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February 8, 1988

U. S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Attention: Bruce S. Mallett
George McCann

Gentlemen: Re: License No. 34-19089-01

The AMS/NSS Decontamination Plan dated October 16, 1987 (last revision), approved by the NRC, presents one unresolved issue. This issue involves the proposed isolation of the Waste Water Hold Up Room. NSS had proposed the isolation of this room in lieu of decontamination. The isolation procedures would be conducted in order to prevent any danger to the environment or public health and safety. The NRC stated during a conference telephone call between T. J. Hebert, AMS; James Elkins, NSS; and Bruce Mallett, et al NRC, on October 22, 1987 that they would consider the isolation proposal pending further information and discussion.

NSS has proposed a brief, attached to the letter, which outlines the reasons why this area should be isolated, the methods used in isolation, and the procedures for monitoring the area after isolation.

Also attached to the AMS Decontamination Plan are letters from Dr. Allen Brodskey (AMS Consultant) which states his opinion in reference to the risk benefit ratio associated with the decontamination of the Waste Water Hold Up Room.

AMS does not intend to have any future use for the Waste Water Hold Up Room following the completion of the facility's decontamination. This discontinued use will not adversely affect the AMS operations of the Hot Cell and Isotope Handling facility. The use of water as a cleaning agent will be discontinued in favor of more current methodologies. The limited volume of water generated in the hot cell to test source leakage will be confined to the hot cell. As generated, this water will be evaporated or solidified and handled as solid waste. Waste water generated at the clean change (locker room) area for personal hygiene will be monitored and released to the city sewer system according to Regulation 10CFR, Part 20.303. The discharge from the clean change area was previously rerouted from the area to be isolated.

AMS has in place an NRC approved decommissioning plan which involves the active contribution to a trust fund designated solely for the purpose of financing the facility's decommissioning. The isolated Waste Water Hold Up Room would be decontaminated and/or decommissioned at the time of the facility's closure. A copy of the decommissioning plan and trust agreement are attached.

ATTACHMENT A

AL ANCE MEDICAL SYSTEMS, INC.
SECTION B
ISOLATION OF W.H.U.T. ROOM
8 FEBRUARY 1988

FACILITY DESCRIPTION

The London Road Facility's primary function is the manufacture of CO 60 teletherapy sources. It has been in operation since the mid 1950's when it was owned by Picker Corporation, and contains: 1 Hot Cell, 1 Laboratory, a controlled ventilation system and a controlled liquid waste system. This "isotope area" is only a small part of the building at 1020 London Road. The remainder of the building is vacant. Please refer to appendix "A" (facility blueprints) for detailed drawings, the building and site. As can be discerned from the drawings, the cell and its two (2) support rooms are "stacked" (e.g. the liquid waste room is below grade). The cell sits on top of Waste Hold Up Tank Room and the ventilation room sits on top of the cell. These three (3) rooms are not only structurally interconnected among themselves but also provide support for the remainder of the building. The prevailing isotope is CO^{60} with an extremely high specific activity. The waste generated from the facility is exclusively CO^{60} oxide dust from exposing and handling the pellets in the cell.

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ADVANCE MEDICAL SYSTEMS, INC.
SECTION C
ISOLATION OF W.H.U.T. ROOM
8 FEBRUARY 1988

WASTE HOLD UP TANK ROOM DESCRIPTION

The Waste Hold Up Tank Room is located directly beneath the Hot Cell and is designed to hold the liquid radioactive wastes generated in the Hot Cell and the isotope area. The Waste Tank Hold Up Room is divided into two areas, an entrance way and the room proper. (See Figure 1 Section G for dimensions and layout of the room). The room contains two (2) tanks, one (1) 500 gallon tank that received waste water from the showers, sinks and drains in the laboratory and one (1) 100 gallon tank that receives waste water from the cell sink and floor drain. The tanks are interconnected in such a fashion that the 100 gallon tank will drain into the 500 gallon tank when overfilled. There are also two (2) small Ion Exchange Columns mounted to a table in the room. There is one (1) piece of non-permanent equipment located in the entrance way: an old mechanical drum compactor. All surfaces of the room are unpainted, poured concrete. There is no light or power operating in the room. There are no floor drains in the room and the entrance way is diked to prevent migration of spilled liquid. The room is ventilated by one (1) exhaust duct and the tank vents are connected to the controlled ventilation system. Numerous pipes, conduits, ducts and vents penetrate the room's walls in various locations. There is only one (1) personnel access into the Waste Hold Up Tank Room.

