ATTACHMENT 2

INSTRUMENT CALIBRATIONS

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ALLIED TECHNOLOGY GROUP ORDER NO. 239056 / 243662

Bicron Model MICRO REM Serial No. B500Z

Model Serial No.

Cal. Date 14-Oct-99 Cal Due Date 14-Oct-00 Cal. Interval 1 Year Meterface 0-200urem/

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 35 % Alt 706.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☐ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☐ Geotropism
☐ Audio ck. ☐ Alarm Setting ck. ☐ Batt. ck. (Min. Volt) VDC

☐ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set V Input Sens. mV Det. Oper. V at mV Threshold Dial Ratio = mV

☐ HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x 1000	150 mR/hr	160	150
x 1000	50 mR/hr	55	50
x 100	15 mR/hr	155	150
x 100	5 mR/hr	52	50
x 10	1500 uR/hr	140	150
x 10	500 uR/hr	50	50
x 1	150 uR/hr	140	150
x 1	100 uR/hr	90	100
x0.1	15 uR/hr	140	150
x0.1			

*Uncertainty within ± 10% C.F. within ± 20%

Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout				Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☑ G112 ☑ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☐ Other

n 500 S/N ☐ Oscilloscope S/N ☐ Multimeter S/N

Calibrated By: Conrad Salinas Date 14 Oct 99

Reviewed By: Rhonda Hann Date 15 Oct 99

FORM C22A 07/30/99

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ALLIED TECHNOLOGY GROUP ORDER NO. 226586/237672

Mfg. Bicron Model MICRO REM Serial No. B5047

Mfg. Model Serial No.

Cal. Date 23-Dec-98 Cal Due Date 23-Dec-99 Cal. Interval 1 Year Meterface 0-200 uRem

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 73 °F RH 25 % Alt 700.8 mm Hg

☐ New Instrument Instrument Received ☐ Within Toler. +-10% ☑ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☐ F/S Resp. ck ☐ Reset ck. ☐ Window Operation ☐ Geotropism
☐ Audio ck. ☐ Alarm Setting ck. ☐ Batt. ck. (Min. Volt) VDC
☐ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☑ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set V Input Sens. mV Det. Oper. V at mV Threshold Dial Ratio = m

☐ HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
x1000	150 mR/hr	140	150
x1000	50 mR/hr	45	50
x100	15 mR/hr	140	150
x100	5 mR/hr	45	50
x10	1.5 mR/hr	135	150
x10	500 uR/hr	45	55
x1	200 uR/hr	165	200
x1	100 uR/hr	90	100
x0.1	15 uR/hr	135	150
x0.1	NC	NC	NC

*Uncertainty within ± 10% C.F. within ± 20%

Range(s) Calibrated Electronically

Digital Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	Log Scale	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1997

State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☑ G112 ☑ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☐ Other

☐ m 500 S/N ☐ Oscilloscope S/N ☐ Multimeter S/N

Calibrated By: Doug Adams Date 23 Dec. 98

Reviewed By: Jimmie Fleming Date 24. Dec. 98

FORM C22A 09/17/98

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ALLIED TECHNOLOGY GROUP ORDER NO. 233643/ 241068

Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 102554

Ludlum Measurements, Inc. Model 44-9 Serial No. PR 128044

Cal. Date 16-Jun-99 Cal Due Date ~~16-Dec-99~~ Jun-00 Cal. Interval ~~6 Months~~ 1yr Meterface 202-002

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 46 % Alt 706.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC
☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set 900 V Input Sens. 36 mV Det. Oper. 900 V at 36 mV Threshold Dial Ratio = mV

☐ HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	400 K cpm	4K	4K
X 100	100 K cpm	1K	1K
X 10	40 K cpm	4K	4K
X 10	10 K cpm	1K	1K
X 1	4 K cpm	4K	4K
X 1	1 K cpm	1K	1K
X 0.1	400 cpm	4K	4K
X 0.1	100 cpm	1K	1K

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout				Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☑ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☐ Other

