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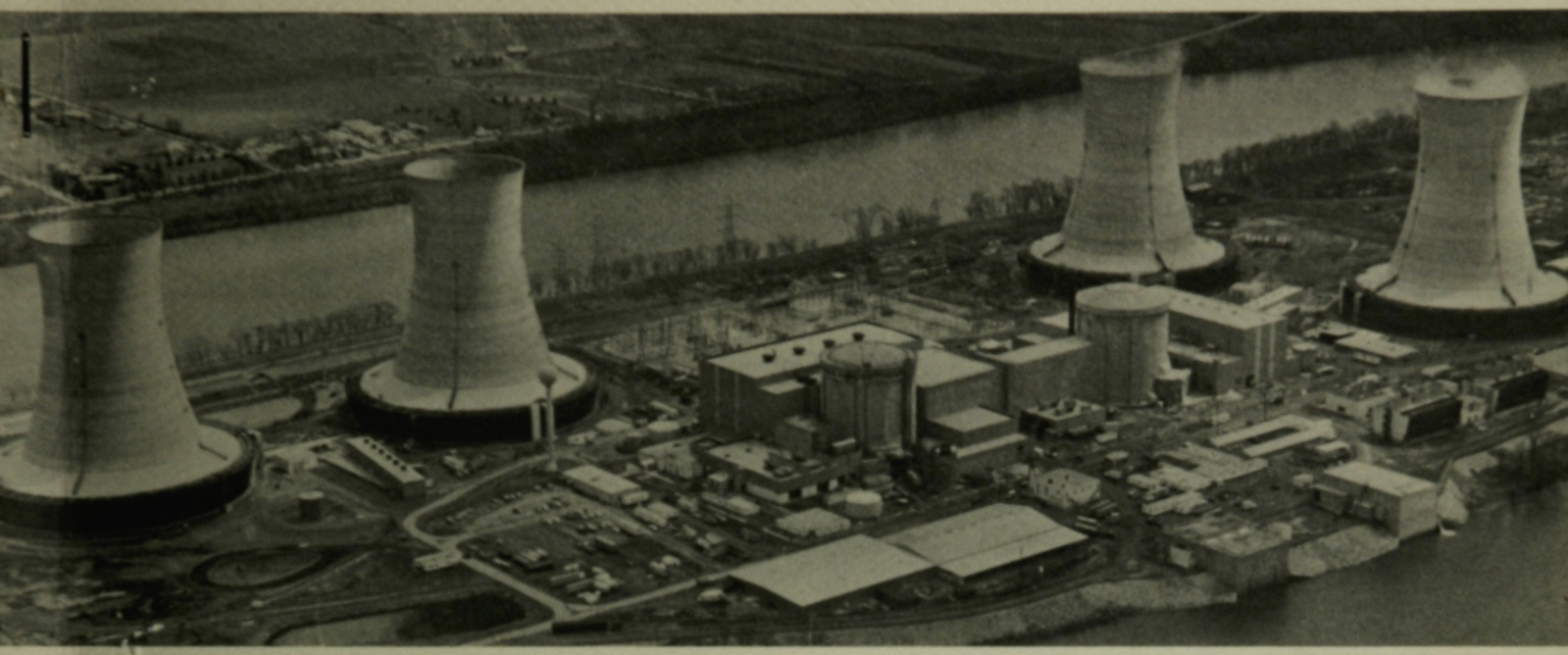
August 1981



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QUICK LOOK REPORT
ENTRY 5
THREE MILE ISLAND UNIT 2
December 11, 1980

Bechtel Northern Corporation/
General Public Utilities Nuclear Corporation

Prepared for the
U.S. Department of Energy
Three Mile Island Operations Office
Under Contract No. DE-AC07-76ID01570

DISCLAIMER

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Edited and Published August 1981

by

EG&G Idaho, Inc.
Idaho Falls, Idaho 83415

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ABSTRACT

This report summarizes the raw data obtained during Entry 5 at Three Mile Island Unit 2. During the entry into containment, which was made on December 11, 1980, beta/gamma surveys were performed on Elevation 305 and 347, and on the reactor head-fuel pool area and the polar crane access ladder and platform.

These surveys completed most of the general area surveys begun on previous entries, and also completed a substantial portion of the hot spot surveys. The entry team performed a visual inspection of the polar crane and fuel handling bridge, and photographs were taken. In addition, the entry team performed a series of decon tests at two locations on Elevation 347. Part of these tests were video taped after correcting some problems with the camera. Ninety photographs were taken with the three still cameras taken into the containment; these have been distributed, but are not included in this report.

CONTENTS

FIGURES

TABLES

INTRODUCTION

Entry 5 into the reactor building at Three Mile Island Unit 2 occurred on December 11, 1980. The 14-man entry team took with them both video and still cameras, and radiation survey equipment.

Table 1 shows the Entry 5 task summary. Table 2 lists the Elevation 305 radiation survey; and Table 3 lists the radiation survey for Elevation 347. Table 4 shows the Entry 5 surface contamination. Table 5 shows the airborne activity for the entry. Preliminary TLD readings are given in Table 6. Table 7 is a list of equipment used on the Entry.

TABLE 1. ENTRY 5 TASK SUMMARY

Data Acquisition Task Number	Task Description	Task Accomplished	Problems Encountered	Comments/ Significant Findings
1, 5, 6	Survey Elevation 305	Detailed survey 90% complete	One team reached dose limit Communication between RC Tech and Data Recorder difficult	None
22A, 22H	Survey Elevation 347	Detailed survey completed	Communication between RC Tech and Data Recorder difficult	None
23C, 31E	Survey Reactor Head and Fuel Pool	Detailed survey completed	None	None
31B, 22D	Visual and photographic inspection of polar crane from access platform	Inspection completed	Difficult to climb up ladder with loose hanging equipment	Crane very rusty; access possible with safety harness
31A	Still photographs of Elevations 305 and 347	Still photographs of Elevations 305 and 347	Shutter setting on one camera bumped off proper setting	None

TABLE 1. (continued)

Data Acquisition Task Number	Task Description	Task Accomplished	Problems Encountered	Comments/ Significant Findings
42A	Decon tests on painted concrete and diamond plate	Decon tests were completed	Too much work for two men	Need three men
	Video tape decon tests	Partial taping was accomplished	Video camera would not work until warmed up and dryed out	If used in future, camera must be turned on 15 to 20 minutes prior to use

NOTE: Containment temperature, 68°F
Containment pressure, 0.2 in. Hg
Relative humidity, <100%
Airborne activity, <MPC.

TABLE 2. ENTRY 5, ELEVATION 305 RADIATION SURVEY (includes data from all previous entries)

Data Acquisition Task Number	Location	Instrument	Gamma Dose Rate	Beta[a] Dose Rate
1, 5, 6	Figure 1 Elevation 305 map)	RO-2A and teletector	See Figure 1	See Figure 1
1, 5, 6	Figure 2 (air coolers survey)	RO-2A and teletector	See Figure 2	See Figure 2
1, 5, 6	Figure 3 (Core Flood Tank A survey)	RO-2A teletector	See Figure 3	See Figure 3
1, 5, 6	Figure 4 (Core Flood Tank B survey)	RO-2A teletector	See Figure 4	See Figure 4

a. All beta readings shown have been corrected for detector efficiency.

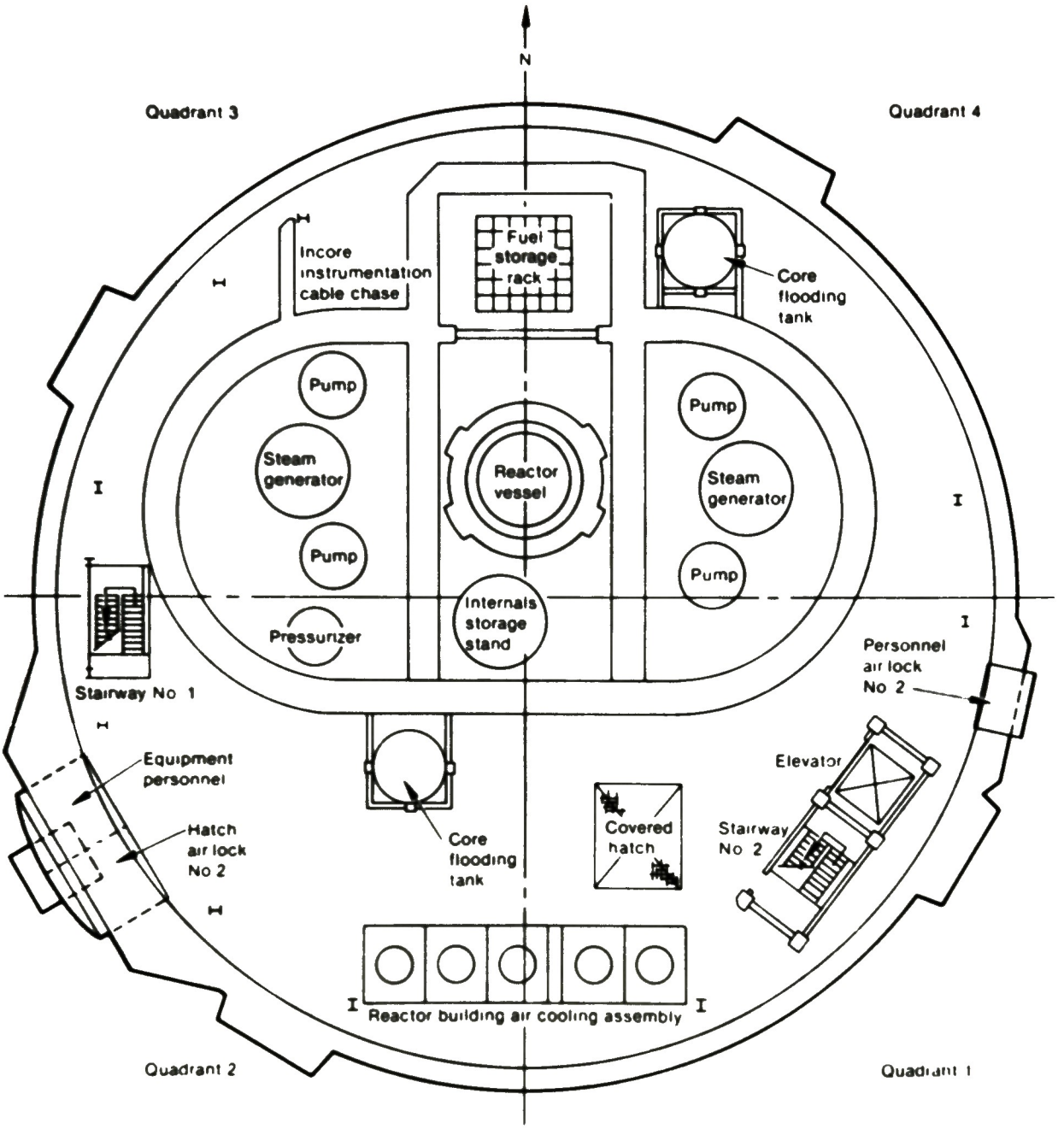


Figure 1. Elevation 305 diagram.

