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FOLDER Environmental Branch Activities
7/21 - 8/20/70FILE: Environmental Science Branch
Monthly Reports for the years 1966-1970

August 27, 1970

Donald I. Walker, Director
Health Services Laboratory

ENVIRONMENTAL BRANCH ACTIVITIES, 21 JULY - 20 AUGUST 1970

Independent Measurements Program

The final checkout of the IMP Data Storage and Retrieval System was undertaken during this reporting period.

Samples from the IMP at Indian Point began arriving at the HSL.

A program of preoperational environmental monitoring with TLD badges at Northern States Power's Monticello Plant was begun.

NRTS Environmental Monitoring

In preparation for the upcoming appraisal of the NRTS environmental monitoring program, a set of procedures describing the program was written.

The average on- and off-site air concentrations of filterable gross alpha and beta radioactivity and iodine-131 for July were as follows:

	<u>Alpha</u>	<u>Beta</u>	<u>Iodine-131</u>
On-Site	0.0021 pCi/m ³	0.8059 pCi/m ³	0.0051 pCi/m ³
Off-Site	0.0062 pCi/m ³	0.7829 pCi/m ³	0.0033 pCi/m ³

All the above concentrations were less than 13% of the CG values for uncontrolled areas with the exception of the off-site alpha which is 31% of the CG value for unknown alpha emitters in uncontrolled areas.

The monthly average gross alpha concentrations for off-site locations are shown in pCi/m³ as follows:

IF Hqts	0.002	Butte City	0.002
IF Airport	0.003	Pocatello Fire Station	0.007
Blackfoot	0.003	Pocatello Sewage Plant	0.027
Arco	0.003	American Falls	0.003

The American Falls sample station was discontinued on August 7, 1970.

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The average concentration of particulate material in on-site surface air for July was 34 ug/m^3 compared to 97 ug/m^3 for off-site locations.

The average on-site production water concentrations for gross alpha, beta and tritium activity for July were less than 12% of their respective CG values for drinking water. The tritium and strontium-90 activity in ICPP Well #2 continued to fluctuate during July. The high concentration was 3.5 pCi/l of ^{90}Sr and $4.7 \times 10^4 \text{ pCi/l}$ of tritium. One sample was obtained from ICPP Well #1 on July 2 after a three day running period. A beta concentration of 190 pCi/l and a tritium concentration of $7.3 \times 10^4 \text{ pCi/l}$ was detected. A ^{90}Sr analysis was not made on this sample.

Fourteen milk samples were collected and analyzed for iodine-131 and cesium-137 during July. All samples showed concentrations less than 20% and 0.3% of their respective CG values.

Other

An emergency exercise involving ISU health physics trainees and the NRTS Fire Department was observed and commented upon.

At the suggestion of Dr. Spickard, saturated solutions of KI were prepared for placement in the RAT emergency kits.

Environmental Studies Section

Controlled Environmental Release Test (CERT) Program:

Two bovine metabolism studies, designated CERT-28 and -29, were performed in cooperation with B. R. Moss and D. J. Hoss of Montana State University.

Routine Activities:

- (a) The regular weekly and monthly smear and radiation surveys of AEC facilities at the NRTS were completed. Three contaminated instruments were smeared and the results were reported to the appropriate health physics offices. Five shipments of radioisotopes to the Laboratory were smeared and surveyed.
- (b) The disposal of radioactive laboratory waste and the laundering of anti-contamination clothing were arranged as required.
- (c) The power generation capability of the emergency equipment vehicle (E-71342) has been restored. Vials of saturated potassium iodide solution have been added to the emergency kits.

- (d) A special monitoring grid was established around the TRA pond (low- and high-volume air samplers and deposition plates). This grid will be maintained until the studies at the pond have been completed.
- (e) Special sampling of TRA pond bottom sediments, sampling and identification of pond algae, and sampling of birds and mammals in the vicinity of the pond were completed. Some additional biological samples will be obtained (we have applied for special waterfowl collecting permits). An average of nine ducks were observed on the TRA pond (prior to draining) at 6 a.m. (six day sample).
- (f) Paul Voilleque¹ attended the International Atomic Energy Agency sponsored "Symposium on Environmental Aspects of Nuclear Power Stations" at the United Nations. I spent part of the free afternoon at the Health and Safety Laboratory talking with Phil Krey. A trip report is being prepared.

Waste Management Section

Research:

The investigation concerning the reduced infiltration rate in the new section of the TRA seepage pond was given priority. After stopping the flow of radioactive liquid waste into the new pond section, samples of the soil, algae, vegetation and liquid were collected. Core samples from the bottom of the pond were collected from six locations with some taken to a depth of approximately four feet. The samples are being analyzed for radioactive and chemical content. Laboratory column studies are now being conducted using liquid and algae from the pond. Preliminary soil column results indicate that algae or carbonates in the upper surface of the soil reduces the liquid flow rates. The amount of reduction is being determined using the soil column tests over a reasonable period of time. Further tests are planned at the TRA pond which include using three isolated pond bottom sections for effects of various chemical and physical conditions. It is also planned to allow the pond to dry out over a period of time. If the algae and other vegetation are not eliminated by drying chemical or other means will be used.

Color slides are being accumulated during the pond study to assist in final evaluations and provide a visual record for future reference.

Donald I. Walker

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August 27, 1970

U. S. Geological Survey

See attached report.

ESSA-ARLFRO - Environmental Sciences Services Administration

See attached report.

Charles A. Pelletier, Chief
Environmental Branch
Health Services Laboratory

HSLE

Enclosures:

- 1. USGS Report
- 2. ESSA Report

cc: John R. Horan
Donald I. Walker

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