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SECTION D
ISOLATION OF W.H.U.T. ROOM
8 FEBRUARY 1988

RADIOLOGICAL SURVEY DATA

Due to the high ambient Gamma dose rates, only one (1) radiological survey and sample collection was performed in the Waste Hold Up Tank Room. Two (2) smears were taken on the floor; One (1) in the room, and one (1) in the entrance way. Both smears collected approximately one (1) gram of sediment each. Gamma dose rates were taken in the entrance way and room proper at different heights to ascertain sources of the dose rates. A brief visual inspection was made to determine surface and equipment conditions.

At some time in the facilities history, a major spill occured in the room. The water gradually evaporated, leaving approximately one (1) inch of sediment uniformly distributed on the floor. The tanks appear to have retained their integrity (both are made of stainless steel) and the ion exchange columns are disconnected. The old drum compactor appears to weigh in excess of 300lbs, is rusted all over, and encrusted with dried material.

Each sediment smear produced a dose rate of 1.5 R/hr at 1 cm. The maximum dose rate in the room could not be discerned exactly, (it exceeded the range of a Telector). A fair estimate would put it around 2000R/hr. Ambient dose rates in the entrance way start at 5 R/hr and escalate to 300 R/hr within 3 - 4 ft. Dose rates climbed in the vicinity of the tank indicating that substantial material is still present in them. The sediment in the room has the consistency of talcum powder and becomes airborne with the slightest disturbance in the room. It is interesting to note that the dose rates climbed sharply in proximity to the ceiling. This is due to sources stored in the cell floor plugs above.

By making some reasonable assumptions, a total activity contained in the room was arrived at. All material on the floor is considered to be CO^{60} in the same concentration as the samples taken. The material in one tank is assumed to be deposited on the bottom of the tank in a single location (under the fill line).

Activity contained in the tank:

Dose Rate at 30cm approximately 2000 R/hr

Using the specific Gamma constant formula: (Γ = 13.2R/mCi @ 1cm)

Exposure rate = $\Gamma A/d^2$ solving for A yields

Exposure rate $(d^2)/\Gamma$ = activity in mCi

$2000\ (30^2)/13.2$ = 136.4 curies in the tank

Activity of the floor:

Volume of sludge on floor 388,687 ml

CO^{60} 8.9 Grams/ml = 1.01 mCi/ml X 388,687 ml

A = 393.1 Curies on the floor

Total room activity 529.4 Curies, CO^{60}

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SEWER (OUTSIDE BUILDING)

INSTRUMENTS USED:

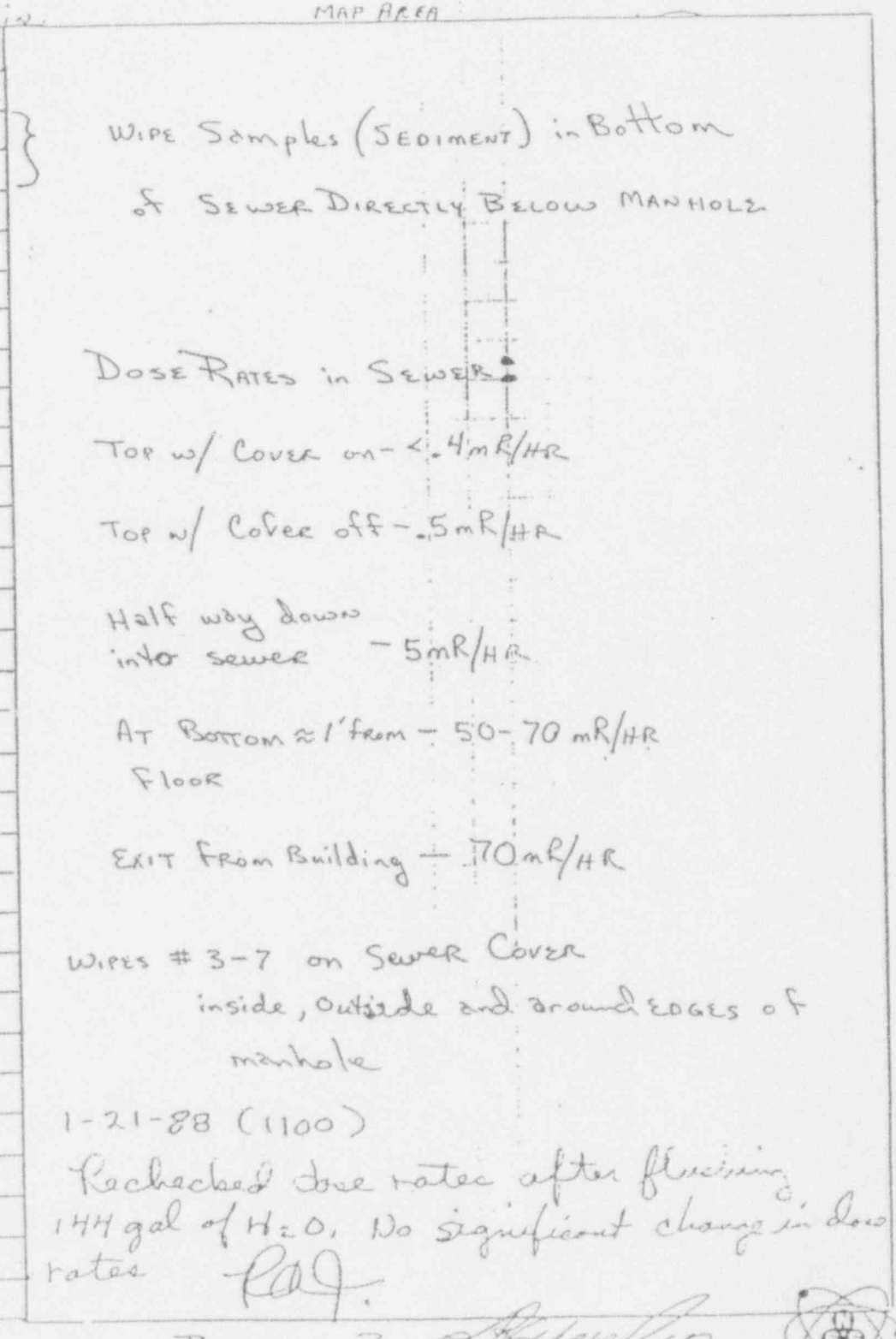
1. TYPE: Spectroscaler Teletector
2. Serial No.: 04696 28821
3. Cal. Due Date: 5-30-88 2-28-88
4. Efficiency: .10 cpm/dpm
5. Background: 33 cpm
6. Count Time: 1 min.

DATE: 1-21-88
TIME: 0900
Tech: R. Jucius
Type of Survey: Verification
A/S Results: N/A uci/cc

SMEAR RESULTS

SMEAR NO.	C.P.M.	dpm/100cm²
①	12210	121,770
②	4317	42,840
③	31	—
④	36	30
⑤	41	80
⑥	34	10
⑦	36	30

MAP AREA



1-21-88 (1100)
Rechecked dose rates after flushing 144 gal of H_2O. No significant change in dose rates

REVIEWED BY: [signature]

NRC CONFIRMATORY MEASUREMENTS

Date of Surveys/Sample Collection: April 13, 1988

Site: AMS London Road Facility (1020 London Road, Cleveland, Ohio)

Detection/Counting Equipment:

1. Type	a.	Teletector	b.	ADC MCA
2. Serial No.	a.	27555	b.	N/A
3. Calibration Date	a.	January 19, 1988	b.	April 18, 1988

Results:

Survey/Sampling Location (as identified on schematic, Attachment D)

	Survey Results	Sampling Results
A	0.5 mR/hr	N/A
B	60-80 mR/hr	8.855E-6 uCi/ml (water)
		6.187E-2 uCi/gm (sludge)
		8.222E-4 uCi/ml (rinse water from sludge)
C	BKG	N/A
D	BKG	1.019E-6 uCi/ml* (water)

NOTE: All sampling results were identified for cobalt-60 except D, which was identified as naturally occurring radium-226 (*).

Surveys performed/samples collected by: Robert E. Burgin

Robert E. Burgin
Senior Radiation Specialist

10 CFR 20, Appendix B, allows cobalt-60 concentrations in unrestricted areas (water) of 3.0E-5 and 5.0E-5 uCi/ml for insoluble and soluble forms, respectively.