☐ m 500 S/N 54680 ☐ Oscilloscope S/N ☑ Multimeter S/N 69101832

Calibrated By: Joel Johnson Date 16 June-99

Reviewed By: Brenda Harris Date 20 Jun 99

FORM C22A 05/05/99

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CONVERSION CHART

Customer ALLIED TECHNOLOGY GROUP Date 16-Jun-99 Order #. 233643/ 241068

Model 3 Serial No. 102554 Detector Model 44-9 Serial No. fr 128044

Source Cs-137 194.6 mCi Cs-137 20 mCi High Voltage 900 V

Input Sensitivity 36 mV

Reference Point	"As Found" Readings (CPM): Meter Reading	"As Found" Readings (CPM): Range/Scale	After Adjustment Readings (CPM): Meter Reading	After Adjustment Readings (CPM): Range/Scale
150 mR/hr	3.65K	X100	3.65K	X100
50 mR/hr	1.6K	" "	1.6K	" "
15 mR/hr	4.9K	X10	4.9K	X10
5 mR/hr	1.8K	" "	1.8K	" "
1.5 mR/hr	4.5K	X1	4.5K	X1
1.0 mR/hr	3K	" "	3K	" "

Signature: [signature] Date 16-June-99

FORM C17-1A 05/20/98

of
Scientific and Industrial
Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ALLIED TECHNOLOGY GROUP ORDER NO. 233643 / 241068

Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 102498

Ludlum Measurements, Inc. Model 44-9 Serial No. PR 100924

Cal. Date 17-Jun-99 Cal Due Date ~~A 17-Dec-99~~ 17 Jun 00 Cal. Interval ~~06 Months~~ 12 Meterface 202-002

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 45 % Alt 710.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set 900 V Input Sens. 35 mV Det. Oper. 900 V at 35 mV Threshold Dial Ratio = mV

☐ HV Readout (2 points) Ref./Inst. / V Ref./Inst. / V

COMMENTS:

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 100	400k cpm	4K	4K
X 100	100k cpm	1K	1K
X 10	40k cpm	4K	4K
X 10	10k cpm	1K	1K
X 1	4k cpm	4K	4K
X 1	1k cpm	1K	1K
X 0.1	400cpm	4K	4K
X 0.1	100cpm	1K	1K

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout				Log Scale			

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1997 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☑ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☑ E551 ☐ Neutron Am-241 Be S/N T-304

☐ Alpha S/N ☐ Beta S/N ☐ Other

☑ m 500 S/N 104542 ☐ Oscilloscope S/N ☑ Multimeter S/N 50100581

Calibrated By: V. Lee Alvarado Date 17 Jun 99

Reviewed By: Rhonda Harris Date 20 Jun 99

FORM C22A 09/17/98

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CONVERSION CHART

Customer ALLIED TECHNOLOGY GROUP Date 17-Jun-99 Order #. 233643 / 241068

Model 3 Serial No. 102498 Detector Model 44-9 Serial No. PR100929

Source Cs-137 194.6 mCi / Cs-137 20 mCi High Voltage 900 V

Input Sensitivity 35 mV

Reference Point	"As Found" Readings (CPM): Meter Reading	Range/Scale	After Adjustment Readings (CPM): Meter Reading	Range/Scale
150 mR/hr	3.7K	X100	3.7K	X100
50 mR/hr	1.6K	X100	1.6K	X100
15 mR/hr	4.7K	~~X100~~ X10	4.7K	X10
5 mR/hr	1.7K	X10	1.7K	X10
1.5 mR/hr	4.8K	X1	4.8K	X1
1.0 mR/hr	3.3K	X1	3.3K	X1

Signature: V. Lee Alvarado Date 17 Jun 99

FORM C17-1A 05/20/98

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ALLIED TECHNOLOGY GROUP ORDER NO. 233643/ 241068

Ludlum Measurements, Inc. Model 12 Serial No. 125308

Ludlum Measurements, Inc. Model 43-68 Serial No. PR 129327

Cal. Date 15-Jun-99 Cal Due Date ~~15-Dec-99~~ CG 15-Jun-00 Cal. Interval ~~6 Months~~ CG 1 YEAR Meterface 202-356

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 50 % Alt 708.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set Comments V Input Sens. 4 mV Det. Oper. Comments V at 4 mV Threshold Dial Ratio = m

