1084

NAVAL NUCLEAR POWER UNIT
FORT HUENEME, CALIFORNIA 93043

IN REPLY REFER TO:
40:RHS:sdr
3256
Ser 1235
12 OCT 1978

From: Officer in Charge
To: Commander (Code 07), Naval Sea Systems Command
Washington, DC 20362

Subj: Cursory Radiation Survey of Potentially Contaminated Facilities Formerly Occupied by the Naval Radiological Defense Laboratory

Ref: (a) Radiological Affairs Support Office Report No. 208 of 4 August 1978
(b) NAVNUPWRU ltr 40:RHS:lf Ser 1124 of 14 Sep 1978
(c) Mtg btwn NAVSEA 07/OPNAV 981N and OIC NAVNUPWRU on 20 Sep 78

Encl: (1) Survey Results of Building 364 and Environs
(2) Results of Laboratory Analysis of Samples Collected from Building 364 and Environs
(3) Sketch of Building 364 and Environs

1. References (a) and (b) forwarded the results of a preliminary radiological survey of Building 815 of the former Naval Radiological Defense Laboratory (NRDL) facilities at San Francisco Bay Naval Shipyard. Reference (b) provided recommendations to procure the services of Mr. A. L. Smith as project engineer to identify radioisotope uses and locations within Building 815. It was further recommended that Mr. Smith develop survey specifications and coordinate a detailed survey to be conducted by a party independent of the Navy via a contracted source. During reference (c), it was agreed that the potential exists for contamination above unrestricted use limits at other former NRDL facilities. As a result of reference (c), the Radiological Affairs Support Office (RASO) was requested to conduct cursory surveys of certain specified facilities.

2. During the period 30 September through 1 October 1978, a RASO Survey Team consisting of Mr. R. Smith, Mr. J. Orr, and HMC J. Jones, USN conducted cursory surveys of the facilities indicated in paragraph 3 below. Beta-gamma radiation levels were obtained using an Eberline HP-210 probe in connection with a dual counter/timer. Minimum detectable beta-gamma activity for this system was 64 DPM (95% Confidence Level). An AN/PDR-56 was used to measure alpha radiation and an internal proportional counter was employed to analyze wipe tests for the presence of alpha. Laboratory analysis of wipes for removable beta-gamma activity was made in an Eberline Model BC-4 beta counter. Soil samples, paint scrapings, wood scrapings and other bulk samples collected during the survey were analyzed for radioisotopic content on a Canberra Lithium drifted Germanium detector system. When possible, and where indicated, the survey technique included

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ripping up carpeting, tiles and plywood covering to reach the original decking in service at the time of operations involving the use of radioactive materials. Enclosures (1) and (2) include survey and laboratory results for Building 364, the only facility in and around which radioactivity exceeded the limits established in NAVMED P5055, Radiation Health Protection Manual or existing Nuclear Regulatory Commission (NRC) guidelines as contained in NRC Regulatory Guide 1.86 "Termination of Operating Licenses for Nuclear Reactors" and NRC draft guidelines for "Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses by By-product, Source, or Special Nuclear Material", dated December 1975. Enclosure (3) is a sketch of Building 364.

3. Facilities Surveyed and results are as indicated:

AKA 114

Facility	Survey Results
a. Building 113A (Sheet lead removed from Building 364)	Less than minimum detectable activity.
b. Building 364	Exceeds established NRC and BUMED limits (see enclosures (1) through (3)).
c. Building 365	Less than minimum detectable activity.
d. Building 506	Detected three isolated spots with beta-gamma activity. Activity was well below limits established by P5055 and NRC decontamination guidelines.
e. Building 517	Less than minimum detectable activity.
f. Building 529	Less than minimum detectable activity.
g. Building 707	Less than minimum detectable activity.

4. From the results of this survey, it is concluded that Building 364 and the pipe pits and tank pit adjacent to the east end of the building contain radioactive contamination in excess of established BUMED limits

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and NRC guidelines. Accordingly, it is recommended that this facility be included with Building 815 as requiring the development of survey specifications and a detailed survey be performed by a party independent of the Navy via a contracted source.

