



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U. S. ARMY MEDICAL RESEARCH AND DEVELOPMENT COMMAND
FORT DETRICK, FREDERICK, MD 21702-5012



SGRD-RCQ

1 March 1994

MEMORANDUM FOR HQDA, (DASG-RDZ/MAJ BURKE), WASHINGTON, DC
20310-0103

SUBJECT: Monthly Radiation Records Search Report, Part II

1. Part I of this monthly report was dated 28 February 1994. This Part II report is the "Experiment Specific Information" for the 30 listed experiments, in Part I.

2. Reference Message, HQDA, DACS-ZA, 151600Z Feb 94, Subject: Records and Radiation Testing. This command will now submit biweekly reports starting 10 March 1994.

3. Reference 2. above, note that all of the listed experiments fall into the category (C) "Other Research -- The experiment was for another purpose (i.e., other than categories (A) or (B)), but in the course of the research project, ionizing radiation was used in accordance with a routine, diagnostic procedure." Except for #'s 26 & 30 which were medical followup studies, all the other experiments listed were physiologic studies where the isotopes used were similar in type and level of radiation exposure to that used for diagnostic procedures.

2. Experiment Specific Information:

(1) a. Title: A Clinical Study of the Efficacy of Low-Dose Dopamine Therapy in Hospitalized Burn Patients.#3M162787A874

b. Period and Location: November 1990 to present, conducted USAISR/Brooke Army Medical Center

c. Principal Investigator: WG Cioffi

d. Sponsor: USAMRDC

e. Number of participants: 6 controls, 10 burn patients

f. Purpose and Description: Volunteer subjects were infused with two radioactive tracers, 3.3 μ Ci, 99m Tc-diethylenetriamine penta-acetic acetate and 0.36 μ Ci, 131 I-hippurate for determinations of renal plasma flow and glomerular filtration rate. Study has been published as "The Renal Effects of Low-Dose Dopamine in Thermally Injured Patients". Graves, Cioffi, Vaughn, Pratt, Heironimus, McManus and Pruitt, J Trauma 35: 97-103, 1993.

g. Effects on participants: no info at this time

h. Medical/research followup: patients, hospital course, controls none required

i. Informed Consent: Yes, written

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

- (2) a. Title: Blood volume expansion and hypohydration.
b. Location: USARIEM
c. Principal Investigator: Dr. Michael N. Sawka
d. Sponsor: USAMRDC
e. Number of participants: No info at this time
f. Purpose and description: Involved the use of radioactive iodine and/or chromium to estimate plasma volume and/or erythrocyte mass.
g. Effects on participants: no info at this time
h. Medical/research followup: no info at this time
i. Informed Consent: yes, written
- (3) a. Title: Interaction of aerobic fitness and the hypohydration response during exercise-heat stress.
b. Location: USARIEM
c. Principal Investigator: Dr. Michael N. Sawka
d. Sponsor: USAMRDC
e. Number of participants: No info at this time
f. Purpose and description: Involved the use of radioactive iodine and/or chromium to estimate plasma volume and/or erythrocyte mass.
g. Effects on participants: no info at this time
h. Medical/research followup: no info at this time
i. Informed Consent: yes, written
- (4) a. Title: The role of thermal factors for metabolic adaptations to physical training.
b. Location: USARIEM
c. Principal Investigator: Dr. Andrew J. Young
d. Sponsor: USARIEM
e. Number of participants: No info at this time
f. Purpose and description: Involved the use of radioactive iodine and/or chromium to estimate plasma volume and/or erythrocyte mass.
g. Effects on participants: no info at this time
h. Medical/research followup: no info at this time
i. Informed Consent: yes, written
- (5) a. Title: Interaction of hydration and metabolic intensity on thermoregulatory responses during exercise-heat stress.
b. Location: USARIEM
c. Principal Investigator: Dr. Michael N. Sawka
d. Sponsor: USARIEM
e. Number of participants: No info at this time
f. Purpose and description: Involved the use of radioactive iodine and/or chromium to estimate plasma volume and/or erythrocyte mass.
g. Effects on participants: no info at this time

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

- h. Medical/research followup: no info at this time
- i. Informed Consent: yes, written

(6) a. Title: Hyperhydration with a glycerol solution: Effects on fluid and electrolyte balance during rest and cold/exercise exposure.

