Model GS-2 GM survey meter, NIOO #5588.

During the second inspection visit on 79/14/59, Dudley reported that he had arranged for transfer of these sources to ERL about 7/5/59. He stated that this transfer was made in cooperation with the U.S. Army Experimental Laboratory at Ft. Totten. St. Albans Hospital personnel and truck were used to make the transfer.

#### 12. Instrumentation

The Naval Hospital is a disaster control center and, as such, maintains an inventory of 50 survey instruments of all types. In addition, two Navy-type hand-and-foot laboratory monitors are available. All these instruments are maintained by the Navy and are calibrated and checked each six months. One or two instruments from this pool are kept on hand in the radioisotope facilities. The instruments used by the Radioisotope Laboratory personnel are equipped with end window QM probes and have ranges from 0 - .5 mm/hr up to 0 - 500 mm/hr.

#### 13. Radiological Safety Precautions and Procedures

All technicians handling radioisotopes have received formal instruction in handling techniques and eafety precautions. Additional instructions for specific operations have been issued as considered appropriate. No written general safety procedures have been drawn up.

Rubber gloves and lab coats are routinely worn during preparation and administration of doses. Meter surveys are performed for all handling operations with therapeutic doses. These surveys were described to be of an informal nature, and no records are maintained of the measurements. Isotope handling operations at the Hospital have been evaluated as involving little hazard, but no records have been maintained of these evaluations. Dudley was aware of the very high dose rates associated with mishielded millicurie amounts of I-90. His described handling techniques indicated that he relied on an air separation of only about one feet between his hands and the open-topped beaker in which up to 100 mm of I-90 would be incorporated into filaments. Dudley stated that he had also monitored his hands occasionally with wrist film badges, but specific records of these evaluations were not available.

Dudley reported no major spills to have occurred and that minor spills were cleaned up with no difficulty. Theets and other bed clothing of patients being treated with Au-198, and Y-90 are monitored before laurisaring. If contamination is found, the sheets are stored in the bot laboratory storage area for at least six half-lives before being sent to the laundry.

The 40 mc 3r-90 eye applicator was stored in a cabinet in one of the treatment rooms in the radioisotope laboratory. This applicator was obtained from Tracerlab in 1952. Neither the applicator's storage box nor the applicator itself had a label bearing a standard radiation symbol or information as to type, amount or date of assay. Both the applicator and its storage box bore labels saying "Caution - Radioactivity". Radiey stated that the eye applicator had not been leak tested for about three years and that it had not been used during 1958, although it was used on one or two occasions early in 1959. During the 4/2/59 inspection visit, the recess in the storage case which accepts the 3r-90 capsule was surveyed for contamination using an end-window GM survey meter, but no contamination was observed. During the 9/14/59 visit, Dudley reported no new leak tests to have been performed or uses made of the unit.

#### 14. Storage and Security

Byproduct material was noted to be stored in a refrigerator in the administration room, on shelve? in a closet off the administration room, and in the not lab, with all these areas located within the Radioisotope Laboratory. Entrances to these storage areas were reported to be kept locked when the department personnel were not present and supervising the areas.

#### 15. Waste Disposal

Radicactive wastes are routinely disposed of by storing for decay. Residual activities in original shipping containers are routinely stored for about six months. Low level solutions are eventually released in soluble form to the sanitary sewerage system. Drain disposals were reported by Dudley to have never exceeded a total of one me in any one day. Carcasses of animals used in tracer experiments are disposed of by burning in the Hospital's incinerator. No more than a few microcuries are reportedly involved in such disposals. The carcass of a dog which had received 10 me Au-198 per week for 14 weeks was disposed of by burial.

#### 16. Posting and Labeling

As noted previously in Item 13 of report details, the T-90 eye applicator and its storage container were not labeled as required by Part 20. A bestle containing 900 us Au-198 and stored in the refrigerator in the dose administration room was noted to lack a label saying "Caution - Radioactive Materials" and displaying a standard symbol, although information was included in the container's label as to type, amount and date of assay of the container's label as to type, amount and date of assay of the container's habit containers were also noted to lack labels which fully complied with the Regulations of Part 20, though most containers noted were observed to be properly labeled. Areas of use and storage were noted to be properly posted with radioactive materials caution Signs.