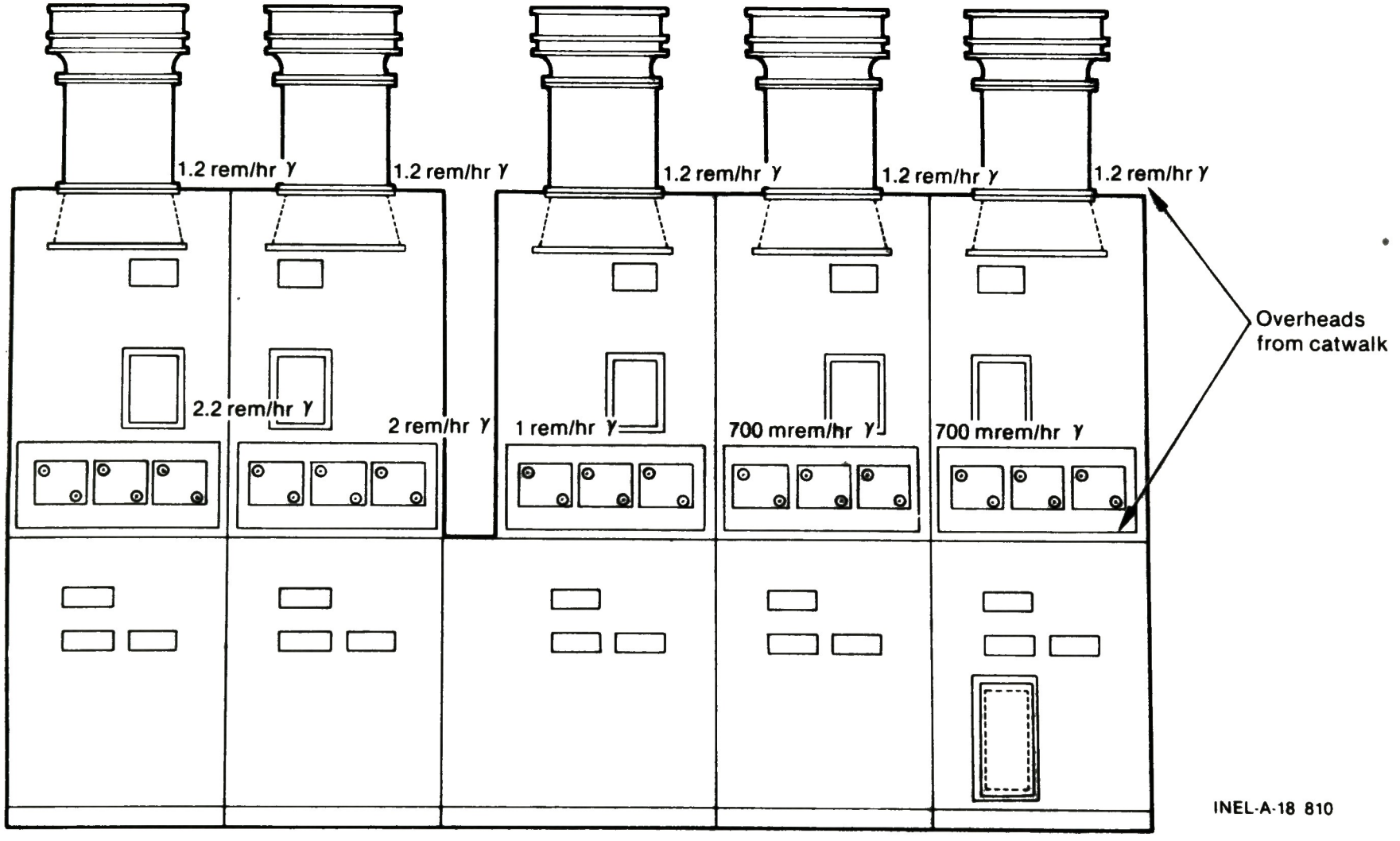


Figure 2. Air coolers radiation survey.

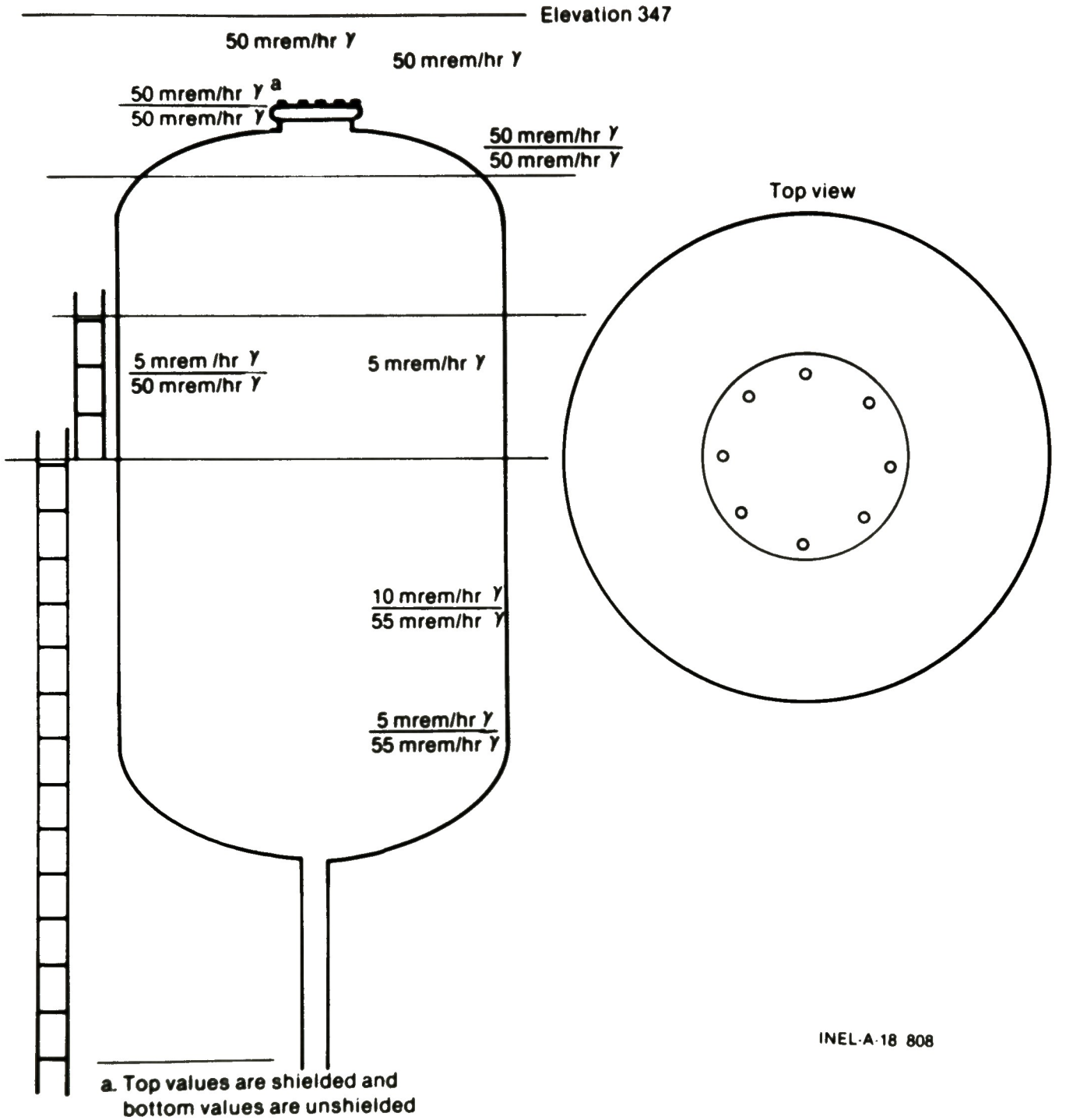


Figure 3. Core Flood Tank A radiation survey looking south.