- b. Location: USARIEM
- c. Principal Investigator: CPT Beau Freund
- d. Sponsor: USARIEM
- e. Number of participants: No info at this time
- f. Purpose and description: Involved the use of radioactive iodine and/or chromium to estimate plasma volume and/or erythrocyte mass.
- g. Effects on participants: no info at this time
- h. Medical/research followup: no info at this time
- i. Informed Consent: yes, written

(7) a. Title: Effects of autologous erythrocyte infusion in sea-level residents rapidly transported to high altitude.

- b. Location: USARIEM
- c. Principal Investigator: Dr. Andrew J. Young
- d. Sponsor: USARIEM
- e. Number of participants: No info at this time
- f. Purpose and description: Involved the use of radioactive iodine and/or chromium to estimate plasma volume and/or erythrocyte mass.
- g. Effects on participants: no info at this time
- h. Medical/research followup: no info at this time
- i. Informed Consent: yes, written

(8) a. Title: A study of blood volume in soldiers sustaining injury and requiring transfusion.

- b. Location/Period: Not known (Korea?)/during Korean conflict
- c. Principal Investigator: TC Prentice, JM Olney, CP Artz, JM Howard
- d. Sponsor: not known
- e. Number of participants: 28 patients, 5 normal controls
- f. Purpose and description: Evaluation of status of patients transfused after battle injury. Subjects received erythrocytes labeled with Cr-51; dose not known, but labelling procedure given in detail. Published as "Studies of Blood Volume and Transfusion in the Korean Battle Casualty," Prentice, TC, Olney, JM, Artz, CP, Howard, JM. Surgery, Gynecology and Obstetrics 99:542-554, 1954.
- g. Effects on participants: No information at this time
- h. Medical/research follow-up: unknown
- i. Informed Consent: unknown

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

(9) a. Title: A study of the kinetics of radioiodide distribution.

b. Location/Period: U.S. Army Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston, Texas/1953-1954

c. Principal Investigator: DV Becker, LE Danzig

d. Sponsor: not known

e. Number of participants: 13 patients with renal impairment

f. Purpose and description: Determination of radioiodide distribution and kinetics using tracer radioiodide (I-131) and hemodialysis. Subjects received 3 doses of 5-200 microcuries I-131. Published in Transactions of the American Goiter Association, 1954, pp 304-312, Charles Thomas, publisher.

g. Effects on participants: No information at this time

h. Medical/research follow-up: unknown

i. Informed Consent: unknown

(10) a. Title: A study of blood loss during excision of third degree burns.

b. Location/Period: U.S. Army Institute of Surgical Research, Brooke Army Medical Center, Fort Sam Houston, Texas/1962-1963

c. Principal Investigator: PC Canizaro

d. Sponsor: USAMRDC

e. Number of participants: 16 burned patients, 10 less than 18 years of age.

f. Purpose and description: Determination of blood loss during excision of burn wounds. Blood volume was estimated before and after surgery using 1-5 microcuries of I-131 labeled albumin. Need for postoperative estimation of blood volume was found to be greatest in children.

g. Effects on participants: No information at this time

h. Medical/research follow-up: hospital course

i. Informed Consent: unknown; probably oral.

(11) a. Title: A study of methods for measuring blood loss during surgery.

b. Location/Period: U.S. Army Institute of Surgical Research, Brooke Army Medical Center, Fort Sam Houston, Texas/1963-1964

c. Principal Investigator: RC Moore

d. Sponsor: USAMRDC

e. Number of participants: 20 adult female patients undergoing gynecological procedures.

f. Purpose and description: To assess several methods of estimating operative blood loss and subsequent need for transfusion. Each subject received 4-5 microcuries of I-131 labeled albumin for estimation of plasma volume before and again

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

after the procedure. Study was published as "An Evaluation of Methods for Measuring Operative Blood Loss," Moore, RC, Canizaro, PC, Sawyer, RB, Darin, JC, Moncrief, JA. Anesthesia and Analgesia 44:130-134, 1966. Strengths and weaknesses of several methods were identified.

