

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 30-13951/88001(DRSS)

Docket No. 30-13951

License No. 21-18619-01

Priority 3

Category G

Licensee: Kirwood General Hospital  
4059 West Davison  
Detroit, MI 48238

Facility Name: Kirwood General Hospital

Inspection Conducted: June 5-6, 1986 and March 22, 1988

Inspector:

J. W. Patterson  
J. W. Patterson  
Radiation Specialist

April 25, 1988  
Date

Approved By:

D. G. Wiedeman  
D. G. Wiedeman, Chief  
Nuclear Materials Safety  
Section 1

4-25-88  
Date

Inspection Summary

Inspection on June 5-6, 1986 and March 22, 1988 (Report No. 30-13951/88001)

This facility was in the process of bankruptcy for the last two years; the estate administrator during this period was Molly McIntyre. The property has been purchased by Michigan Health Care Corporation. The west side of the facility has been completely remodeled, however, the east side of the building where the old nuclear medicine department was located, was found to have a leaking roof and three inches of water on the basement floor, no plumbing, windows out, etc. It was the inspector's understanding that this wing will be demolished by June/July 1988.

Areas Inspected: Routine, unannounced inspection and close-out, limited to survey of facility for residual contamination and radiation prior to release of the facility for unrestricted use. Six (6) wipes were taken and assayed for removable activity. The facility was surveyed to identify fixed contamination or materials remaining.

Results: Of the areas inspected, no violations were identified.

## DETAILS

### 1. Persons Contacted

Johnny C. Brown, Administrator  
Alma R. George, M.D., Owner  
Steven G. Howell, Attorney, for Kirwood General Hospital (313/256-7920)  
Bill Miller, Consultant, Nuclear Medicine Associates, Inc. (216/641-5999)  
Jerry Aldridge, Administrator, Michigan Health Care Corp. (313/874-9100)  
George C. Evans, M.D., Radiology Associates (313/544-3877)  
John David Mellen, M.D., Radiology Associates (313/544-3877)  
William Macke, Plant Operations, Michigan Health Care Corp.  
Mervyn Redd, Director, Plant Operations, Kirwood General Hospital  
Eugene Buxton, Nuclear Medicine Technologist, Radiology Associates  
(313/274-0053; 313/574-0430)

### 2. Instrumentation Used in Survey

Measurements of gamma radiation levels were made with a Xetex 305B survey meter S/N 23356, last calibrated on May 7, 1986. Wipes were counted on a Canberra LB 2201 Series low background gas flow proportional counter calibrated for gross alpha, beta and gamma radiation.

### 3. Disposition of Material

Four (4) radioactive calibration sources were transferred to Radiology Associates, P.C., 4245 Beech Daly Road, Dearborn Heights, Michigan, under authorization of NRC License No. 21-16754-01 on August 1, 1986.

This information was confirmed over the telephone during a conversation with Dr. Mellen, authorized user on March 29, 1988. From visual inspection of the premises on March 22, 1988, it appeared that none of the licensable material was being used or stored at this location, as identified on previous inspections.

### 4. Radiation Survey Results

All floor, bench tops, desk and scanning camera imaging stand were surveyed by the inspector for gamma/beta radiation. No radiation levels above normal background were detected.

### 5. Survey for Removable Contamination

Six (6) wipes were taken of the camera room and office area and counted for alpha and beta activity. Locations of swipe samples are shown in Attachment B. As seen in Attachments A and B, no levels above the limits listed in Table 1 of Regulatory Guide 1.86 were detected. A copy of the licensee final survey is enclosed with this report. For details, refer to Attachment C.

6. Exit Interview

The results of the survey were reviewed with Drs. Alma George and John D. Mellen, RSO, and Steve Howell, Attorney.

7. Conclusion

Based on the information obtained on-site, a close-out survey conducted by the licensee and telephone confirmations, the NRC inspector concluded that there is no regulatory reasons why this facility could not be released for unrestricted use and the license terminated.

# FLOOR PLAN - HOT LABORATORY - Room B-68

## KIRWOOD GENERAL HOSPITAL

June 5-6, 1986

Attachment A.