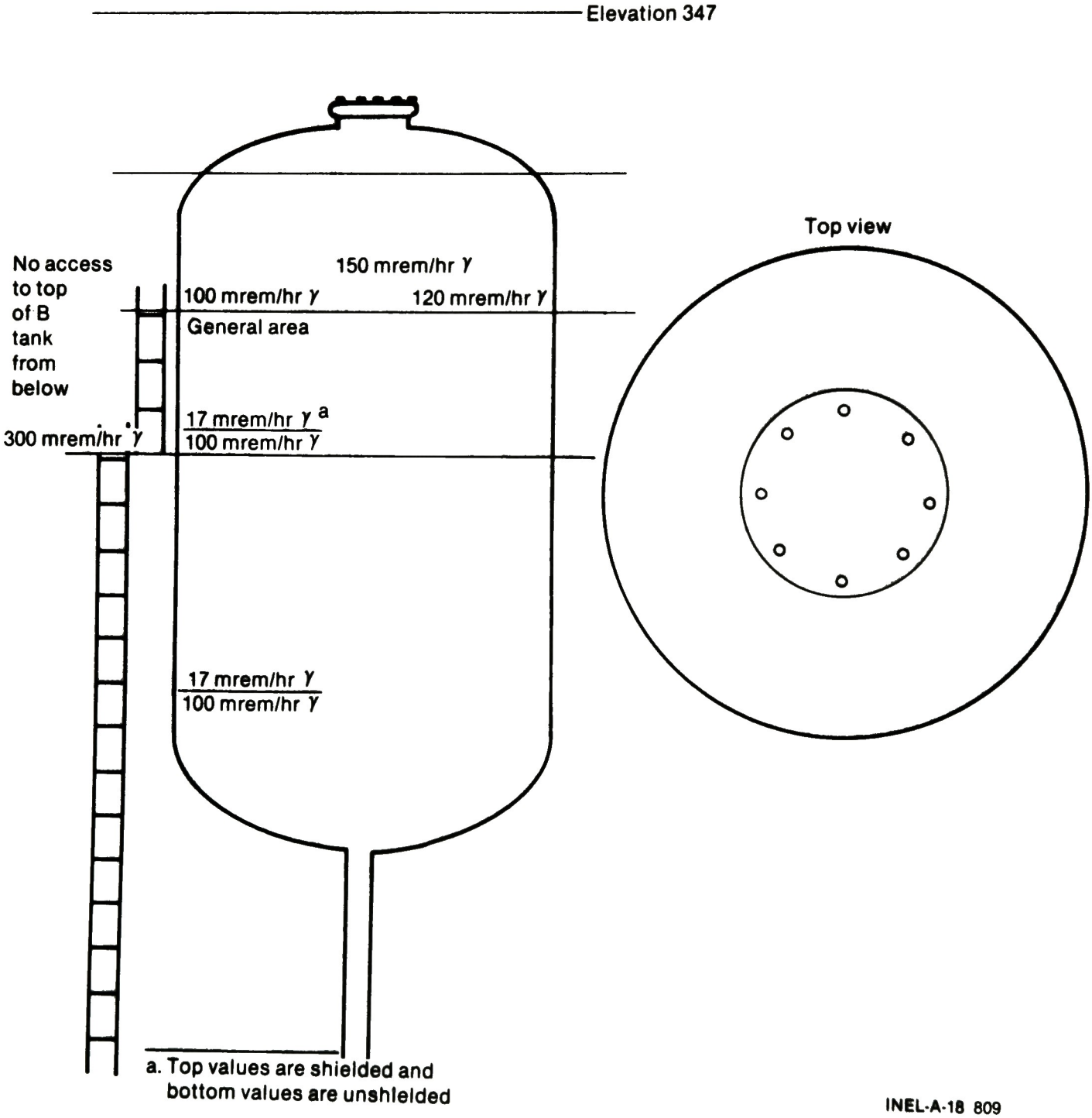


Figure 4. Core Flood Tank B radiation survey looking south.

TABLE 3. ENTRY 5, ELEVATION 347 RADIATION SURVEY (includes data from all previous entries)

Data Acquisition Task Number	Location	Instrument	Gamma Dose Rate	Beta[a] Dose Rate
22A, 22H	Figure 5 (Elevation 347 map)	RO-2A and teletector	See Figure 5	See Figure 5
23C, 31E	Figures 6 and 7 (reactor head teletector survey)	RO-2A and	See Figures 6 and 7	See Figures 6 and 7
23C, 31E	Figure 8 (fuel pool survey)	RO-2A and teletector	See Figure 8	See Figure 8
22D, 31B	Figures 9 and 10 (access ladder and platform survey)	RO-2A and teletector	See Figure 9 and 10	See Figures 9 and 10

a. All beta readings shown have been corrected for detector efficiency.

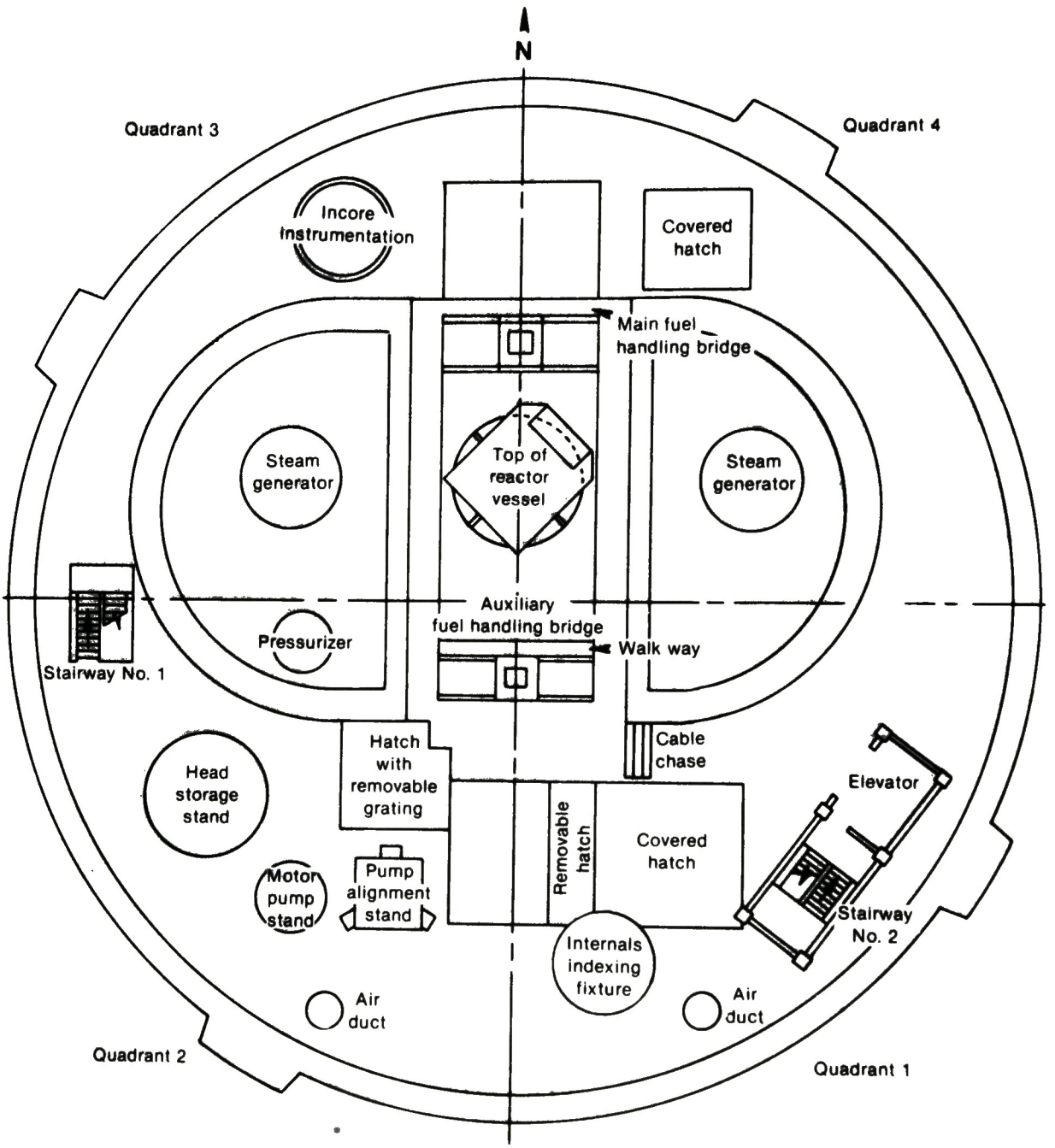


Figure 5. Elevation 347 diagram.

