

RADIOISOTOPE COMMITTEE
2nd General Hospital, APO 180

Minutes of the Meeting, 26 June 64

MEMBERS PRESENT;

Colonel John A. Sheedy, Chief, Department of Medicine
Major Edward J. Huycke, USA Medical Research Unit, Europe
Major Thomas A. Verdon, Chief, Radioisotope Clinic
Captain John W. Bloxdorf, Asst. Chief, Pathology Service,
for Major Louis Johnson
Captain Lee F. Rogers, Radiologist,
for Colonel Charles Green

ALSO PRESENT:

Lt. Colonel George B. Hamilton, Chief, Gastroenterology Service
Captain Clement E. Marks, Preventive Medicine Officer

1. The quarterly meeting of the Radioisotope Committee, 2nd General Hospital, APO 180, U. S. Forces, was held on 26 June 64, 1300 hours, Col. Sheedy presiding, pursuant to AR 40-37.
2. Major Thomas A. Verdon was appointed the Radiation Protection Officer as specified by AR 40-37.
3. Liquid and Solid wastes containing radioactivity, whether collected from hospitalized patients that have undergone radioisotopic therapeutic procedures or from the Radioisotope Clinic itself (shipping vials, syringes and needles that have contained radioisotopes, etc.), are transported to and disposed of by the Radioactive Waste Disposal Section, Kaiserslautern General Depot, APO 227. These wastes (liquid wastes in plastic bottles with screw-on lids and solid wastes in cardboard boxes sealed with tape) will be transported in a vehicle, 2nd General Hospital, under the direction of the NCOIC, Radioisotope Clinic, to the Radioactive Waste Disposal Section, Kaiserslautern General Depot, APO 227. Such trips will be made every three to four months as deemed necessary. The personnel of this Section will then appropriately package these wastes in radioisotopically secure steel and cement drums. These drums are transported by Army trucks to Bremerhaven where the drums are placed on a ship. The ship drums the drums in a designated area in the North Sea. This method of disposal was noted and approved.
4. A detailed presentation concerning the amount of radioactive waste that enters the sewage from LAMC each day was presented, (see Annex I, II and III). The fact that the radioactive waste generated by the 2nd General Hospital is well within the safety limits established by German Law was explained in detail by Major Huycke. It was further noted that the disposal of radioisotopes into sewage of LAMC could be increased forty times without exceeding the maximum safety factors for contamination of sewage with radioactive wastes.

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5. Captain Rogers requested leak tests be performed on the Strontium-90 therapy rods in the Radiology Service. These rods will be entered on the inventory of the Radioisotope Clinic, but will remain in the Radiology Service, Ward 9A. Wipe Tests of these rods will be performed twice yearly by US Army Nuclear Medical Research Detachment, Europe, APO 180. Request was noted and approved.

6. A recommendation was put forth that the Standard Operating Procedures for the Radioisotope Clinic be revised sufficiently to become Hospital Regulations. This will be investigated by personnel of the Radioisotope Clinic. The recommendation was approved by the committee.

7. The meeting was adjourned at 1430 hours, subject to call by the Chairman within the next calendar quarter.

William A. Collins
WILLIAM A. COLLINS
Colonel, MC
Chief, Professional Services

ANNEX I

Description of Sewage Effluent from LAMC

The Landstuhl City Sewage Plant is owned by the US Army. City of Landstuhl employees operate the plant. The average daily flow of sewage through the plant is 639,000 gallons per day determined by a flow meter. It is estimated that 2/3 of the flow is from the city of Landstuhl and 1/3 from Landstuhl Army Medical Center. The plant has a grit chamber followed by a settling tank. The sewage is then treated by one of three trickling filters and then flows into a final clarifier. From here the liquid is discharged into a small stream nearby*. The sewage in the settling basin and the clarifier is pumped to one of three digestors. From here it is spread onto sludge drying beds. Final disposal is accomplished by giving it to farmers or hauling it to the Landstuhl City Dump. Settlings from the grit chamber are disposed of by hauling it to the Landstuhl City Dump.