- g. Effects on participants: No information at this time
- h. Medical/research follow-up: hospital course
- i. Informed Consent: probably oral

(12) a. Title: A study of postinjury hemodynamics in burned patients.

b. Location/Period: U.S. Army Institute of Surgical Research, Brooke Army Medical Center, Fort Sam Houston, Texas/1965-1970

c. Principal Investigator: BA Pruitt, Jr.

d. Sponsor: USAMRDC

e. Number of participants: Ten extensively burned patients who volunteered for the study.

f. Purpose and description: Determination of changes in blood volume and hemodynamics during burn resuscitation; plasma volume was measured with tracer doses of I-131 labeled human serum albumin. Published study is "Hemodynamic Changes in the Early Postburn Patient," Pruitt, BA Jr., Mason, AD, Jr., Moncrief, JA. J Trauma 11:36-46, 1971. Early obligatory plasma volume loss was identified, giving way to a small obligatory gain after 24 hours. No significant correlation was found between volume restoration and the colloid concentration of the resuscitation but was not directly correlated with blood volume. This study underlies doctrine recommending buffered saline resuscitation of acute burns on the battlefield and was one of the early studies leading to the now almost universal use of buffered saline resuscitation of burned patients during the first 24 hours after injury.

g. Effects on participants: No information at this time.

h. Medical/research follow-up: Patients were followed during their entire course of acute care.

i. Informed Consent: Probably oral.

(13) a. Title: A study of the efficacy of buffered saline in replacing blood volume after measured blood loss in normal volunteers.

b. Location/Period: U.S. Army Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston, Texas/July 1966-June 1967

c. Principal Investigator: BA Pruitt, Jr.

d. Sponsor: USAMRDC

e. Number of participants: 33 volunteer normal blood donors

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

f. Purpose and description: Determination of efficacy of normal saline as a replacement fluid after hemorrhage. Plasma volume was measured before and at two time intervals after donating blood, using tracer doses of I-131 labeled human serum albumin. Published study is "Efficacy of Buffered Saline as the Sole Replacement Fluid Following Acute Measured Hemorrhage in Man," Pruitt, BA Jr, Moncrief, JA, Mason, AD, Jr. J Trauma 7:767-781, 1967. Saline was found to be an effective replacement fluid; volume required for replacement was defined. Such replacement has now become common.

- g. Effects on participants: No information at this time
- h. Medical/research follow-up: none required
- i. Informed Consent: probably oral

(14) a. Title: A study of the effects of salt ingestion during intense physical conditioning in a hot climate.

b. Location/Period: U.S. Army Surgical Research Unit, Brooke Army Medical Center, Fort Sam Houston, Texas/1967-1968

c. Principal Investigator: James P. Knochel

d. Sponsor: USAMRDC

e. Number of participants: 24 basic trainee volunteers.

Approval obtained through channels to the Secretary of the Army.

f. Purpose and description: Examination of electrolyte metabolism during heat acclimatization. Study demonstrated that massive sodium loading during acclimatization, then a common practice in troops, increased the severity of potassium depletion and the risk of serious environmental heat injury and rhabdomyolysis. Individuals received 330 microcuries tritiated water orally, one microcurie/kg KCl-42 intravenously each week for 6 weeks; nine also received 50 microcuries of Na₂³⁵SO₄ each week. Study is published as "Pathophysiology of Intense Physical Conditioning in a Hot Climate. I. Mechanisms of Potassium Depletion," Knochel, JP, Dotin, LJ, Hamburger, FJ. J Clin Invest 51:242-255, 1972. This study has had a major effect on the understanding of heat injury and influenced doctrine regarding troop training in hot climates.

- g. Effects on participants: No information at this time.
- h. Medical/research follow-up: None required.
- i. Informed Consent: Yes; written.

(15) a. Title: A study of the applicability of Xenon scan in the diagnosis of inhalation injury.

b. Location: ////not listed//// / 1971-1972

c. Principal Investigator: JA Moylan, Jr.

d. Sponsor: USAMRDC

e. Number of participants: 50 successive patients admitted with burns.