☑ HV Readout (2 points) Ref./Inst. 509 / 500 V Ref./Inst. 2016 / 2000 V

COMMENTS:
HV Alpha: 1250v
HV Beta: 1750v

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 1000	400 K cpm	400	400
X 1000	100 K cpm	100	100
X 100	40 K cpm	400	400
X 100	10 K cpm	100	100
X 10	4 K cpm	400	400
X 10	1 K cpm	100	100
X 1	400 cpm	400	400
X 1	100 cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout				Log Scale			

Ludlum Measurements, Inc. certifies that the above Instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-30

☑ Alpha S/N Pu-239 12800cpm ☑ Beta S/N Tc-99 14300 cpm ☐ Other

m 500 S/N 134709 ☐ Oscilloscope S/N ☑ Multimeter S/N 57390613

Calibrated By: Conrad Salinas Date 15 Jun 99

Reviewed By: Rhonda Harris Date 20 Jun 99

FORM C22A 05/05/99

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data

Detector 43-68 Serial No. PR 129327 Order #. 233643/ 241068

Customer ALLIED TECHNOLOGY GROUP

Counter 12 Serial No. 125308 Counter Input Sensitivity 4 mV

Count Time 9pm Distance Source to Detector Surface

Other

High Voltage	Background	Isotope Pu-239 Size 12 800 cpm	Isotope Tc-99 Size 14300 cpm	Isotope Size	Isotope Size
1050	0	6k			
1100	1	6k			
1150	2	6k			
1200	1	6k			
1250	3	6.5k			
1300	3	6.5k			
1350	5	6.5k			
1400	12	6.5k			
1600	160		8k		
1650	200		8.5k		
1700	260		9k		
1750	300		9k		
1800	350		9k		
1850	380		9k		

☐ Gas proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

Signature Conrad Salinas Date 15 Jun 99

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1997. State of Texas Calibration License No. LO-19

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ALLIED TECHNOLOGY GROUP ORDER NO. 235398/241941

Ratemeter: Ludlum Measurements, Inc. Model 12 Serial No. 121291

Probe: Ludlum Measurements, Inc. Model 43-68 Serial No. PR061081

Cal. Date 20-Jul-99 Cal Due Date 20-Jul-00 Cal. Interval 1 Year Meterface 202-356

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 76 °F RH 45 % Alt 707.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☐ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set Comments V Input Sens. 4 mV Det. Oper. Comments V at 4 mV Threshold Dial Ratio = mV

☑ HV Readout (2 points) Ref./Inst. 492 / 500 V Ref./Inst. 2004 / 2000 V

COMMENTS:

High Voltage: 1(Alpha) = 1250V
2(Beta) = 1700V
Instrument calibrated with a 39"cable

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 1000	400 K cpm	400	400
X 1000	100 K cpm	100	100
X 100	40 K cpm	400	400
X 100	10 K cpm	100	100
X 10	4 K cpm	400	400
X 10	1 K cpm	100	100
X 1	400 cpm	400	400
X 1	100 cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL **Range(s) Calibrated Electronically**

Digital Readout	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*

Log Scale	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Pu239#8743 ☑ Beta S/N Tc99#635/83 ☐ Other

m 500 S/N 70648 ☐ Oscilloscope S/N ☑ Multimeter S/N 61730074

Calibrated By: Louie Martinez Date 20-Jul-99

Reviewed By: Bill Henson Date 21-Jul-99

FORM C22A 05/05/99

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data

Detector 43-68 Serial No. PR061081 Order #. 235398/241941

Customer ALLIED TECHNOLOGY GROUP

Counter 12 Serial No. 121291 Counter Input Sensitivity 4 mV

Count Time CPM Distance Source to Detector surface

Other

High Voltage	Background	Isotope Pu239 Size 12.8 Kcpm	Isotope Tc99 Size 14.3Kcpm	Isotope Size	Isotope Size
1100	0	6K			
1150	1	6K			
1200	1	6K			
1250	0	6K			
1300	1	6K			
1350	5	6K			
1400	24	6K			
1600	200		8K		
1650	260		8.5K		
1700	280		8.5K		
1750	290		8.5K		
1800	400		10K		

☑ Gas proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

Signature Lei Martin BH Date 20-Jul-99 21-Jul-99

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of or International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1997. State of Texas Calibration License No. LO-196

FORM C4D 09/17/98

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Functional Check

Customer ALLIED TECHNOLOGY GROUP Order #. 235398/241941

This Certifies that Ludlum Model 239-1F Serial No. RN012633 has been functionally checked.
Refer to applicable instrument manuals for specific operating instructions.