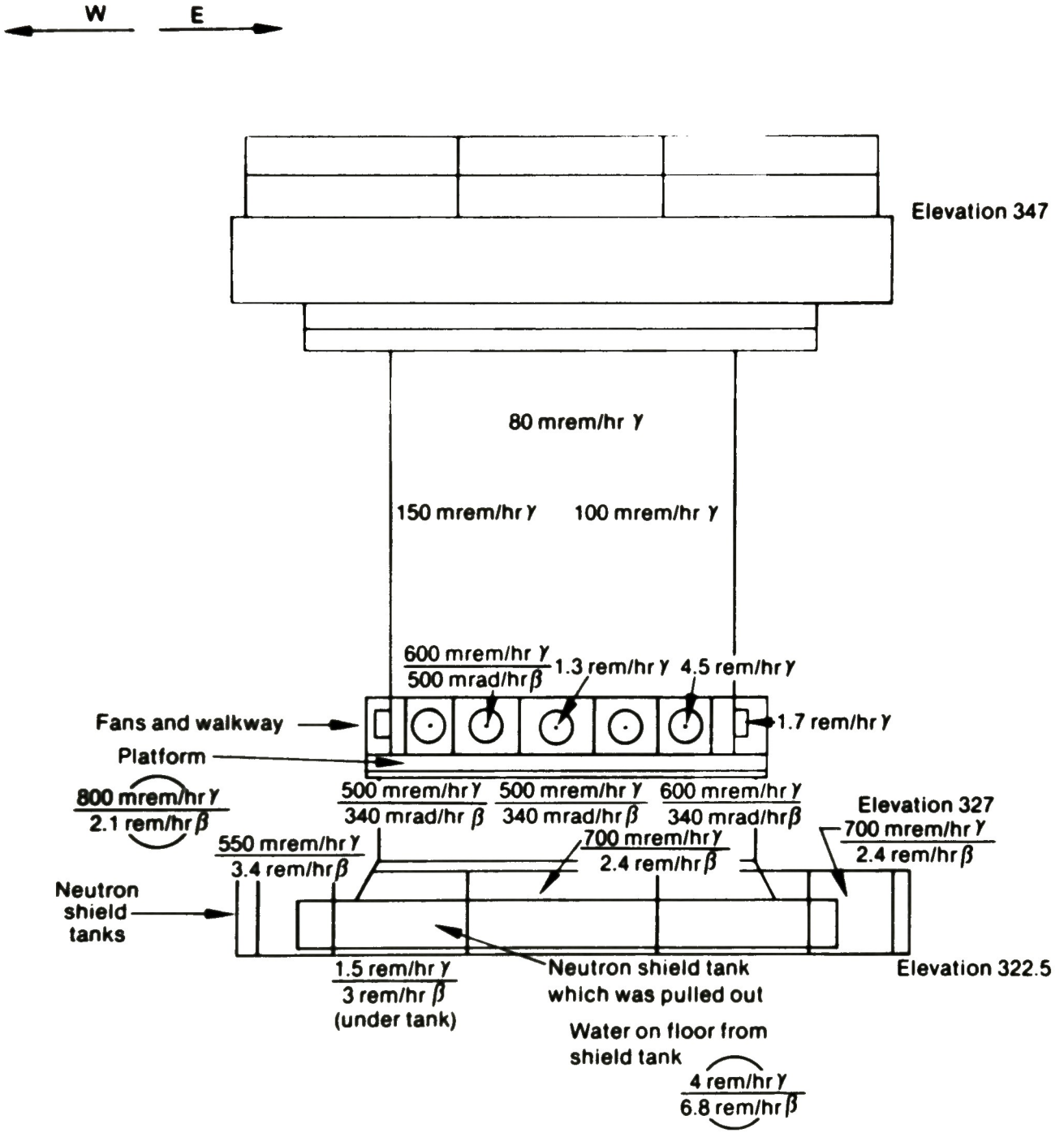


Figure 6. Reactor head radiator survey looking north.

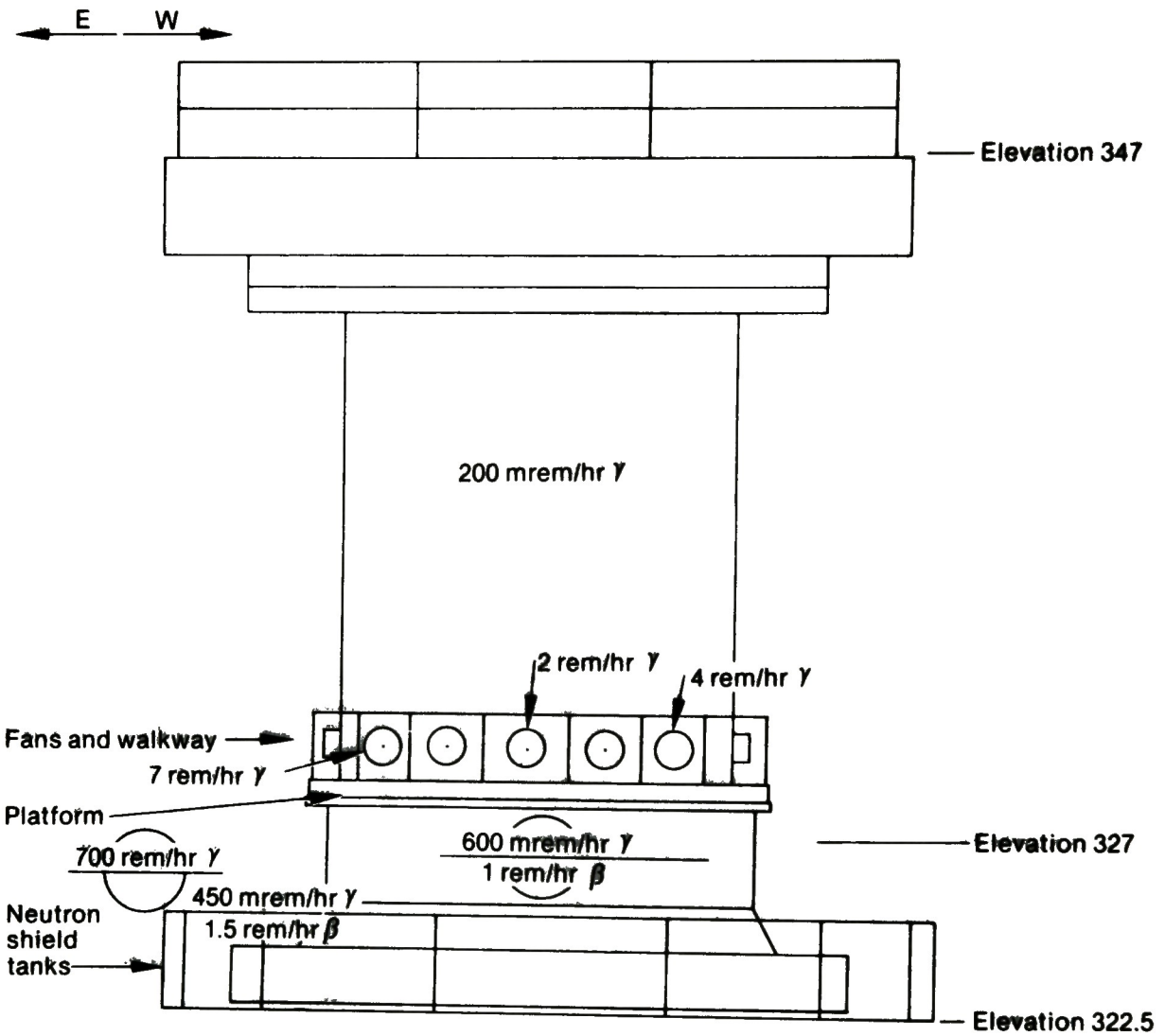
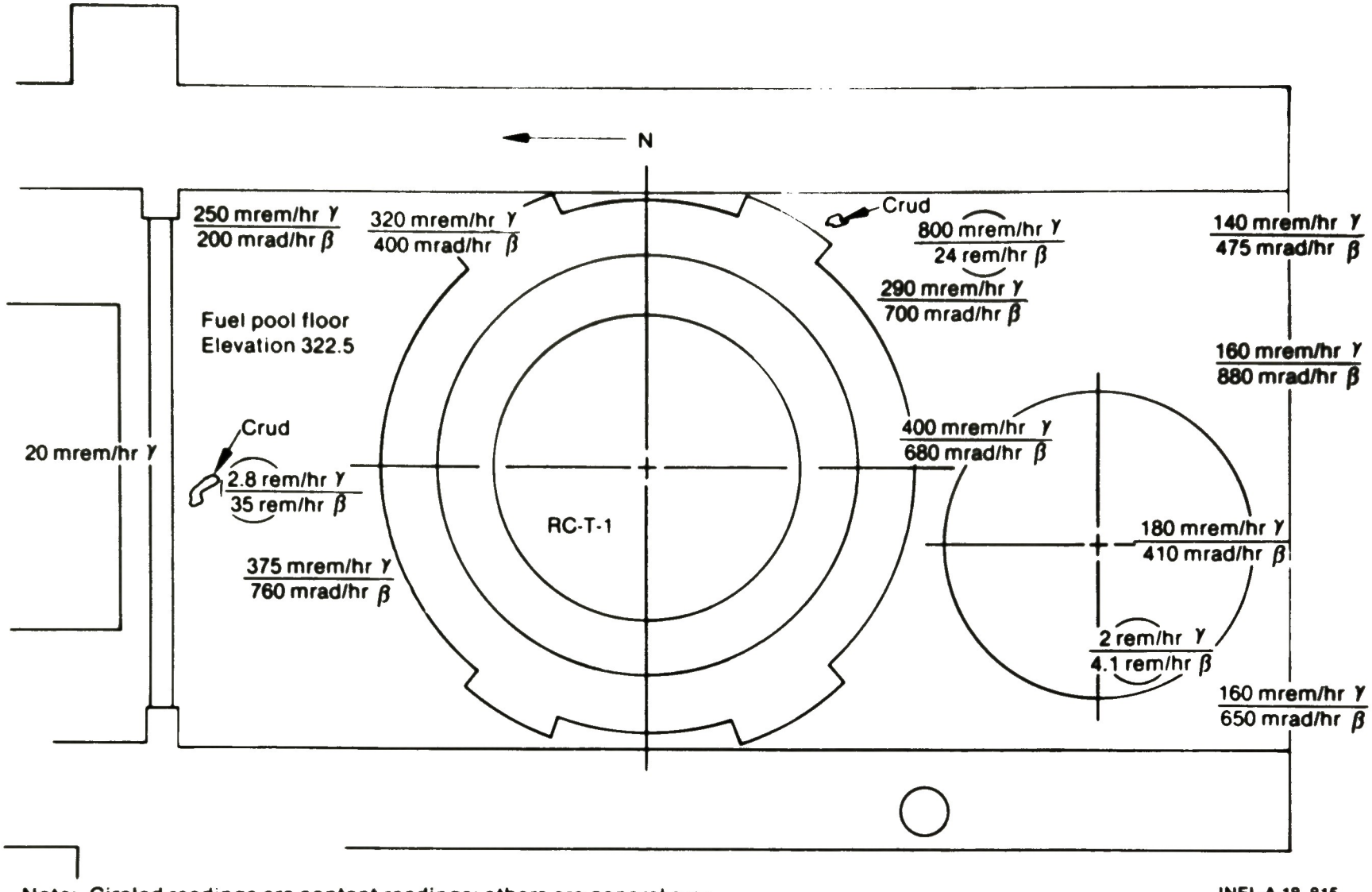


Figure 7. Reactor head radiator survey looking south.



Note: Circled readings are contact readings; others are general area.

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Figure 8. Fuel pool radiation survey.