- ☒ Air Supply
- ☒ Air Exhaust
- ☒ Sink
- ☐ Lead Castle

- Scanner
- ② Uptake
- Well
- Scaler
- ① Camera, IV
- File
- ③ Lockable Door
- ④ Isotope Receipt Area, I, II
- ⑤ Generator
- ⑥ Kit preparation
- ⑦ Isotope Storage
- ⑧ Dose Preparation
- ⑤ Waste Storage
- ⑧ Dose Calibrator
- Refrigerator
- Floor, VI, III
- Adjacent Areas

- Desk, V
- Office
- Office

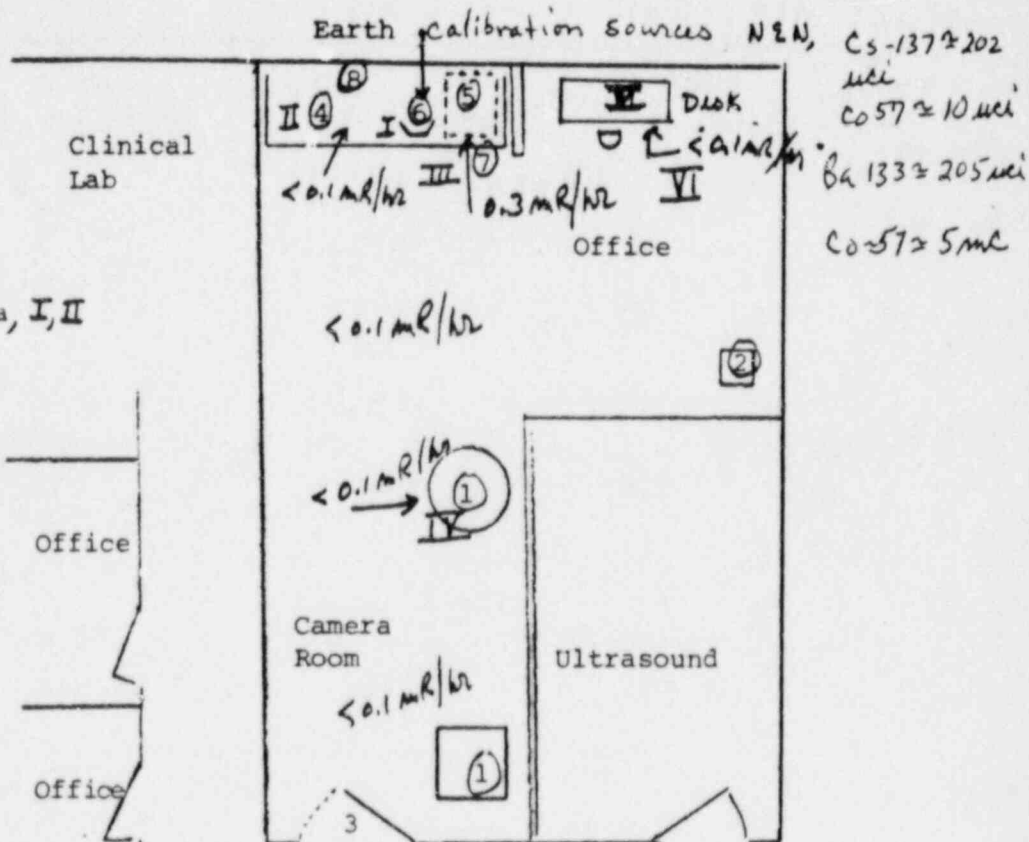
### Lead Shielding

7 Lead Castle (Bricks)  
8" L x 4" W x 4" H x 2" T

6 L-Shield  
8" L x 8" W x 16" H x 1/2" T

\_\_\_ L x \_\_\_ W x \_\_\_ H x \_\_\_ T

\_\_\_ L x \_\_\_ W x \_\_\_ H x \_\_\_ T



U.S. NUCLEAR REGULATORY COMMISSION

Attachment B

REGION III

LABORATORY ANALYSIS REPORT

\*\*\*\*\*

DATE: 06/16/86 14:14:33  
 TITLE: KIRWOOD GENERAL HOSPITAL, DETROIT, MICHIGAN (PATTERSON).  
 INSTRUMENT: CANBERRA/TRS-80 ALPHA/BETA ANALYSIS SYSTEM  
 SAMPLES FROM: KIRWOOD GENERAL HOSPITAL  
 SAMPLE TYPE: SMEARS (100 CM2).  
 COLLECTED BY: J.W. PATTERSON.  
 COLLECTED ON: 6/5-6/86