* The stream is very sluggish, and the dilution of sewage in the stream should be considered insignificant.

Prepared and Reviewed by:

Major Robert Ligo, MC
Epidemiology Section
USAREUR Medical Laboratory

Captain Element Marks, MC
Preventive Medicine Officer
Kaiserslautern Medical Service Area

2/Lt Richard Sauer, MSC
Sanitary Engineer
Kaiserslautern Medical Service Area

ANNEX II
 RADIOISOTOPE CLINIC, 2nd GENERAL HOSPITAL
 Fiscal Year 1964

| DIAGNOSTIC TESTS: | A | B | C | D | E | F | G | H | I |
|------------------------------|--------------------------|-----------------|-----------------------------|---------|----------------------------|----------------------------|-------------------------------|--------------------------|---------------------------------|
| Isotope | Physical Half-life, days | % of Tests Done | Approx. % of Hosp. Patients | (C x D) | % Tests Done on Hosp. Pts. | Amount Admin. for Test, mc | Total mc Admin. to Hosp. Pts. | % Admin. mc Excreted/day | mc Excreted per day (G x H)/200 |
| Thyroid uptake | I-131 | 8.1 | 733 | 20 | 147 | 15 | 2210 | 30 | 8.8 |
| Thyroid scan | I-131 | 8.1 | 431 | 10 | 43 | 60 | 2390 | 30 | 11.5 |
| Renogram | I-131 | 8.1 | 249 | 50 | 125 | 5 | 625 | 100 | 3.1 |
| Adsorptive study | I-131 | 8.1 | 101 | 90 | 90 | 60 | 5400 | 50 | 13.5 |
| Renal scan | Hg-203 | 48 | 70 | 50 | 35 | 200 | 7000 | 50 | 17.5 |
| Brain scan | Hg-203 | 48 | 13 | 100 | 13 | 700 | 12600 | 50 | 31.5 |
| Liver scan | Au-198 | 2.7 | 75 | 50 | 33 | 200 | 7600 | 0 | 0 |
| Red cell study + spleen scan | Cr-51 | 27.8 | 101 | 20 | 20 | 60 | 1200 | 5 | 0.3 |
| Eye scan | P-32 | 14.2 | 2 | 100 | 2 | 100 | 200 | 25 | 0.25 |
| Schilling test | Co-57 | 26.7 | 32 | 30 | 26 | 0.5 | 13 | 60 | 0.02 |
| Total mc excreted/day = | | | | | | | | | 86.47 |

Column C represents the diagnostic physical work load for the twelve months of Fiscal Year 1964.
 Columns D, E, G, H and I have reference only to in-patients in the hospital who undergo radioisotopic studies.
 * For calculation purposes it is assumed that isotopes are administered to patients for 200 days in a twelve month period: isotopes are administered on Monday, Tuesday, Wednesday and Thursday of each week:
 $4/7 \times 365 - 3 \text{ holidays} = 200 \text{ days}$

ANNEX III

CALCULATION OF NECESSARY SEWAGE TO CONFORM WITH GERMAN FEDERAL LAW

| | Total uc Excreted/day (See Column I) | Maximum Permissible Concentration uc/cm ³ | Required Sewage in liters |
|--------|--|---|---------------------------------|
| I-131 | 36.9 | 1×10^{-5} | 3,690 |
| Hg-203 | 49.0 | 2×10^{-4} | 245 |
| Cr-51 | 0.3 | 2×10^{-2} | 1.5 |
| P-32 | 0.25 | 2×10^{-4} | 1.25 |
| Co-57 | 0.02 | 4×10^{-3} | 0.01 |

Total liters necessary/day = 3,937.76

Average daily flow of sewage into the Landstuhl Sewage Disposal Plant equals 2,910,000 liters. Approximately 1/3 of this total, or 970,000 liters is the contribution from Landstuhl Army Medical Center. Using the calculation of 100 gallons per day per hospitalized patient: 375 patients as an average daily census, the sewage flow from the hospital itself would be 170,500 liters per day.

The radioisotopic wastes discharged into LAMC sewage could be increased forty times without exceeding the maximal allowable concentrations.