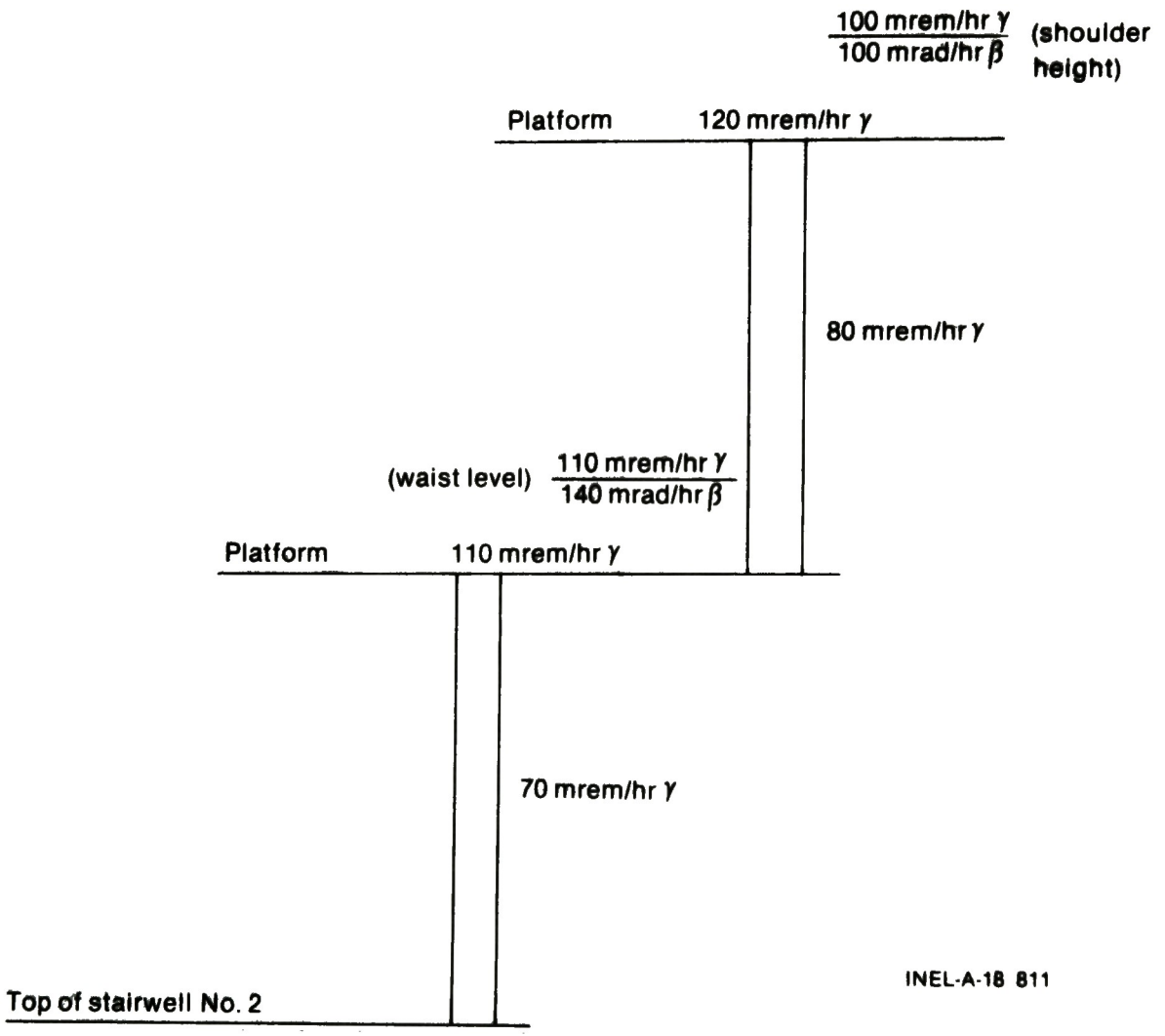
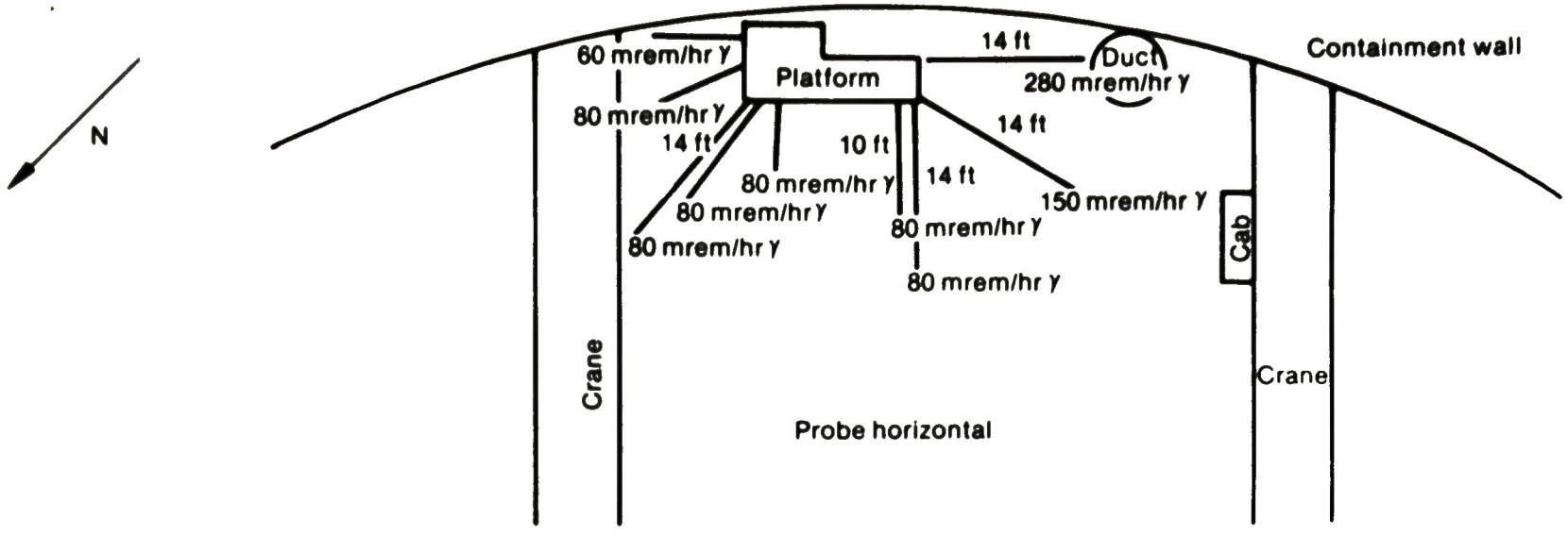


Figure 9. Polar crane access ladder radiation survey.



≈8 ft straight up - close to wall - 50 mrem/hr γ
≈8 ft straight up - 3 ft from wall - 100 mrem/hr γ

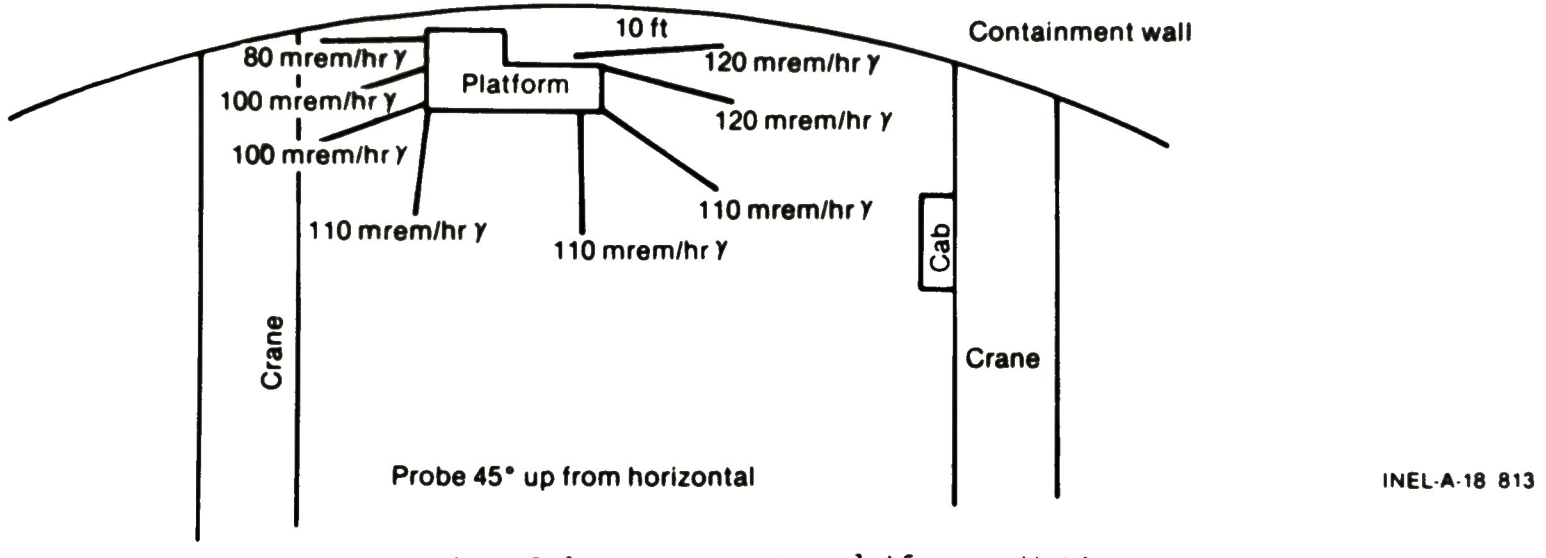


Figure 10. Polar crane access platform radiation survey.