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

f. Purpose and description: To determine whether Xe-133 pulmonary scanning, which was known to be useful in evaluating other pulmonary pathology, could be used for early diagnosis of inhalation injury. Study was published as "Early Diagnosis of Inhalation Injury Using ¹³³Xenon Lung Scan," Moylan, JR, Wilmore, DW, Mouton, DE, Pruitt, BA, Jr. Ann Surg 176-477-484, 1972. Xenon scanning was established as a method for the diagnosis of inhalation injury by this study; it remains a sensitive technique for identifying this lethal complication of thermal injury.

g. Effects on participants: No information at this time.

h. Medical/research follow-up: Hospital course

i. Informed Consent: Yes; probably oral.

(16) a. Title: A study of salt and water balance and hormonal responses following burn injury.

b. Location/Period: U.S. Army Institute of Surgical Research, Brooke Army Medical Center, Fort Sam Houston, Texas/1988-1990

c. Principal Investigator: WG Cioffi

d. Sponsor: USAMRDC

e. Number of participants: 7 burned patients, 10 normal controls

f. Purpose and description: Study of relationships among cardiac output, renal blood flow, secretion of hormones and blood volume in burned patients in an attempt to discover the etiology of "inappropriate" ADH secretion in such patients and to define their status with respect to blood volume maintenance. Patients were given tracer doses of Cr-51 labeled autologous erythrocytes to measure erythrocyte mass either once or twice during the study and both patients and controls received I-131 labeled hippuran in tracer doses for the estimation of renal plasma flow. Study has been published as "Dissociation of Blood Volume and Flow in Regulation of Salt and Water Balance," Cioffi, WG, Vaughan, GM, Pratt, L, Heironimus, JD, McManus, WF, and Pruitt, BA, Jr. Ann Surg 214:213-220, 1991. This study indicates that burned patients maintain high cardiac indices and renal blood flows despite persistent modest hypovolemia attributable to a diminished erythrocyte volume and provides an explanation for continued secretion of antidiuretic hormone in such patients. Prior to the study, such patients were thought to be hypervolemic because of their hyperdynamic circulatory state.

g. Effects on participants: No information at this time.

h. Medical/research follow-up: Patients-hospital course; controls-none indicated.

i. Informed Consent: Yes, written.

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

- (17) a. Title: Thyroid activity in men exposed to cold
b. Location/period: Ladd Air Force Base, 1957
c. Principal Investigator: Rodahl, K. and Bang, G.
d. Sponsor: Artic Aeromedical Research Laboratory
e. Number of participants: unknown at this time
f. Purpose and description: unknown at this time
g. Effects on participants: unknown at this time
h. Medical/research followup: unknown at this time
i. Informed Consent: unknown at this time
- (18) a. Title: Prediction of tissue loss in human frostbite with xenon-133!
b. Location/period: Citation Surgery 69: 899-903, 1971
c. Principal Investigator: Sumner, D.S.; Boswik, Jr, J.A.; Cribblez, T.L. and Doolittle, W.H.
d. Sponsor: unknown at this time
e. Number of participants: unknown at this time
f. Purpose and description: unknown at this time
g. Effects on participants: unknown at this time
h. Medical/research followup: unknown at this time
i. Informed Consent: unknown at this time
- (19) a. Title: Contract DA18-108-AMC-193(A), Cardiovascular assessment kit
b. Location/period: 18 June 1963 to 8 Aug 1966, St Louis University, St. Louis, MO, records at Edgewood Area Records Holding Area, APG, MD
c. Principal Investigator: Theodore Cooper, M.D, Ph.D.
d. Sponsor: Medical Research Laboratory, Chemical Research and Development Laboratories, Edgewood Arsenal, MD.
e. Number of participants: Unknown at this time
f. Purpose and description: The contract was let to provide an experimental system capable of measuring cardiac output in man without the use of a surgeon. The method studied was based on external scintillation counting of gamma radiation over the heart after injection into research subjects of iodinated serum albumin containing ¹³¹I
g. Effects on participants: unknown at this time
h. Medical/research followup: unknown at this time
i. Informed Consent: Yes, written
- (20) a. Title: Contract DAAA15-69-C-0295, Clinical Pharmacology of Prophylactic and/or therapeutic compounds in volunteer subjects.
b. Location/period: 6 Jan 1969 to 6 April 1970, Hahnemann Medical College and Hospital of Philadelphia, Philadelphia, PA