Check performed by Lori Martin Date 20-Jul-99
BH 21-Jul-99

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ALLIED TECHNOLOGY GROUP ORDER NO. 233643/ 241068

Ludlum Measurements, Inc. Model 2224 Serial No. 132159

Ludlum Measurements, Inc. Model 43-68 Serial No. PR 134485

Cal. Date 15-Jun-99 Cal Due Date ~~15 Dec 99~~ 15-Jun-00 CG Cal. Interval ~~6 Months~~ 1 YEAR CG Meterface 202-783

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 50 % Alt 708.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set 1600 V Input Sens. Comments mV Det. Oper. 1600 V at Comments mV Threshold Dial Ratio = mV

☑ HV Readout (2 points) Ref./Inst. 515 / 500 V Ref./Inst. 1998 / 2000 V

COMMENTS:

```
Alpha Threshold: 120mV
 Beta Threshold: 4mV
    Beta Window: 40mV
Overload check but not set
HV set with detector not connected
Firmware 390063
```

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 1000	400Kcpm	400	400
X 1000	100Kcpm	100	100
X 100	40Kcpm	400	400
X 100	10Kcpm	100	100
X 10	4Kcpm	400	400
X 10	1Kcpm	100	100
X 1	400cpm	400	400
X 1	100cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400 K cpm	399751	399751	Log Scale			
	40 K cpm	39981	39981				
	4 K cpm	3998	3998				
	400 cpm	400	400				
	40 cpm	40	40				

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Pu-239 12800cpm ☑ Beta S/N Tc-99 14300cpm Sr-90/Y-90 2385cpm ☐ Other

☐ m 500 S/N 134709 ☐ Oscilloscope S/N ☑ Multimeter S/N 57390613

Calibrated By: Conrad Salinas Date 15 Jun 99

Reviewed By: Rhonda Harris Date 20 Jun 99

FORM C22A 05/05/99

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-68 Serial No. PR 134485 Order #. 233643/ 241068

Customer ALLIED TECHNOLOGY GROUP Alpha Input Sensitivity 120 mV

Counter 2224 Serial No. 132159 Beta Input Sensitivity 4 mV

Count Time 1Minute Beta Window 40 mV

Other Distance Source to Detector Surface

High Voltage	Background		Isotope Pu-239 Size 12800gpm		Isotope Sr-90/Y-90 Size 7385gpm		Isotope Tc-99 Size ~~Fe-9~~ 14300gpm	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
1550	0	124	5374	410	1	3004	4	6750
1575	0	182	5614	469	1	3718	8	7341
1600	0	226	5682	555	5	4150	7	7349
1625	2	283	5973	613	13	4405	27	7089
1650	1	342	6003	585	45	4435	173	6952

☑ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Conrad Talamantes Date 15 Jun 99

FORM C4B 12/09/97

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ALLIED TECHNOLOGY GROUP ORDER NO. 233643/ 241068

Mfg. Ludlum Measurements, Inc. Model 2224 Serial No. 132147

Ludlum Measurements, Inc. Model 43-68 Serial No. PR 134001

Cal. Date 15-Jun-99 Cal Due Date ~~15-Dec-99~~ 15-Jun-00 CG Cal. Interval ~~6 Months~~ 1 YEAR CG Meterface 202-783

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 72 °F RH 50 % Alt 708.8 mm Hg

☐ New Instrument Instrument Received ☑ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set 1600 V Input Sens. Comments mV Det. Oper. 1600 V at Comments mV Threshold Dial Ratio = mV

☑ HV Readout (2 points) Ref./Inst. 507 / 500 V Ref./Inst. 1994 / 2000 V

COMMENTS:

```
Alpha Threshold: 120mV
 Beta Threshold: 4mV
    Beta Window: 40mV
Overload check but not set
HV set with detector not connected
Firmware 390063
```