TABLE 4. ENTRY 5 SURFACE CONTAMINATION

Data Acquisition Task Number	Specimen[a,b]	Sample[c] Number	Location[d]	Gross α[e] (μCi)	Gross β and γ[e] (μCi)	Sr-90/Y-90[f] (μCi)	Cs-134[g] (μCi)	Cs-137[g] (mCi)
42A	1	53670	PC-1-S	--[h]	--	6.7^{-2} 5.2^{-2}	3.0^{-1}/ 4.0^{-1}	2.1^{0}/
42A	2	53671	PC-1-S	--	--	8.2^{-2}	9.6^{-2}/ 4.6^{-2}	6.6^{-1}/ 3.6^{-1}
42A	3	53672	PC-1-S	--	--	1.5^{-1}	7.2^{-2}/ 1.8^{-1}	4.9^{-1}/ 1.3^{0}
42A	4	53673	PC-1-S	--	--	6.0^{-2}	8.9^{-2}/ 4.0^{-2}	6.2^{-1}/ 2.9^{-1}
42A	4	53673	PC-1-S	--	--	6.0^{-2}	8.9^{-2}/ 4.0^{-2}	6.2^{-1}/ 2.9^{-1}
42A	5	53674	PC-2-S	$<5.4^{-7}$[i]	--	3.3^{-3}	2.7^{-2}/ 6.0^{-3}	1.8^{-1}/ 4.4^{-2}
42A	6	53675	PC-2-S	$<5.4^{-7}$	--	4.2^{-3}	2.6^{-2}/ 9.4^{-3}	1.8^{-1}/ 6.7^{-2}
42A	7	53676	PC-3-S	$<5.4^{-7}$	--	4.9^{-3}	5.1^{-2}/ 1.7^{-2}	3.4^{-1}/ 1.2^{-1}
42A	8	53677	PC-3-S	$<5.4^{-7}$	--	9.1^{-3}	4.3^{-2}/ 1.9^{-2}	2.9^{-1}/ 1.4^{-1}
42A	9	53678	PC-4-S	--	--	1.1^{-2}	7.3^{-2}/ 5.1^{-2}	5.1^{-1}/ 3.7^{-1}

TABLE 4. (continued)

Data Acquisition Task Number	Specimen[a,b]	Sample[c] Number	Location[d]	Gross α[e] (μCi)	Gross β and γ[e] (μCi)	Sr-90/Y-90[f] (μCi)	Cs-134[g] (μCi)	Cs-137[g] (mCi)
42A	10	53679	PC-4-S	--	--	1.6^{-2}	9.0^{-2}/ 3.0^{-2}	6.2^{-1}/ 2.1^{-1}
42A	11	53680	PC-5-S	$<5.4^{-7}$	--	4.4^{-3}	4.2^{-2}/ 1.0^{-2}	2.9^{-1}/ 7.0^{-2}
42A	12	53681	PC-5-S	$<5.4^{-7}$	--	5.2^{-3}	5.2^{-2}/ 1.2^{-2}	3.6^{-1}/ 8.8^{-2}
42A	13	53682	DP-1-S	--	--	3.1^{-2}	1.6^{-1}/ 1.2^{-1}	1.1^{0}/ 9.0^{-1}
42A	14	53683	DP-1-S	--	--	6.9^{-2}	3.2^{-1}/ 2.7^{-1}	2.2^{0}/ 2.0^{0}
42A	15	53684	DP-1-S	--	--	4.9^{-2}	1.4^{-1}/ 1.1^{-1}	9.6^{-1}/ 7.8^{-1}
42A	16	53685	DP-1-S	--	--	2.6^{-2}	1.1^{-1}/ 8.7^{-2}	7.7^{-1}/ 6.3^{-1}
42A	17	53686	DP-2-S	--	--	7.5^{-3}	5.3^{-2}/ 4.5^{-2}	3.7^{-1}/ 3.2^{-1}
42A	18	53687	DP-2-S	--	--	4.2^{-4}	6.5^{-2}/ 4.8^{-2}	4.5^{-1}/ 3.4^{-1}
42A	19	53688	DP-3-S	$<5.4^{-7}$	3.2^{-2}	1.1^{-3}	2.0^{-2}/ 6.2^{-3}	1.4^{-1}/ 4.4^{-2}

TABLE 4. (continued)

Data Acquisition Task Number	Specimen[a,b]	Sample[c] Number	Location[d]	Gross α[e] (μCi)	Gross β and γ[e] (μCi)	Sr-90/Y-90[f] (μCi)	Cs-134[g] (μCi)	Cs-137[g] (mCi)
42A	20	53689	DP-3-S	$<5.4^{-7}$	1.4^{-2}	5.6^{-4}	1.2^{-2}/ 2.2^{-3}	8.1^{-2}/ 1.8^{-2}
42A	21	53690	DP-4-S	--	--	5.5^{-1}	1.2^{-1}/ 9.9^{-2}	8.0^{-1}/ 7.4^{-1}
42A	22	53691	DP-4-S	--	--	5.6^{-2}	5.7^{-2}/ 4.7^{-2}	4.0^{-1}/ 3.4^{-1}
42A	23	53692	Not taken	--	--	--	--	--
42A	24	53693	Not taken	--	--	--	--	--
42A	25	53694	PC-1-AP	--	--	3.0^{-3}	6.5^{-2}/ 3.4^{-2}	4.6^{-1}/ 2.7^{-1}
42A	26	53695	Not taken	--	--	--	--	--
42A	27	53696	Not taken	--	--	--	--	--
42A	28	53697	PC-1-AP	--	--	1.0^{-1}	2.4^{-1}/ 1.7^{-1}	1.6^{0}/ 1.3^{0}
42A	29	53698	PC-2-AP	$<5.4^{-7}$	4.7^{-2}	2.6^{-3}	1.8^{-2}/ 1.2^{-2}	1.2^{-1}/ 9.6^{-2}
42A	30	53699	PC-2-AP	$<5.4^{-7}$	--	8.8^{-3}	3.4^{-2}/ 2.4^{-2}	2.4^{-1}/ 1.9^{-1}
42A	31	53700	PC-3-AP	--	--	5.2^{-2}	2.1^{-1}/ 3.4^{-2}	1.4^{0}/ 2.7^{-1}

TABLE 4. (continued)

Data Acquisition Task Number	Specimen[a,b]	Sample[c] Number	Location[d]	Gross α[e] (μCi)	Gross β and γ[e] (μCi)	Sr-90/Y-90[f] (μCi)	Cs-134[g] (μCi)	Cs-137[g] (mCi)
42A	32	53701	PC-3-AP	$<5.4^{-7}$	3.9^{-2}	4.8^{-2}	1.2^{-2}/ 9.3^{-3}	8.5^{-2}/ 7.3^{-2}
42A	33	53702	PC-4-AP	$<5.4^{-7}$	6.0^{-3}	8.3^{-4}	8.1^{-3}/ 6.8^{-3}	5.7^{-2}/ 5.0^{-2}
42A	34	53703	PC-4-AP	$<5.4^{-7}$	8.3^{-3}	8.1^{-4}	1.1^{-2}/ 6.8^{-3}	6.7^{-2}/ 5.4^{-2}
42A	35	53704	PC-5-AP	$<5.4^{-7}$	--	6.5^{-3}	1.6^{-2}/ 1.3^{-2}	1.1^{-1}/ 9.9^{-2}
42A	36	53705	PC-5-AP	$<5.4^{-7}$	--	6.5^{-3}	3.0^{-2}/ 2.2^{-2}	2.0^{-1}/ 1.7^{-1}
42A	37	53706	PC-2-AP	$<5.4^{-7}$	--	2.8^{-3}	2.4^{-2}/ 1.6^{-2}	1.7^{-1}/ 1.2^{-1}
42A	38	53707	PC-2-AP	$<5.4^{-7}$	4.9^{-2}	3.5^{-3}	1.5^{-2}/ 1.1^{-2}	1.0^{-1}/ 8.3^{-2}
42A	39	53708	PC-2-S	$<5.4^{-7}$	--	5.9^{-3}	2.9^{-2}/ 8.6^{-3}	2.2^{-1}/ 6.3^{-2}
42A	40	53709	Not taken	--	--	--	--	--
42A	41	53710	DP-2-S	$<5.4^{-7}$	--	8.6^{-4}	2.4^{-2}/ 1.2^{-2}	1.6^{-1}/ 8.9^{-2}
42A	42	53711	DP-2-S	--	--	4.1^{-3}	4.9^{-2}/ 3.7^{-2}	3.3^{-1}/ 2.7^{-1}

TABLE 4. (continued)

a. Readings are per swipe (specimens 1-24, and 39-42) of approximately 100 cm^2.

b. Acetate pads are approximately 8 cm^2 (specimens 25-38).

c. All samples have a high potential of being cross contaminated--see sample coordinators note on data sheets.

d. Key: DP indicates the diamond plate decon test
PC indicates the painted concrete decon test (see Figure 11);
1 indicates general area survey
2 indicates a strong decon solution was used
3 indicates a mild decon solution was used
4 indicates LP water
5 indicates HP water;
S indicates a swipe was used
AP indicates an acetate pad was used.

e. B&W.

f. SAI.

g. B&W/SAI.

h. -- indicates that analysis was not performed.

i. Less than symbol (<) implies results below lower limit detectable (LLD).