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

- c. Principal Investigator: Benjamin Calesnick, M.D., and J.R. Dipalma, M.D.
- d. Sponsor: Medical Research Laboratory, Research Laboratories, Edgewood Arsenal.
- e. Number of participants: 9
- f. Purpose and description: In medical research studies of 2-PAM chloride, a nerve agent antidote, seven persons were administered tritiated 2-PAM chloride. According to the contract's final report (Report No. 10, page 25), "the final material administered had a specific activity of approximately 0.124 μ Ci/mg, so that each volunteer received a total radiologic dose of approximately 13 μ Ci." Additionally, "two volunteers...each received a single 500 mg oral dose of 2-PAM Cl in hard gelatin capsules containing 250 mg radioactive (carbon 14) material. The label was on the N-methyl group and had a specific radioactivity of 0.0647 μ Ci/mg. Hence, each volunteer received a total radiological dose of approximately 16.2 μ Ci."
- g. Effects on participants: none noted in the contracts final report no. 10.
- h. Medical/research followup: Unknown at this time
- i. Informed Consent: yes, written

(21) a. Title: "The Fate of Atropine in Man"

b. Location/period: Information available in the referenced open publication indicates that this work occurred between 1958 and 1960.

c. Principal Investigator: R.E. Gosselin, M.D., Ph.D. J.D. Gabourel, Ph.D., and J.H. Wills. Ph.D., in Clinical Pharmacology and Therapeutics, Vol. 1, No. 5, pages 597-603, September-October, 1960.

d. Sponsor: Probably the Directorate of Medical Research, U.S. Army Chemical Center, MD. No funding documentation has been identified. Gosselin was then associated with the Department of Pharmacology and Toxicology, Dartmouth Medical School; Gabourel with the Division of Pharmacology and Toxicology, University of Rochester School of Medicine and Dentistry; and Wills with the Pharmacology Branch, Directorate of Medical Research, U.S Army Chemical Center, MD.

e. Number of participants: 2

f. Purpose and description: To study changes to the atropine molecule that occur during its metabolism in man. Two men (G.C. and M.H.) were injected intramuscularly with a single 2-mg dose of atropine (an anticholinergic drug used in general medical practice and as a treatment for symptoms caused by nerve agents). The atropine was labeled with C^{14} (10 μ C in each of the 2-mg doses). Between 85-88% of the radioactivity was found to be excreted in the urine within the first 24 hours. About half the dose appeared in the urine as intact atropine; of the remainder

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

none of the metabolites could be equated with those described previously in rat and mouse urine. According to the study, man does not degrade atropine as extensively as the rat or mouse; the ester bond is largely preserved; most if not all modifications in the molecule occur in the tropine moiety.

g. Effects on participants: According to the paper, G.C., a 73-year old man and a patient at Strong Memorial Hospital complained only of dryness of the mouth following administration of the atropine. A mild and transient tachycardia (78 to 94 beats per minute) was detected at 30-minutes post injection. M.H., a healthy 45-year old male at the Army Chemical Center, also complained of dry mouth (for about 6 hours following injection) and from 1/2- to 1-1/2 hours after the injection claims to be slightly confused.

h. Medical/research followup: Unknown at this time

i. Informed Consent: Unknown

(22) a. ~~Title: [REDACTED]~~

b. Location/period: After 4 June 1954, at the Army Chemical Center (now the Edgewood Area of Aberdeen Proving Ground). This estimate is based upon HQ, Chemical Corps Research and Engineering Command, Army Chemical Center, MD, memo, SUBJECT: Use of Human Volunteers, dtd 4 Jun 54, which granted approval to seek Army civilian and military volunteers for this project.

c. Principal Investigator: Unknown

d. Sponsor: Chemical Corps Medical Laboratories, Army Chemical Center, MD.

e. Number of participants: 10 or less

f. Purpose and description: "CMLRE-ML Memo, SUBJECT: Use of Human Volunteers, dtd 24 May 1954, healthy young male human volunteers will receive parenteral injections of synthetic atropine labelled with radioactive carbon. The object of this study is to determine the excretion rates of atropine and of its metabolic products in man. The tests are important because such data will help in the more rational therapeutic use of atropine and in the eventual development of more persistent atropine substitutes." The two referenced memos are the only indicator that this experiment occurred.

g. Effects on participants: Unknown

h. Medical/research followup: Unknown at this time

i. Informed Consent: Unknown

(23) a. Title: Contract DA18-108-405-CML-215, Nature of intradermal barrier to skin penetration.

b. Location/period: 1961-1965, Western Reserve University, Cleveland, OH.