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X 1000	400Kcpm	400	400
X 1000	100Kcpm	100	100
X 100	40Kcpm	400	400
X 100	10Kcpm	100	100
X 10	4Kcpm	400	400
X 10	1Kcpm	100	100
X 1	400cpm	400	400
X 1	100cpm	100	100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400 K cpm	399424	399424	Log Scale			
	40 K cpm	39956	39956				
	4 K cpm	3997	3997				
	400 cpm	400	400				
	40 cpm	40	40				

Ludlum Measurements, Inc. certifies that the above Instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Pu-239 12800cpm ☑ Beta S/N Tc-99 14300cpm, Sr-90/Y-90 7785cpm ☐ Other

☑ m 500 S/N 134709 ☐ Oscilloscope S/N ☑ Multimeter S/N 57390613

Calibrated By: Conrad Salinas Date 15 Jun 99

Reviewed By: Brenda Harris Date 20 Jun 99

FORM C22A 05/05/99

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-68 Serial No. PR 134001

Order #. 233643/ 241068

Customer ALLIED TECHNOLOGY GROUP

Alpha Input Sensitivity 120 mV

Counter 2224 Serial No. 132147

Beta Input Sensitivity 41 mV

Count Time 1Minute

Beta Window 40 mV

Other

Distance Source to Detector Surface

High Voltage	Background		Isotope Pu-239 Size 12800cpm		Isotope Sr-90/Y-90 Size 7285cpm		Isotope Tc-99 Size 14300cpm	
	Alpha	Beta	Alpha	Beta	Alpha	Beta	Alpha	Beta
1550	0	126	4917	463	0	2959	9	6641
1575	0	158	5466	491	0	3480	7	7113
1600	0	224	5569	569	4	3992	8	7151
1625	1	242	5607	563	2	4243	18	7065
1650	2	332	5884	594	16	43	63	6964

☑ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☐ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Conrad Salinas

Date 15 Jun 99

FORM C4B 12/09/97

Designer and Manufacturer of Scientific and Industrial Instruments

CERTIFICATE OF CALIBRATION

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER ALLIED TECHNOLOGY GROUP ORDER NO. 239056/243662

Ludlum Measurements, Inc. Model 2224 Serial No. 160668

J. Ludlum Measurements, Inc. Model 43-37 Serial No. PR088824

Cal. Date 15-Oct-99 Cal Due Date 15-Oct-00 Cal. Interval 1 Year Meterface 202-783

Check mark ☑ applies to applicable instr. and/or detector IAW mfg. spec. T. 75 °F RH 41 % Alt 703.8 mm Hg

☑ New Instrument Instrument Received ☐ Within Toler. +-10% ☐ 10-20% ☐ Out of Tol. ☐ Requiring Repair ☐ Other-See comments

☑ Mechanical ck. ☑ Meter Zeroed ☐ Background Subtract ☐ Input Sens. Linearity
☑ F/S Resp. ck ☑ Reset ck. ☑ Window Operation ☑ Geotropism
☑ Audio ck. ☐ Alarm Setting ck. ☑ Batt. ck. (Min. Volt) 2.2 VDC

☑ Calibrated in accordance with LMI SOP 14.8 rev 12/05/89. ☐ Calibrated in accordance with LMI SOP 14.9 rev 12/19/89.

Instrument Volt Set 1675 V Input Sens. Comments mV Det. Oper. 1675 V at Comments mV Threshold Dial Ratio = mV

☑ HV Readout (2 points) Ref./Inst. 500 / 500 V Ref./Inst. 2010 / 2000 V

COMMENTS:
Beta Thres. = 4mV
Beta Win. = 40mV
Alpha Thres. = 100mV
High voltage set with detector disconnected.
Overload checked, but not set
Calibrated using a 5' cable
Firmware # ~~39006N~~ 39006N03

Gamma Calibration: GM detectors positioned perpendicular to source except for M 44-9 in which the front of probe faces source.