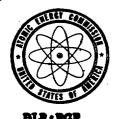
#### 17. Personnel Monitoring

Personnel monitoring is accomplished by use of film badges which the Naval Hospital supplies and processes itself. The Naval Hospital obtains dental—type film from Dupont and provides a personnel monitoring service for Naval facilities and fleet units operating in the Atlantic coastal area. The Hospital processes its own films and uses calibration charts supplied by the manufacturer. Films are developed under standardized conditions along with control badges. One chest badge and one wrist badge are supplied to each radioisotope worker. Exposure records showed a maximum of a few hundred mr/month to the badges for the past several years.

#### 18. Records

Detailed records are maintained of procurements, inventories, and uses. Records are also maintained of film badge results. No records were available for surveys, leak test results, or any disposals other than for the burial of one experimental animal.

separates



# UNITED STATES ATOMIC ENERGY COMMISSION WASHINGTON 25, D. C.

Commanding Officer V. S. Neval Hospital St. Albans, New York

Boar Siz:

This refers to the inspections conducted on April 2 and September 14, 1959, of your activities authorized under ABC Byproduct Material License No. 31-76-4.

It appears that certain of your activities were not conducted in full compliance with conditions of your license and the requirements of the AEC's "Standards for Protection Against Rediction," Part 20, and "Licensing of Byproduct Material," Part 30, Title 10, Code of Federal Regulations, in that:

- 1. The Yetrium 90 procured from Breckhaven Hational Leberatory was not independently assayed by the Haval Hospital prior to administering to humans. This constitutes a violation of Condition No. 13
- 2. The Hospital's byproduct material inventory included approximately 720 microcuries of Hydrogen 3 as thymadine without a valid ASC license. This constitutes a violation of Section 30.3, "License requirements." Condition Nos. 78, 88 and 98 of License No. 31-76-4 authorise only the possession and use of 5 millicuries of Hydrogen 3 gas for metabolism studies.
- 3. The 40 milliourie Strontium 90 medical applicator was not lask tested as required by Condition No. 15 of your license.
- Animal carcasses centaining byproduct material were incinerated without specific Commission approval as required by Section 20.363, "Treatment or disposal

RESISTED MAIL RESISTED HALL by incineration." Also, no pocords showing the types and quantities of hyproduct natorial disposed were kept as required by Section 30.41(a), "Records."

- 5. The bex in which the Strentium 90 medical applicator was stored was not labeled as required by Section 20.203(f)(1) and (f)(4), "Coution signs, labels and signals." In addition, the applicator itself was not labeled as required by Section 20.203(f)(1). Also, several other containers of hyproduct meterial stored in the radioisotope laboratory were not labeled as specified in Sections 20.203(f)(1) and (f)(4).
- 6. We survey records were maintained as required by Section 20.401(c), "Records of surveys, radiation mentering and disposal."
- 7. To records showing the types and quantities of byproduct notesial paleaced into the against success.

  System was middlighted by sequent by Section

  20.401(c), "Records of surveys, radiation menturing
  and disposal."
- 8. At the time of the inspection on April 2, 1959, the Boopital pessessed approximately 10 curies of Thulium 170 without a valid AEC license, in violection of Section 30.3, "License requirements." This material was dispessed of prior to the inspection on September 14, 1939.

With regard to Itsus 1 through 7, you are requested, pursuant to the provisions of Section 2.201(a), "Notice of violation," of the ARC's "Rules of Practice," Part 2, Title 10, Gods of Federal Regulations, to notify this office, within thirty days of your receipt of this notice, of the steps taken or to be instituted to achieve correction of the alleged violations and the date when such correction has been or will be achieved.

If you wish you may subult an application to amond License No. 31-76-4 authorizing you to pessess and use Hydrogen 3 as thymedian and incinerate your hyproduct asterial watton. Forms ADS-313 are enclosed for this purpose. The information to be subuitted with an application to incinerate is specified in our enclosure, "Information Required for Countesian Approval of Tractment or Bisposal by Incineration."

Very truly yours,

Jenes B. Meson, Chief Lootopes Branch Division of Licensing and lingulation

- 10 CHE 20

- Porms ASC-313
- Incineration Outline
- Captain Paul 7. Miches, Jr. (MC) Director, Special Measure Defease Division Code: 74

separates