ERRORS ARE AT THE 95% (2 SIGMA) CONFIDENCE LEVEL

\*\*\*\*\*

	LIVE TIME(MIN)	ACTIVITY (DPM)	COUNTS ALPHA	COUNTS BETA	EFFICIENCY+/-ERROR	%ATTEN
BACKGROUND :	20		1	17		
ALPHA SOURCE:	0	0	69680	7919	.302188	.0094
BETA SOURCE:	0	0	3678	214952	.282115	.0086

	ALPHA	BETA
LC: CRITICAL LEVEL (DPM)	.386093	1.70517
LD: DETECTION LIMIT (DPM)	1.22265	3.89286
LOSS DUE TO CROSSTALK	.101953	.0155477

ALPHA

BETA

COUNTS	DPM	ERROR	uCi/UNIT	ERROR	COUNTS	DPM	ERROR	uCi/UNIT	ERROR
--------	-----	-------	----------	-------	--------	-----	-------	----------	-------

SAMPLE	POS.	DESCRIPTION	LIVE TIME(MIN)	VOLUME	CM2
SAMPLE=86-233	#1	DESCRIPTION: <del>1</del>	20	100	CM2
4.1	0.5	0.81	2.47E-09	3.7E-09*	19.1<
2.1					2.1
					1< 9.40E-09

SAMPLE	POS.	DESCRIPTION	LIVE TIME(MIN)	VOLUME	CM2
SAMPLE=86-234	#2	DESCRIPTION: #2	20	100	CM2
4.1	0.5	0.81	2.42E-09	3.7E-09*	23.1<
2.1					2.9
					1< 1.31E-08

SAMPLE	POS.	DESCRIPTION	LIVE TIME(MIN)	VOLUME	CM2
SAMPLE=86-235	#3	DESCRIPTION: #3	20	100	CM2
4.1	0.6	0.81	2.48E-09	3.7E-09*	18.1<
2.1					1.9
					1< 8.47E-09

SAMPLE	POS.	DESCRIPTION	LIVE TIME(MIN)	VOLUME	CM2
SAMPLE=86-236	#4	DESCRIPTION: #4	20	100	CM2
5.1	0.7	0.91	3.30E-09	4.0E-09*	19.1<
2.1					2.1
					1< 9.31E-09

SAMPLE	POS.	DESCRIPTION	LIVE TIME(MIN)	VOLUME	CM2
SAMPLE=06-137	#5	DESCRIPTION: #5	20	100	CM2
2.1<	0.7	1<	3.21E-09	*	17.1<
					1.7
					1< 7.83E-09

SAMPLE	POS.	DESCRIPTION	LIVE TIME(MIN)	VOLUME	CM2
SAMPLE=06-238	#6	DESCRIPTION: #6	20	100	CM2
3.1<	0.9	1<	4.24E-09	*	15.1<
					1.7
					1< 7.83E-09

\*\*\*\*\*

START TIME: 06/16/86 12:08:22  
TITLE: KIRWOOD GENERAL HOSPITAL, DETROIT, MICHIGAN (PATTERSON).

```
*****
SAMPLE  SAMPLE    LIVE    ALPHA    BETA    DATE    TIME    CYCLE  AC
POSITION ID.      TIME(MIN)
11      86-233     20      4      19     06/16/86 12:27:44    1      YN
12      86-234     20      4      23     06/16/86 12:49:01    1      YN
13      86-235     20      4      18     06/16/86 13:10:19    1      YN
14      86-236     20      5      19     06/16/86 13:31:36    1      YN
15      86-237     20      2      17     06/16/86 13:52:54    1      YN
16      86-238     20      3      15     06/16/86 14:14:12    1      Y
*****
```

END TIME: 06/16/86 14:14:15

\*\*\*\*\* 17-JUN-86 11:50:48 \*\*\*\*\*  
\*\*\*\*\*

GAMMA SCAN OF SIX SMEARS (PATTERSON).

SAMPLE DATE: 06-JUN-85 13:00:00  
SAMPLE IDENTIFICATION: 86-233 TO 86-238  
TYPE OF SAMPLE: SMEAR  
SAMPLE QUANTITY: 1.000000 UNITS: XXXXXXX  
SAMPLE GEOMETRY: A1  
EFFICIENCY FILE NAME: LABEFF.A1.,

\*\*\*\*\*

ACQUIRE DATE: 17-JUN-86 09:27:12 \* FWHM(1332) 2.654  
PRESET TIME(LIVE): 7200. SEC \* SENSITIVITY: 5.000  
ELAPSED REAL TIME: 7200. SEC \* SHAPE PARAMETER : 10.0 %  
ELAPSED LIVE TIME: 7200. SEC \* NBR ITERATIONS: 10.