RANGE/MULTIPLIER	REFERENCE CAL. POINT	INSTRUMENT REC'D "AS FOUND READING"	INSTRUMENT METER READING*
X1000	400 K cpm		400
X1000	100 K cpm		100
X100	40 K cpm		400
X100	10 K cpm		100
X10	4 K cpm		400
X10	1 K cpm		100
X1	400cpm		400
X1	100cpm		100

*Uncertainty within ± 10% C.F. within ± 20% ALL Range(s) Calibrated Electronically

	REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*		REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*
Digital Readout	400 K cpm		40001 (6)	Log Scale			
	40 K cpm		4000				
	4 K cpm		400				
	400 cpm		46				
	40 cpm		4				

Ludlum Measurements, Inc. certifies that the above instrument has been calibrated by standards traceable to the National Institute of Standards and Technology, or to the calibration facilities of other International Standards Organization members, or have been derived from accepted values of natural physical constants or have been derived by the ratio type of calibration techniques. The calibration system conforms to the requirements of ANSI/NCSL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:

Cs-137 Gamma S/N ☐ 1162 ☐ G112 ☐ M565 ☐ 5105 ☐ T1008 ☐ T879 ☐ E552 ☐ E551 ☐ Neutron Am-241 Be S/N T-304

☑ Alpha S/N Pu239#8743 ☑ Beta S/N Tc99#635/83,Sr90#443-69-3 ☐ Other

1500 S/N 70648 ☐ Oscilloscope S/N ☑ Multimeter S/N 61730074

Calibrated By: Lori Martinez Date 15-Oct-99

Reviewed By: Rhonda Hamm Date 15 Oct 99

FORM C22A 07/30/99

This certificate shall not be reproduced except in full, without the written approval of Ludlum Measurements, Inc.

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Bench Test Data For Detector

Detector 43-37 Serial No. PR088924

Order #. 239056/243662

Customer ALLIED TECHNOLOGY GROUP

Alpha Input Sensitivity 100 mV

Counter 2224 Serial No. 160668

Beta Input Sensitivity 4 mV

Count Time 1Minute

Beta Window 40 mV

Other

Distance Source to Detector surface

High Voltage	Background Alpha	Background Beta	Isotope Pu239 Size 12.8Kcpm Alpha	Isotope Pu239 Size 12.8Kcpm Beta	Isotope Tc99 Size 14.3Kcpm Alpha	Isotope Tc99 Size 14.3Kcpm Beta	Isotope Sr90 Size 0.01112μC Alpha	Isotope Sr90 Size 0.01112μC Beta
1625	0	346	4595	652	7	6391	3	9176
1650	5	480	4598	774	8	7069	3	10231
1675	6	613	5018	964	12	7481	13	12240
1700	4	673	5017	1280	20	7585	30	13718

☐ Gas Proportional detector count rate decreased ≤ 10% after 15 hour static test using 39" cable.

☑ Gas proportional detector count rate decreased ≤ 10% after 5 hour static test using 39" cable and alpha/beta counter.

Signature Lori Martin

Date 15-Oct-99

FORM C4B 12/09/97

Designer and Manufacturer
of
Scientific and Industrial
Instruments

LUDLUM MEASUREMENTS, INC.
POST OFFICE BOX 810 PH. 915-235-5494
501 OAK STREET FAX NO. 915-235-4672
SWEETWATER, TEXAS 79556, U.S.A.

Functional Check

Customer ALLIED TECHNOLOGY GROUP Order #. 239056/243662

This Certifies that Ludlum Model 239-1F Serial No. RN012633 has been functionally checked.
Refer to applicable instrument manuals for specific operating instructions.

Check performed by Lain Martin Date 15-Oct-99

Designer and Manufacturer of Scientific and Industrial Instruments

Work Order: 239056

TAG #: 243662

LUDLUM MEASUREMENTS,
POST OFFICE BOX 810 PH:
501 OAK STREET FAX:
SWEETWATER, TEXAS 79556, U.S.A.