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

c. Principal Investigator: Richard B. Stoughton, M.D., School of Medicine, Western Reserve University, Cleveland, OH 44106.

d. Sponsor: U.S. Army Chemical Research and Development Laboratories, Army Chemical Center, MD

e. Number of participants: Unknown

f. Purpose and description: To study the chemical histochemical, histological and physiological characteristics of intradermal barriers to permeation of the skin by substances of various chemical types placed upon the external surface of the skin. A contract administration folder suggests that radiolabeled materials, particularly C¹⁴ -labeled nictinates, may have been applied to human subjects.

g. Effects on participants: Unknown

h. Medical/research followup: Unknown

i. Informed Consent: Unknown, but required by the Government of the Contractor in Appendix A to the contract.

(24) a. Title: Contract DA18-035-AMC-126(A), Threshold doses in Humans.

b. Location/period: 1964-1967, Contractor, The Trustees of the University of Pennsylvania, 3400 Walnut Street, Philadelphia, PA.

c. Principal Investigator: Dr. Albert Kligman, Duhring Laboratories, Department of Dermatology, University of Pennsylvania, Philadelphia, PA.

d. Sponsor: Directorate of Medical Research, Edgewood Arsenal, MD

e. Number of participants: Unknown

f. Purpose and description: A contract administration folder suggest that radiolabeled materials may have been applied to human subjects in studies of penetration rates of various compounds.

g. Effects on participants: Unknown

h. Medical/research followup: Unknown

i. Informed Consent: Unknown

(25) a. Title: Measurement of Central Action of Psychotropic Agents by Pupillometry.

b. Location/period: April 1973, Biomedical Laboratory, Edgewood, MD.

c. Principal Investigator: Clinical Investigation Section, Medical Research Division, Biomedical Laboratory.

d. Sponsor: Biomedical Laboratory

e. Number of participants: 6

f. Purpose and description: A report on the use of Medical Research Volunteers indicates that as part of an investigation of pupillometric measures of the central nervous system action of

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

psychotropic agents, six volunteers were x-rayed to determine if calcification of the pineal gland was present. These findings were to correlated with blood melatonin levels, since the hormone is produced by the pineal gland. Of this group of subjects only one man showed any sign of calcification and this finding was regarded as questionable.

g. Effects on participants: Unknown

h. Medical/research followup: Unknown

i. Informed Consent: Consent for their participation in the Medical Research Volunteer Program had been obtained. Unknown if they gave specific consent for this research protocol, regulations existed at that time requiring informed consent.

(26) a. Title: Gamma Ray Activity of Reactor Personnel as Determined by the Walter Reed Whole Body Counting Facility

b. Location/period: 1961, Department of Biophysics, Division of Nuclear Medicine and Chemistry, Walter Reed Army Institute of Research, Washington, DC.

c. Principal Investigator: Charles L. Randolph, MC, USAF, taken from Radioactivity in Man, GR Meneely, ed. C.C. Thomas Publ. Springfield, Ill., 1961.

d. Sponsor: Unknown

e. Number of participants: 64

f. Purpose and description: No human experimentation was reported in this article. Only diagnostic tests were conducted to evaluate occupational exposure. Personnel assigned to the Army Package Reactor (APPR-1) at Fort Belvoir, VA were examined by whole body counting techniques. Eighty-eight (88) body counts were conducted on sixty-four (64) men whose work involved the APPR-1 reactor.

g. Effects on participants: was medical followup

h. Medical/research followup: this was medical followup

i. Informed Consent: medical followup, not research, consent not required

(27) a. Title: The Turnover of Radioelements in Clinical Medicine

b. Location/period: 1961, Department of Biophysics, Division of Nuclear Medicine and Chemistry, Walter Reed Army Institute of Research, Washington, DC.

c. Principal Investigator: Robert vanHoek, MC, USAF taken from Radioactivity in Man, GR Meneely, ed. C.C. Thomas Publ. Springfield, Ill., 1961.