\*\*\*\*\*

DETECTOR: NRC GE 81 \* LIBRARY:NUCL.MASTER  
CALIB DATE: 05-MAY-86 10:55:17 \* ENERGY TOLERANCE: 0.900KV  
KEV/CHNL: 0.4706212 \* HALF LIFE RATIO: 8.00  
OFFSET: 2.3032672 KEV \* ABUNDANCE LIMIT: 80.00%  
Q. COEFF. : 1.112E-07 KEV/C\*\*2 \*

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SPECTRUM FILE NAME: SPEC1.SMR6.,

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ENERGY WINDOW 7.01 TO 2829.56

PK	IT	ENERGY	AREA	BKGND	FWHM	CHANNEL	LEFT	PW	CTS/SEC	%ERR	FIT
1	1	63.39	63.	64.	2.02	129.79	126	9	8.74E-03	26.8	2.19E 00
2	1	74.04	53.	137.	3.47	152.43	148	12	7.42E-03	46.7	3.90E 00
3	1	511.27	67.	38.	2.87	1081.21	1070	22	9.28E-03	26.7	5.37E-01
4	1	583.39	23.	5.	1.79	1234.37	1231	7	3.22E-03	27.1	2.85E 00

PEAK SEARCH COMPLETED (REV 15.1)

PULSE-PILE-UP CORRECTED DATA. CORRECTION = 1.000  
 UNCORR. LIVE TIME: 7200. CORRECTED LIVE TIME: 7200.

PK	IT	ENERGY	AREA	BKGND	FWHM	CHANNEL	LEFT	PW	CTS/SEC	%ERR
1	1	63.39	63.	64.	2.02	129.79	126	9	8.74E-03	26.8
2	1	74.04	53.	137.	3.47	152.43	148	12	7.42E-03	46.7
3	1	511.27	67.	38.	2.87	1081.21	1070	22	9.28E-03	26.7
4	1	583.39	23.	5.	1.79	1234.37	1231	7	3.22E-03	27.1

FILE-UP CORRECTION COMPLETED (REV 2)



## NUCLIDE LINE ACTIVITY REPORT

PAGE 1

.ELAPSED LIVE TIME: 7200. (PILE-UP CORRECTED)

## ACTIVATION PRODUCT

NUCLIDE	SBHR	ENERGY	AREA	BKGND	%ABN	%EFF	UCI /UNIT	1 SIGMA ERROR
F-18	AP	511.00	67.	38.	96.73*	4.391E 00	3.772E***	1.006E***

## NATURAL PRODUCT

NUCLIDE	SBHR	ENERGY	AREA	BKGND	%ABN	%EFF	UCI /UNIT	1 SIGMA ERROR
TH-232	NP	238.53	0.	0.	44.60	0.000E-01	0.000E 0	0.000E 0
		338.32	0.	0.	11.40	0.000E-01	0.000E 0	0.000E 0
		727.17	0.	0.	11.80	0.000E-01	0.000E 0	0.000E 0
		583.14	23.	5.	30.25	3.770E 00	7.632E -6	2.067E -6
		911.07	0.	0.	27.70	0.000E-01	0.000E 0	0.000E 0
		969.11	0.	0.	16.60	0.000E-01	0.000E 0	0.000E 0
		2614.66	0.	0.	35.86*	0.000E-01	0.000E 0	0.000E 0

ELAPSED LIVE TIME 7200. (PILE-UP CORRECTED)

LINES NOT LISTED IN LIBRARY

PK	IT	ENERGY	AREA	BKGND	FWHM	CHANNEL	LEFT	PW	CTS/SEC	%ERR	%EFF
1	1	63.39	63.	64.	2.02	129.79	126	9	8.74E-03	26.8	1.49E 01
2	1	74.04	53.	137.	3.47	152.43	148	12	7.42E-03	46.7	1.80E 01