Received: 10/14/9 **Received Via:** FEPO **Condition Received:** FAIR

SHIP TO:
ALLIED TECHNOLOGY GROUP
~~609 EMORY VALLEY ROAD~~
~~OAK RIDGE TN 37830~~
Ft McClellan, AL

BILL TO:
ALLIED TECHNOLOGY GROUP
PO BOX 1638
FREMONT CA 94538

CUSTOMER #: 08441

Reason for Return: Calibration **Cal Interval \ Special Instructions:** 1 YR / SPEC INSTR / NEW 2224

Comments: Item 2: re-faced window, clean + baked
Item 3: replaced missing screws on flow box, checked
New 2224, cal'd with item 2

ITEM	QTY	PART #	DESCRIPTION	PRICE	COST
01	1.00 EA	MICRO REM	*B500Z		
02*	1.00 EA	43-37	M 43-37 FOR REPAIR/CAL *PR088824		
03*	1.00 EA	239-1F	M 239-1F FOR REPAIR/CAL *RN012633		

(Kept Large Box)

ITEM	QTY	PART #	DESCRIPTION	PRICE	COST
3	3	17-8537	8-32 X 5/16 screw	.25	.75
3	3	26-9010	#8 lockwasher	.25	.75
New	1	48-2494	M2224 A+B Scalar/Ratemeter	995.00	995.00
2	1	7085-398	Gas plug	—	

Instrument Calibrated: 1 at 45.00 Total Parts Cost: 996.50 Sub Total Calibration, Parts, and Labor: 1271.50

Secondary Detectors: 1 at 15.00 Total Calibration Charge: 125.00 Shipping Charges:

Extended Calibration: 1 at 65.00 Total Labor: 100.00 Total Charges:

Labor: 2 hour(s) at $ 50.00 per hour

Signed: Conrad Salinda, Lori Martinez Date: 15-Oct-99

QC Reviewed Rhonda Hamm Date: 15 Oct 99

DO NOT PAY! INVOICE TO FOLLOW

Date: 10/15/99 Contacted: BARB WHITAKER By:

PO Number: 103TN90241 Return Ship: WS Phone #: (510) 490-3008

ATG Catalytics, Inc.
Oct/29/1999 10:11:19AM

HEADER INFORMATION in MAR00423.S0 DEMIN SUPPLY TO BOILER

Identification
User : KSW
Card : 1
Detector : GEM-20200
Geometry : marinelli
Sample : TEST
Channels : 8192

Acquisition
Started : Oct/29/1999 10:01:12AM
Stopped : Oct/29/1999 10:11:12AM
True Time : 600.021 sec
Live Time : 600.000 sec
Dead Time : 0.00 %
Gross Count : 717 counts
Gross Rate : 1.195 cps

Sample
Sample Quantity 1000 ± 100 ml

Energy Calibration Jul/23/1999 9:40:49AM 99D01G04.S0
Resolution Calibration May/21/1999 1:26:12PM 99D01G04.S0
Efficiency Calibration May/24/1999 5:19:49PM 99D01G04.S0
Isotope Library ISO_QCEP.LIB Sep/20/1999 11:40:12AM

No Activity Detected
10/29/99

ROI COUNT INFORMATION in MAR00423.S0 DEMIN SUPPLY TO BOILER

ROI (#)	Channels Start	-	Stop	Energy keV Start	-	Stop	Net Counts	Background Counts	Gross Counts
1	1701	-	1721	425.28	-	430.29	1	0	1
2	2408	-	2430	602.04	-	607.54	4	0	4
	2620	-	2642	655.04	-	660.54	6	0	6
4	2634	-	2658	658.54	-	664.54	4	0	4
5	3015	-	3039	753.79	-	759.79	0	0	0
6	3051	-	3075	762.79	-	768.79	-2	5	3
7	3170	-	3196	792.54	-	799.04	5	0	5
8	3230	-	3256	807.54	-	814.04	-8	8	0
9	3326	-	3352	831.54	-	838.04	2	0	2
10	4447	-	4477	1111.80	-	1119.30	-2	4	2
11	4678	-	4708	1169.55	-	1177.05	3	0	3
12	5314	-	5346	1328.56	-	1336.56	2	0	2

ROI STATISTICS INFORMATION in MAR00423.S0 DEMIN SUPPLY TO BOILER

ROI (#)	Error	Centroid keV	FWHM keV	FWTM keV	FWTM/FWHM ratio	H/L ratio
1	200.00 %	425.78	0.25			
2	100.00 %	604.79				
	81.65 %	656.79	0.25	3.45	13.80	8.900/4.900
4	100.00 %	661.54				
5	2000.00 %	756.79				
6	2000.00 %	765.79				
7	89.44 %	795.79				
8	2000.00 %	810.79				
9	141.42 %	834.79				
10	2000.00 %	1115.55				
11	115.47 %	1173.30				
12	141.42 %	1332.56				