d. Sponsor: Probably military funding

e. Number of participants: greater than 10.

f. Purpose and description: The purpose of the experiments was to develop and compare assays for radionuclides in whole body, urine, feces, and blood specimens. Patients were given I¹³¹

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

orally and by intravenous injection and radio-iodinated serum albumin by intravenous injection. Oral doses of $\text{VitB}_{12}\text{-CO}^{60}$. Patients were given intravenous and oral doses of Sr^{85} . Patients were given oral doses of Fe^{59} . It appears that normal individuals and patients were included in these studies. Some of the patients were monitored up to 150 days.

- g. Effects on participants: unknown
- h. Medical/research followup: Unknown
- i. Informed Consent: unknown

(28) a. Title: Quantitative Cerebral Blood Flow Determination,
b. Location/period: Early 1960's, probably at the Walter Reed Army Hospital.

c. Principal Investigator: Lawrence C. McHenry, Jr. MD, Neurology V14: 785-793, 1964, Department of Neurophysiology, Walter Reed Army Institute of Research, Washington, DC

d. Sponsor: unknown

e. Number of participants: 25 males with a mean age of 27 years.

f. Purpose and description: Krypton⁸⁵ was administered to subjects by inhalation from an anesthesia machine. An internal jugular bulb puncture was used to draw blood at prescribed intervals, to measure the desaturation of Krypton⁸⁵ from the brain. Cerebral blood flow was determined by radionuclide counting of Kr⁸⁵ in the blood.

- g. Effects on participants: unknown
- h. Medical/research followup: Unknown
- i. Informed Consent: unknown

(29) a. Title: Annual Progress Report, Department of Biophysics, Division of Nuclear Medicine and Chemistry, Walter Reed Army Institute of Research, Washington, DC.

b. Location/period: Between 1962 and 1963, probably at Walter Reed Army Hospital or within the Washington, DC area.

c. Principal Investigator: LTC Kent T. Woodward, MC

d. Sponsor: Probably military

e. Number of participants: unknown

f. Purpose and description: Xenon¹³³ and Krypton⁸⁵ were administered by inhalation or intravenous injection to human subjects. The purpose was to do metabolic studies. Elimination studies were mentioned.

- g. Effects on participants: unknown
- h. Medical/research followup: Unknown
- i. Informed Consent: unknown

SGRD-RCQ

SUBJECT: Monthly Radiation Records Search Report, Part II

(30) a. Title: The Determination of Internally Deposited Radioactive Isotope in the Marshallese People by Excretion Analysis.

b. Location/period: 30 Sept 1959, report, monitoring from 1954 to 1958 of Marshall Island inhabitants.

c. Principal Investigator: Dr. K.T. Woodward, was attached to WRAIR, other authors; Schrodt, A.G., Anderson, J.E., Claypool, L.A., and Hartgering, J.S.

d. Sponsor: jointly by The Surgeon General of the Army and the Defense Atomic Support Agency

e. Number of participants: 141 urine samples were obtained in 1954. It is hard to tell how many exposed people were studied from 1954 to 1958.

f. Purpose and description: No human experimentation was reported in this article. Only diagnostic tests were conducted to evaluate fallout exposure. On March 1, 1954 a thermonuclear device was exploded at a Pacific test site. Because of this test, 239 Marshallese people were exposed to gamma radiation from fallout. They were also contaminated by food and via inhalation. They were relocated to other islands after exposure to the radiation. Urine samples were then obtained from the Marshallese people and assayed for Cesium¹³⁷, zinc⁶⁵, cobalt⁶⁰, and Strontium⁹⁰. The urine samples indicated their exposure to radiation.

g. Effects on participants: not mentioned

h. Medical/research followup: This appears to be part of the medical followup

i. Informed Consent: Not applicable to this situation

3. This monthly report is not a complete report for predecessor units. Records searches are still underway.

4. POC for this action is the undersigned at 301-619-2165.



DALE G. VANDER HAMM

MAJ, MS

Chief, Human Use Review and
Regulatory Affairs Division

CF: USAMRDC, DCSRCQ
USAMRDC, SGRD-ZC
USAMRDC, SGRD-SGS