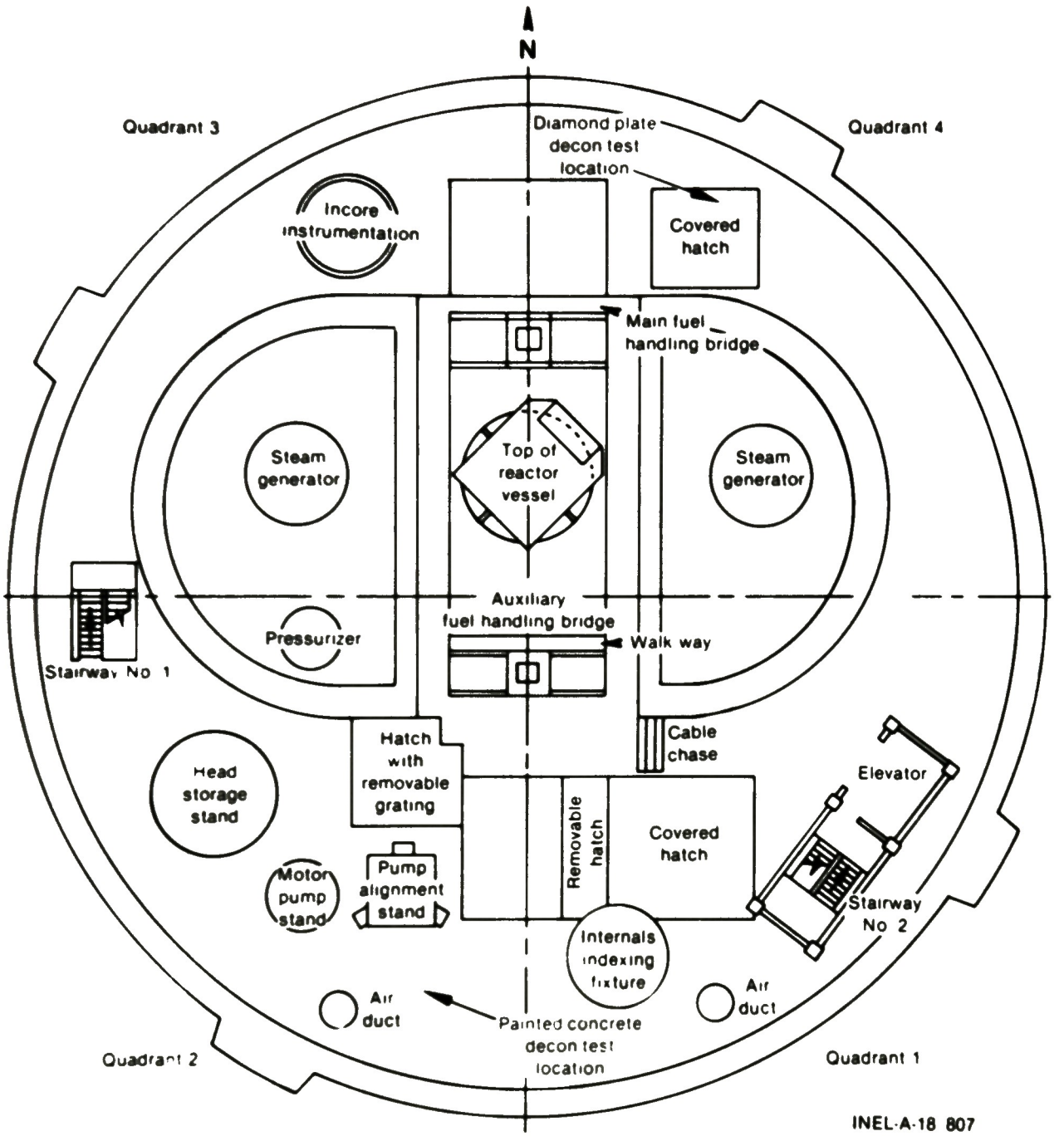


Figure 11. Entry 5, Elevation 347 surface contamination test locations.

TABLE 5. ENTRY 5 AIRBORNE ACTIVITY

Speciman	Sample Number	I-131[b] (μCi/ml)	Cs-134[d] (μCi/ml)	Cs-137[d] (μCi/ml)	Co-58[b] (μCi/ml)	Co-60[b] (μCi/ml)	Sr-90[e] (μCi/ml)	Gross α[b] (μCi/ml)	Gross β and γ[b] (μCi/ml)	Comments
BZA[a]	53737	$<1.8^{-9}$	8.5^{-8}/ 8.6^{-8}	6.8^{-7}/ 6.7^{-7}	$<5.8^{-10}$	$<2.9^{-10}$	3.4^{-8}	$<1.92^{-12}$	5.86^{-7}	Had finger print on filter
BZA	53738	$<3.0^{-10}$	5.8^{-9}/ 5.1^{-9}	4.9^{-8}/ 4.0^{-8}	$<1.2^{-10}$	$<9.6^{-11}$	1.4^{-9}	$<1.58^{-12}$	3.88^{-8}	
BZA	53739	$<1.3^{-10}$	4.4^{-10} 4.6^{-10}	3.2^{-9}/ 3.1^{-9}	$<1.3^{-10}$	$<2.1^{-10}$	5.4^{-10}	$<1.22^{-12}$	3.81^{-9}	
BZA	53740	$<5.5^{-10}$	1.4^{-8}/ 1.1^{-8}	1.1^{-7}/ 8.3^{-8}	$<1.8^{-10}$	$<1.1^{-10}$	4.3^{-9}	$<9.97^{-13}$	1.00^{-7}	
BZA	53741	$<1.2^{-10}$	1.1^{-9}/ 8.8^{-10}	8.5^{-9}/ 6.1^{-9}	$<5.1^{-11}$	$<6.0^{-11}$	1.8^{-10}	$<9.97^{-13}$	9.07^{-9}	
BZA	53742	$<5.8^{-10}$	7.5^{-9}/ 5.4^{-9}	6.0^{-8}/ 4.0^{-8}	$<1.6^{-10}$	$<2.7^{-10}$	1.3^{-9}	$<1.58^{-12}$	4.80^{-8}	
BZA	53743	$<4.7^{-10}$	1.3^{-8}/ 9.4^{-9}	9.8^{-8}/ 7.6^{-8}	$<1.5^{-10}$	$<9.3^{-11}$	4.1^{-9}	$<8.68^{-13}$	5.71^{-8}	
BZA	53744	$<5.8^{-10}$	1.8^{-8}/ 1.9^{-8}	1.4^{-7}/ 1.4^{-7}	$<1.9^{-10}$	$<1.2^{-10}$	6.8^{-9}	$<1.90^{-12}$	9.13^{-8}	
BZA	53745	$<6.7^{-11}$	$<1.4^{-10}$/ $<9.6^{-11}$	1.2^{-10}/ $<1.8^{-10}$	$<1.3^{-10}$	$<2.1^{-10}$	$<6.5^{-9}$	$<1.22^{-12}$	9.30^{-10}	
BZA	53746	$<8.1^{-10}$	1.9^{-8}/ 2.3^{-8}	1.5^{-7}/ 1.7^{-7}	$<2.3^{-10}$	$<1.7^{-10}$	4.6^{-9}	$<1.58^{-12}$	9.64^{-8}	
BZA	53747	$<3.2^{-10}$	6.4^{-9}/ 6.9^{-9}	5.2^{-8}/ 5.6^{-8}	$<1.2^{-10}$	$<1.6^{-10}$	4.5^{-9}	$<1.50^{-12}$	3.93^{-8}	
BZA	53748	$<1.0^{-9}$	1.9^{-8}/ 1.7^{-8}	1.5^{-7}/ 1.3^{-7}	$<2.6^{-10}$	$<3.3^{-10}$	6.5^{-9}	$<1.92^{-12}$	8.65^{-8}	

TABLE 5. (continued)

Speciman	Sample Number	I-131[b] (μCi/ml)	Cs-134[d] (μCi/ml)	Cs-137[d] (μCi/ml)	Co-58[b] (μCi/ml)	Co-60[b] (μCi/ml)	Sr-90[e] (μCi/ml)	Gross α[b] (μCi/ml)	Gross β and γ[b] (μCi/ml)	Comments
BZA	53749	<2.7-10	8.3-9/ 1.0-8	6.3-8/ 8.2-8	<8.7-11	<6.4-11	4.7-9	<1.58-12	1.40-7	
BZA	53750	<8.5-10	2.2-8/ 1.7-8	1.7-7/ 1.3-7	<2.6-10	<1.7-10	4.2-9	<1.58-12	1.43-7	
Portable Tritium Sampler	53611	--[f]	--	--	--	--	--	--	--	H-3 1.3-6 μCi/Cm^3

a. Label air sample.

b. B&W.

c. Les than symbol (<) implies result below lower limit detectable (LLD).

d. B&W/SAI.

e. SAI.

f. -- indicates analysis not performed.

TABLE 6. ENTRY 5 PRELIMINARY TLD READINGS

Team Member	Whole Body (mRem) Gamma	Skin (mRem) Beta	Maximum Extremity (mRem) Gamma	Maximum Extremity (mRem) Beta	Approved Dose Limit (mRem)	Whole Body Dose Estimate (mRem)
Rad Con No. 1	700	0	730	0	1000	500
Data Recorder No. 1	610	0	740	0	1000	500
Rad Con No. 2	610	0	650	0	1000	500
Data Recorder No. 2	530	0	670	0	1000	500
Rad Con No. 3	350	0	490	0	1000	500
Data Recorder No. 3	330	0	450	0	1000	500
Rad Con No. 4	550	0	600	0	1000	500
Data Recorder No. 4	420	15	510	0	1000	500
Data Recorder No. 5	350	0	490	0	1000	500
Decon No. 1	300	50	340	0	1000	500
Decon No. 2	260	0	310	0	1000	500
Decon No. 3	250	0	340	0	1000	500
Engineer	320	25	360	0	1000	500
NRC	320	65	380	0	1000	500

TABLE 7. ENTRY 5 EQUIPMENT LIST

Survey Equipment		Protective Clothing/Individual		Tools and other Equipment	
Type	Quantity	Type	Quantity	Description	Quantity
RO-2A	5	RC's w/hoods, gloves	2	Nikon FE w/flash (telephoto 80 to 250 mm)	1
Teletector	1	Fireman's boots, Knee high, pair	1	Nikon FE w/flash (28 mm wide angle)	1
				Nikonos III w/flash (35 mm)	1
E-530-N (2 probes)	1	Wet suits (1-piece) (5 men only)	1	CCTV (1 color, 1 B&W)	2
		MSA Purifier	1	Large light	2
				Small lights/individual	1
		BZA Samplers	1	Two-way radio/team	1
				Digital Dosimeter/team	1
				Pencil Dosimeter/individual	3
				Light Bar (for CCTV)	1
				Battery charger (w/extension cord) (for CCTV)	1
				Survey maps on clipboards w/pens (per survey team)	1

TABLE 7. (continued)

Survey Equipment		Protective Clothing/Individual		Tools and other Equipment	
Type	Quantity	Type	Quantity	Description	Quantity
				Decon Equipment	
				Pressurized spray bottles	7
				Thermometers	7
				Bottles of strippable coating	2
				Turco Decon Soln #4324, diluted	1 qt
				Turco Decon Soln #4512A, diluted	1 qt
				Acetate pads/solvent	20
				Swipes	22
				Terri towels	40
				Duct tape	1 roll
				Squeegee	2
				Clipboard	1
				2 x 3 feet Herculite pad	1
				Scrub brushes	2
				1/4-inch x 2 x 3 feet rubber mat	2
				Insulated basket	1
				Marking pencil	1
				Area labels No. 1-6	6
				1-inch blade putty knife	1

J. Brasher (GPU--Manager Radcon)

Lights off on Elevation 347, pushed three breakers on
- one breaker (on left) made noise--turned off
- lights started to come on.