R. C. CRANE

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OPNAV 981N
NAVFAC (04N)

SURVEY RESULTS OF BUILDING 364 AND ENVIRONS

Survey Point Location	Removable Beta-Gamma Activity dpm/100Cm^2	Removable Beta-Gamma Activity PCi/100Cm^2	Surface Beta-Gamma Activity dpm/100Cm^2	Surface Beta-Gamma Activity PCi/100Cm^2
NORTH WALL - Room 108				
1	269.7	121.5	27,250	12,275
2	41.2	18.5	22,115	9,962
3	218.2	98.3	33,875	15,259
4	187.3	84.4	22,780	4,622
5	68.2	30.7	20,000	9,009
6	82.9	37.3	9,470	4,266
7	72.6	32.7	8,710	3,923
8	22.6	10.1	21,125	9,516
9	85.9	38.7	24,605	11,083
10	57.9	26.1	8,045	3,624
11	37.4	16.9	7,120	3,207
12	43.2	19.5	14,700	6,622
13	21.2	9.6	14,900	6,712
14	53.5	24.1	33,610	15,140
15	80.0	36.0	19,170	8,635
16	57.9	26.1	23,510	10,590
17	62.3	28.1	16,390	7,383
18	75.6	34.1	9,370	4,221
19	43.2	19.5	24,500	11,036
20	20.6	9.3	12,585	5,669
21	50.6	22.8	16,555	7,457
22	20.6	9.3	66,590	29,996
23	119.7	53.9	26,850	12,095
24	175.6	79.1	25,660	11,559
EAST WALL - Room 108				
1	949.1	427.5	56,035	25,241
2	62.3	28.1	16,690	7,518
3	153.5	69.1	42,980	19,360
4	138.8	62.5	9,140	4,117
5	103.5	46.6	37,415	16,854
6	71.2	32.1	44,340	19,973
7	20.6	9.3	62,815	28,295
8	56.5	25.5	42,270	19,041
9	100.6	45.3	44,535	20,061
10	59.4	26.8	11,025	4,966
11	37.4	16.9	21,955	9,890
12	219.7	99.0	22,385	10,083

Survey Point Location	Removable Beta-Gamma Activity dpm/100Cm^2	PCi/100Cm^2	Surface Beta-Gamma Activity dpm/100Cm^2	PCi/100Cm^2
PIPE PITS				
1	---	---	20,430	9,203
2	---	---	19,205	8,651
3	---	---	13,575	6,115

NOTE: (a) P5055 limits for Beta-Gamma Contamination = 450 PCi/100 Cm^2.

(b) NRC Guidelines for Beta-Gamma Contamination-NRC Regulatory Guide 1.86 and Draft Guidelines for Decontamination of Facilities Prior to Release for Unrestricted Use:

Surface	Removable
5,000 dpm/100 Cm^2 (Average)	1000 dpm/100 Cm^2
15,000 dpm/100 Cm^2 (Maximum)	

RESULTS OF LABORATORY ANALYSIS OF SAMPLES
COLLECTED FROM BUILDING 364 and ENVIRONS

Hunter's Point Samples 31 September-1 October 1978.
Values are Picocuries per gram.
≤MDA = Less than minimum detectable activity at 95% confidence level.

Isotope	KEV	Bldg 364 Dirt #1 (Pipe Pit)	Bldg 364 Dirt #2 (Pipe Pit)	Bldg 364 Paint Scraping Pt. 22	Bldg 364 Paint Scraping N. Wall
Am-241	60	2.8	5.0	≤MDA	≤MDA
Eu-152	122	4.0	9.5		
U-235	186	1.7	4.0	8.6	≤MDA
Ra-226	186	≤MDA	≤MDA	≤MDA	≤MDA
Pb-214	295	≤MDA	≤MDA		
Eu-152	344			≤MDA	≤MDA
Cs-137	662	130	300	2800	4800
Eu-152	964	3.5	10		
Eu-152	1112	5.2	9.0		
Co-60	1332	5.7	12	≤MDA	≤MDA
Eu-152	1408	5.0	12		
K-40	1461		≤MDA	≤MDA	≤MDA
Bi-214	1764	≤MDA			

