WM-43

PDR

Lowman ID site, DOE Remedial Action Plan

Department of Energy
Washington, D.C. 20545

SEP 15 1980





Mr. Ross A. Scarano, Chief
Uranium Recovery Licenses Branch
Mail Stop 483-SS
Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Scarano:

My letter of December 21, 1979, notified the Nuclear Regulatory Commission that in accordance with the Uranium Mill Tailings Radiation Control Act of 1978 (Public Law 95-604), Secretary Duncan on November 8, 1979, designated the inactive uranium mill tailings site in Lowman, Idaho, as a processing site and established the priority for performing remedial action there as low.

Under the provisions of Section 102(e)(2) of the Act, we are now preparing to designate as candidates for remedial action, properties in the vicinity which we have determined are contaminated with residual radioactive material derived from the site. Accordingly, I am enclosing for your information and comment the information we have developed on a property in the vicinity of the designated Lowman site.

We are continuing with the identification and radiological evaluation of other properties outside the designated boundaries of the Lowman site and will be in communication with you about the designation of those properties after evaluation.



Sincerely,

William E. Mott, Director
Environmental and Safety
Engineering Division
Office of Environment

Enclosure



Add'l info

SUMMARY OF RADIOLOGICAL CHARACTERIZATION
OF THE STATE OF IDAHO DEPARTMENT OF PARKS
AND RECREATION HEADQUARTERS SITE
2271 Warm Spring Avenue, Boise, Idaho

Investigation revealed that a portion of the Department of Parks and Recreation which included four (4) buildings, had been utilized by the Porter Brothers Corporation and was reported to have been involved with material from the Lowman Mill Operations. The Lowman Mill utilized dredge concentrate ore from Beau Valley, some 20 miles north of the mill site. Considered as a Beneficiation Plant, the mill process consisted of wet and dry circuits and utilized electrostatic and magnetic separators. No chemical processes were involved in the mill operations. Recovery material was primarily columbite-euxenite and monazite with several by-products such as magnetite, ilmenite, zircon, and garnet. Euxenite contains both uranium and thorium oxides, columbite contains small amounts of uranium oxide, and monazite contains thorium oxide. Zircon sands can also include thorium oxides.

At the present time, the Department of Parks and Regreation Facility, Warm Springs Avenue (see attached map), encompasses and area of 3.12 acres and contains six (6) structures which are as follows: the Headquarters Building which is a combined structure of two previous buildings that were used by the Porter Brothers; two shop buildings which were also utilized by the Porter Brothers and now utilized as vehicle repair shops; a structure designated as a garage which had been erected sometime after the original property was acquired; a 30' x 130' garage now utilized as a shop and a five room dwelling, now serving as Regional Headquarters South. The first 4 structures mentioned above are located on 2.12 acres and were acquired during the latter part of 1969. The adjacent one (1) acre parcel, on the southeast end, containing the remaining structures was also acquired by the Parks and Recreation Department, during the middle 1970's. This area was not involved in the Porter Brothers operations.

Radiological assessment of the surface area and buildings and subsurface has revealed the following:

Radon, Thoron, Actinon Concentrations

Air samples taken in all buildings throughout the Facility revealed Radon ($^{222}Rn$) levels of from .002 to .06 Working Levels. The two highest levels, .05 and .06 Working Levels, were found in sampling a crawl space in the Headquarters Building and the basement of the Regional Headquarters South Building. These are unoccupied areas. Levels of this magnitude might be expected in a non-vented confined space. All other $^{222}Rn$ concentrations were found to be below .05 Working Levels. Alpha spectroscopy was performed on several samples throughout the Facility Results indicated the primary activity to be due to $^{222}Rn$. Some thoron ($^{220}Rn$ activity was noted; and a determination was made to quantify the concentration. It was found to be .003 pCi/ℓ which was approximately 5% of the total radon-thoron concentration. None of the samples analyzed indicated the presence of actinon ($^{219}Rn$).

## Building Assessment

General "ambient background" readings (at 3') in the Headquarters Building, ranged from 12 to 12 μR/h. Natural background readings in the area were of the order of 12 μR/h. Several (approximately 18) areas of elevated readings were found throughout the building and attic. These gave rise to the related levels that ranged up to a maximum of 100 μR/h at contact with one exception. One area contained a transit that read 5 mR/h, and revealed loose activity. The transit was disposed of. Shops #1 and #2 indicated elevated readings in several areas, the maximum being 30 μR/h at contact. All other structures were found to contact no appreciable activity above background. Loose activity was found only in the attic of the Headquarters Building and from the transit mentioned above. Maximum activity was 5 cpm α above background.

## Area Assessment

General "ambient background" readings in the open areas of the Facility, ranged from 12 μR/h to 400 μR/h. Numerous areas of elevated readings were found in the vicinity of Shops 1 and 2 and west of the loading ramp (see attached map). The highest contact reading was 2 mR/h in an area 40 feet southwest of Shop 2.