Removed flood lights, bolt on new set too large for handle
- could not mount
- left lights on camera.

Completed survey to L-13 on survey map
- high readings around floor penetrations and opening to Elevation 282; also around Core Flood Tank B
- readings dropped off considerably away from openings.

Exited when digital reached 611 mrem, left equipment on cart, except clipboard.

W. Wattson (GPU--Rad Engineer)

Moved to electrical panel 3A
- noted switches at pushbutton station were botn open
- upon closing, the lights started to come on.

Photos of penetration
- difficult because of obstructions
- difficult to see
- used flood light for assistance.

Incore Cable Chase
- encountered an expanded metal barrier mounted with 2 x 4's, bolt cutters ineffective
- moved back to cart
- picked up diagonal cutters and then cut barrier down, rolled it up and placed on floor.

A. Palmer (Met-Ed Radcon)

Area around incore cable chase is not suitable for sampling the sump water due to a safety fence which you would have to climb over. Also you would have to stand on an I-beam over the water in order to sample. There is no shielding. (Safety Rail--2 horizontal bars, 3 vertical supports, 3 feet high, on other side 6 inches concrete ledge and an I-beam that juts out with a bunch of cables in front of you--can't see water leaning over railing).

There is a penetration (location C-13) which looks like a 12 inch diameter cylinder would fit down and the water is visible below that.

Floor drains are beta hot spots and I recommend covering those over as soon as possible.

I also recommend locating the tool box in an easily accessable location.

R. Hanson (Met-Ed Radcon)

Going up the stairway the dose rate dropped considerably--1 rem on first landing as opposed to 5 rem on Elevation 305.

Hot spot on floor (Location L-6) roughly corresponds to the water marks on floor--mostly beta.

Most of the floor drains were not too bad; one floor drain (Location L-13) was reading 14 rem open window (RO-2A).

One core floor piping penetration (Location M-12) was not there. There is only one.

Piping upstream of check valve under Core Flood Tank B is hot (high radiation).

Also the banana plugs on the battery charger did not seem to fit properly. I pushed them in as far as I could, but I don't know if they were engaged properly or not.

T. Morris (Bechtel Northern Corporation--Engineer)

Three pictures of air coolers.

Top of elevator shaft, 2 pictures of HP-R-214 and Elevation 347 panoramics; one shot inside motor room, left hatch open on top of stairwell.

Rubber seal on one electrical box on the north end of stairwell #2 has melted.

Drums have chemical looking crud on top of them--looks like a caustic melting rather than heat melting.

There are small boxes mounted on the handrail around the D-ring which are empty, and one had some rolled up paper sticking out of it and it was burnt, but the paper tags inside were OK.

Cables looked old and cracked--all over top of D-rings.

Tried to remove box and around movable in-core probe, but it wouldn't move.

One thimble was covered with boron crystals (northwest side) and was reading 5 rem/hr.

Tygon clips were melted together--brittle and fractured on touch--had lost their form and some had melted through.

Only one big valve pedestal north of fuel pool.

Two hydraulic controller panels near fuel pool and all plastic indicators have melted, but they all melted in different directions. Some upward, some straignt down.

One end of big tool box is open and inside are some galvanized rods and all kinds of molten junk.

On the hydraulic controller, southeast there is a book on top and the edges of the book were burned, but the center was legible.

Looked like about a 50-50 mix of stuff which was burned and stuff which was caustically melted. Southeast quadrant of D-ring looked like things had been burned and melted while in other places it looked like things had been caustically melted.

Nine lignts on around dome.

J. Collins (NRC)

Firehoses and cables look OK from a distance, but are actually cracked and brittle.

Extensive indication of a burn or high temperature all over Elevation 347.

T. Block (GPU--Decon Manager)

150 to 300 mrem/hr in decon test area.

Light fixture feel off camera onto floor.

Floor condition not as dirty as I thought it would be. The high pressure flush moved some dirt, but not that much.

Floor is not as smooth a texture as what the Auxiliary Building is. It is rough and heavily pocked.

The paint, after the flush and dry operation, is not glossy. It doesn't have a sheen to it like epoxy paint. It is a dull finished paint.

Low pressure flush did move some dirt.

Burnt radiation sign on diamond plate read 3 rem/hr. So we stayed away from it.

Diamond plate appeared to clean up pretty good with high and low pressure flushes.

The acetate pads did not work; they didn't adhere to the floor at all.

Strong acid solution dries your throat, and is very caustic in your throat and nose when you breathe it through your respirator.

Next time get an HP to do swipes.

70 minutes maximum in wet suit.

C. Shorts (Bechtel National--Engineer)

Problems with RO-2A, hard to change scales for beta readings, with plastic bag over meter.

Lots of residue on floor.

Strong decon solution gave good visual results with scrubbing; significant difference from unscrubbed area.

Mild decon did as good a job visually as the strong solution
- cement was very clean.

Decon tests on diamond plate proceed a little smoother despite congestion.

Trouble spreading strippable coat on diamond plate because of high ridges.

Belt of blower pack slipped down, pulled on face mask.

Information obtained with RO-2A and E-530-N may not be too useful because the background was too high and will mask out any significant difference. Visually there was a significant difference.

R. Hoffman (Met-Ed--Communication)

Red extension cord for CCTV will be a problem
- strung out all over.

Wrong bolt was removed to attach light bar, but no tools were available so I just piled the lights on the cart.

Cart is very cumbersome and hard to move.

Color camera not warmed up; black and white was warmed up and hooked up to recorder.

Cable on cart is a mess needs cleaning up.

Turned color camera on
- got bright flash on viewfinder and monitor
- did not get a picture; switch was in auxiliary position (camera on)
- unplugged camera and reattached black and white camera.

Clutter of equipment in area made video taping very difficult. Also had to set camera down to assist in test.

Rewired color camera and started to get image.

Moved color camera to diamond plate
- it was working properly by this time
- hung new high intensity lights on cart and video tape 20 minutes of the test.

Put camera back where we found it
- left battery charger off, turned camera off and monitor on standby
- no lens cap
- placed big yellow bag over camera.

Camera usable again if someone sets it up prior to use.

W. Cooper (Met-Ed--Radcon)

Reactor Head Survey
- 250 mrem/hr at top of fuel pool ladder
- 100 mrem/hr below Elevation 347 to bottom of pool
- 150 mrem/hr pool floor with RO-2A.

Most shield tanks dry on south side of reactor. One tank on northeast side had about 6 inches of water in it.

Large pile of crud on north side of pool
- 2.5 rem/hr γ, 40 rad/hr β on contact.

Fuel pool dirty
- feels gritty under your feet.

Polar crane survey
- two separate ladders up to crane
- cab is approximately 30 feet from platform.

J. Renshaw (GPU--Manager Field Ops--Radcon)

Extension of ladder above the fuel pool is carbon steel angle iron and is very rusty.

Floor of the pool feels gritty
- can't really see it, but you can feel it when walking.

More water in shield tanks on north side, almost none in tanks on south side.

Underneath the neutron shield tank which we pulled back, it appeared to be rusty
- took two photos.

Climbed over head on east side.

General area radiation levels slightly higher on north side than on south side.

Pile of crud on north side is about two feet square, looks like boric acid crystals mixed with sawdust, greenish in color
- hard to describe.

Pile is very distinct and is approximately 1/4 inch thick. Nothing directly overhead, so it's hard to explain how it got there.

Very dark in deep end of pool.

G. Eidam (EG&G--Engineer)

Inspected refueling bridge
- visual inspection.

Maintenance manual behind headset is burnt around edges, but the center is legible.

The earpieces on the headset look like they have been melted.

All plastic controls are melted and deformed.

Gauges
- one is radiation darkened
- another looks perfectly intact
- another is melted from bottom side.

Wires in back of the control bridge are very corroded and melted. Some of the wiring going down to head have paper tags attached to the individual cables which are OK.

Drive gears were rusty on exposed upper surfaces. Bottom side looked very shiny.

Drive mechanism frozen up (rusted).

Pan under drive motor was full of the green crystals like those in the fuel pool.

No pattern to heat or burn damage.

Polar crane inspection
- wire ropes look to be in pretty good shape
- crane hooks are very rusted
- one power conductor fell to floor, other two are still there. Plastic insulation was heated and then contracted and separated every 10 to 12 feet. The conductors are highly corroded. Conductors going down side of the crane are in the same condition.

Paint chips are breaking loose from the dome and floating to the floor.

From point of observation I could not see the bridge drives or motors.

Took photos of hook, drums, and rigging which looked in pretty good shape.

Could not see any of the electrical components.

Access to crane is possible with safety lines.

There is moisture on crane surfaces.

J. Hildebrand (GPU--Manager Rad Services)

Dose rates are fairly consistent all over Elevation 347.

Covered total survey area.

Moved electrical cable for video back to location of camera.

D. Smith (Met-Ed Radcon)

Radiation levels in penetrations and floor drains not significant when compared to contamination on floor
- don't contribute to background significantly.

Some water on floor in several areas
- no significant radiation.

Valve manifold in southwest quadrant of west D-ring had white crystalline matter on floor underneath it, but no significant increase in radiation levels.

Cable trays had contamination in them
- 3 to 4 rad/hr β waist to head heights

- also very dusty
- cables look OK.

Extensive rusting of all metal surfaces, both painted and unpainted.