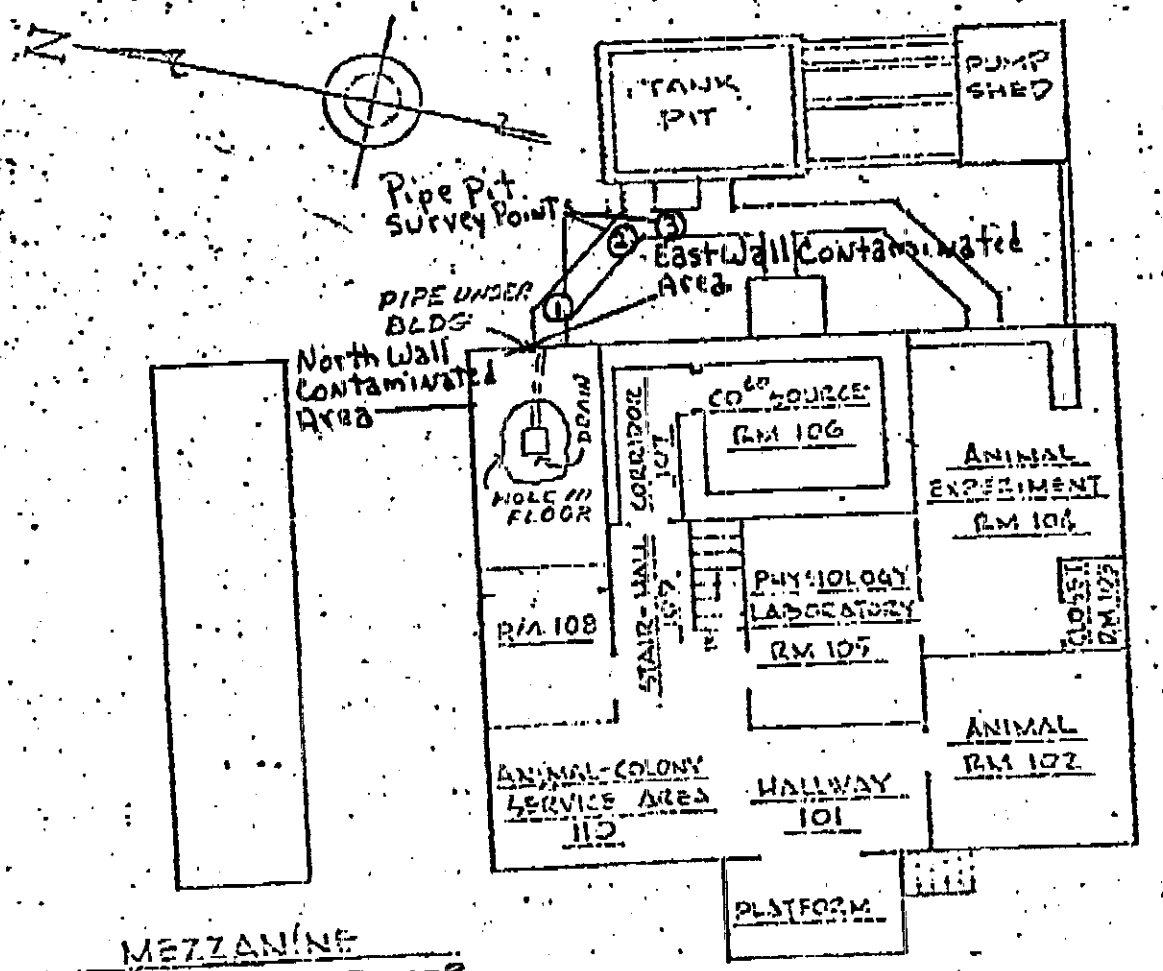
Enclosure (2)

U.S. NAVAL RADIOLOGICAL DEFENSE LABORATORY
SAN FRANCISCO 24, CALIFORNIA

BLDG. 364

DRAWING NO. S-()-260

JA



MEZZANINE
ABOVE ANIMAL RM 108
& ANIMAL-COLONY SERVICE
AREA 110

FLOOR PLAN

SCALE: 1/16" = 1'-0"

FIGURE 4

BLDG. 364 FLOOR PLAN

Enclosure (3)