## Subsurface Investigation

Bore hole numbers 12-S21 and 12-S25 (see attached map) were drilled to a depth of four feet where cobble was encountered. Split spoon samples were taken in 1 foot increments to the 4 foot depths. All soil samples indicated elevated readings from portable instrumentation, as well as from the bore hole logging technique {2" x 2" NaI(ti) gamma spectroscopy}. Although most of the bore holes taken, indicated some anomalies, bore holes 12-S21 and 12-S25, were the highest. All core holes (environmental) and bore hole samples will be submitted for radiochemical analyses to determine the type and quantity of the radioactive material involved. A total of seven (7) peripheral core holes and eleven (11) biased random bore holes were taken at the Facility. In addition, four (4) background soil corings were taken; two at Lucky Peak Dam and two at Veterans Memorial Park.

In addition to the standard subsurface investigation, it was noted that "black sand" was evident in several ant hills in the area between Shops 1 & 2. A survey of this black sand revealed elevated readings. The sand appeared similar to that found at the Lowman Site.

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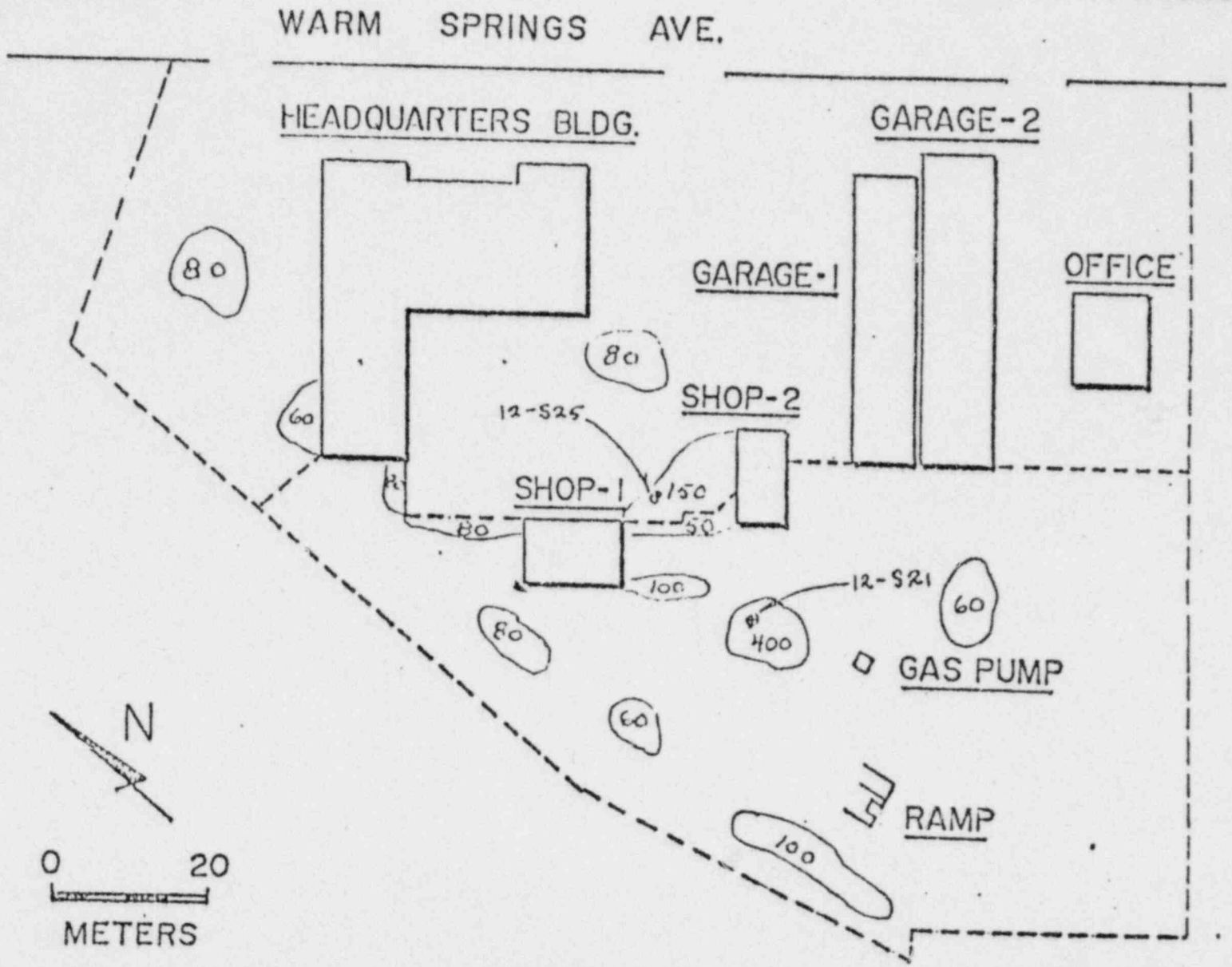


Numbers in plots (400) = Maximum reading in μR/hr