LINES NOT MEETING SUMMARY CRITERIA

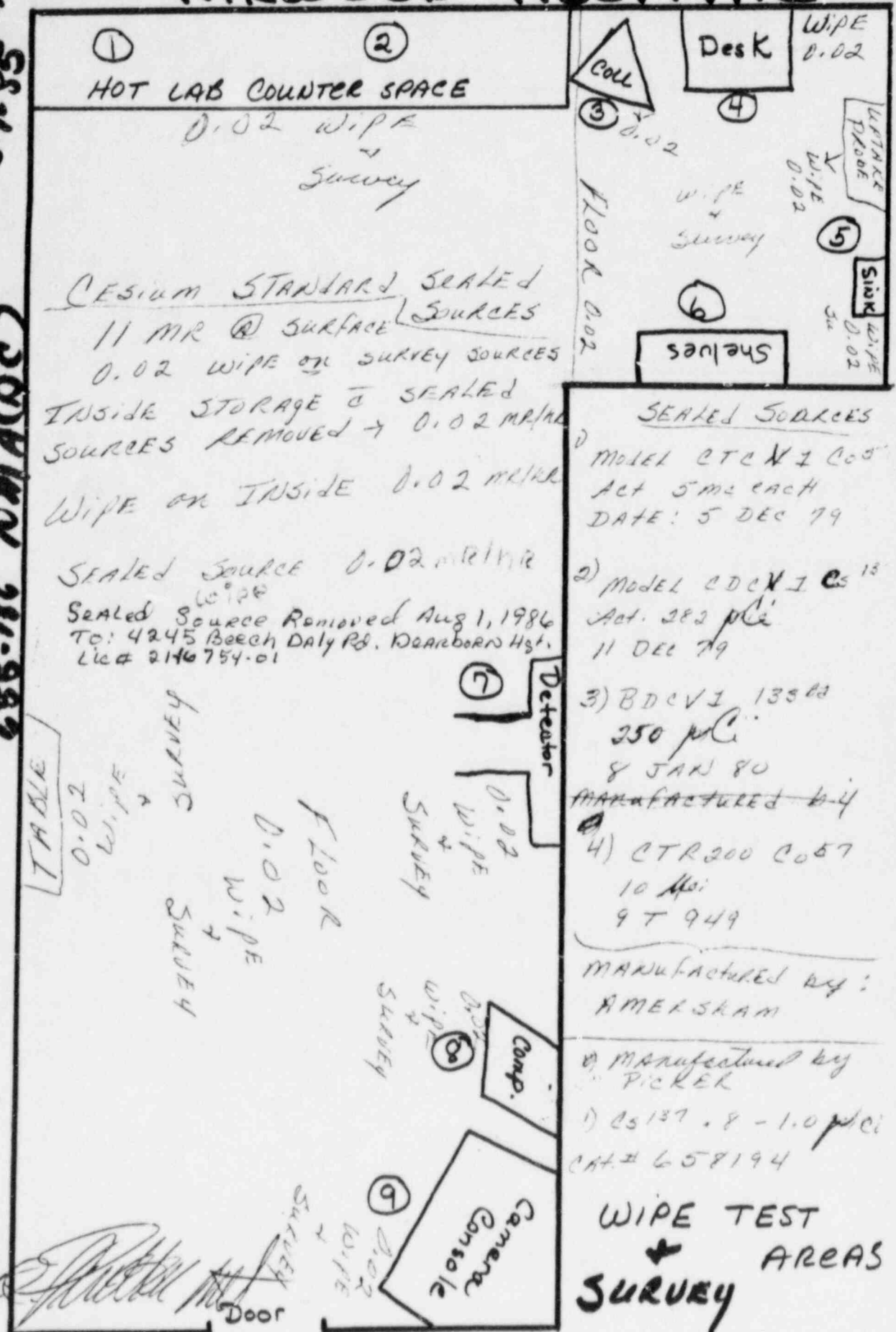
PK	NUCLIDE	ENERGY	HALFLIFE	DECAY	UCI /UNIT	ABNDIFF	FAILED
3	F-18	511.00	1.097E 02M	6.389E***	3.772E***	100.00%	DCY
4	TH-232	583.14	1.000E 10Y	1.000E 0	7.632E -6	16.97%	ABN

TOTAL LINES IN SPECTRUM	4	
LINE NOT LISTED IN LIBRARY	2	
IDENTIFIED IN SUMMARY REPORT	0	0.00%

# KIRWOOD HOSPITAL

Attachment C.

**BKG = 0.02 mR/hr**  
**check 3.0 mR/hr**  
**contamination Date 8-1-85**  
**CS 137**  
**NAHA (QC)**  
**656-116**  
**model**  
**sources**  
**picked**  
**Date 10-18-85**



Inspected by:  
 Machine Davis  
 Surveys done by:  
 [Signature]