Errors Quoted at 2 Sigma

ACTIVITY INFORMATION with MDA's for MAR00423.S0 DEMIN SUPPLY TO BOILER

Name	Energy keV	Activity Flag	uCi/ml	Error uCi/ml	MDA uCi/ml	Error uCi/ml
Ag-110m	657.75	*	3.496e-008	± 2.884e-008	1.577e-008	± 1.868
C 8	810.75	*	0.0000		0.0000	
Co-60	1173.24	*	2.728e-008	± 3.165e-008	2.461e-008	± 2.753
Co-60	1332.50	*<	2.727e-008	± 3.108e-009	2.727e-008	± 3.108
Weighted Average			2.728e-008	± 3.165e-008		
Cs-134	604.70	*	2.093e-008	± 2.108e-008	1.416e-008	± 1.696
Cs-134	795.84	*	3.819e-008	± 3.444e-008	2.067e-008	± 2.355
Weighted Average			2.898e-008	± 2.776e-008		
Cs-137	661.66	*	2.598e-008	± 2.617e-008	1.758e-008	± 2.081
Mn-54	834.83	*<	1.841e-008	± 2.075e-009	1.841e-008	± 2.075
Nb-95	765.79	*<	8.285e-008	± 9.526e-009	8.285e-008	± 9.526
Sb-125	427.89	*<	3.427e-008	± 4.299e-009	3.427e-008	± 4.299
Zn-65	1115.52	*<	2.039e-007	± 2.263e-008	2.039e-007	± 2.263
Zr-95	756.72	*	0.0000		0.0000	
Grand Total			1.172e-007	± 5.735e-008		

Activity (uCi) at Oct/29/1999 9:40:00AM
Divided by Sample Quantity 1000 ± 100 ml
Errors Quoted at 2 Sigma
MDA's Quoted at 1.645 Sigma

Flags	Meaning
*	Forced MDA from identification
<	MDA value

Flags	Meaning
*	Forced MDA from identification
<	MDA value

ATTACHMENT 3

DAILY INSTRUMENT RESPONSE CHECK LOG

DAILY INSTRUMENT RESPONSE CHECK LOG

PROJECT: FORT McCLELLAN

DATE	MODEL/TYPE	S/N	PHYSICAL DAMAGE Y/N	CAL DUE DATE	SOURCE I.D.	ACTIVITY	BKRD	READING	EFF	PASS/ FAIL P/F	TECH INIT
10/26/99	Ludlum model 3	102554	N	6-16-00	93TC 470	45,200 DPM	40 cpm	4,400 cpm	10%	P	DK
10/26/99	Ludlum model 3	102498	N	6-17-00	93TC 470	45,200 DPM	40 cpm	4,600 cpm	10%	P	DK
10/26/99	Ludlum model 239-1F model 2224	160668	N	10-15-00	95TH100(487)	24,600 DPM	0 cpm	4155 cpm	Alpha 17%	P	DK
	model 43-37	088824	N	10-15-00	95TC100(0488)	28,800 DPM	811 cpm	5,837	Beta 17%	P	DK
10/26/99	Ludlum model 2224	132134	N	6/15/00	95TC100(0488)	28,800	261 cpm	5540	Beta 18.3%	P	FW
	Detector 43-68	134001	N	↓	95TH100(487)	24,600 DPM	6 cpm	4040	Alpha 16.4%	P	FW
10/26/99	Ludlum model 2224	132155	N	6/15/00	95TH100(487)	24,600 DPM	2 cpm	~~3979~~ 4067 DKM	Alpha 16.5%	P	DKM
	Detector 43-68	134485	N	↓	95TC100(0488)	28,800 DPM	281 cpm	5357	Beta 19.6%	P	DKM
10-26-99	Bicron micro Rem	B 500 Z	N	10-14-00	DU #2	μR/HR	8 μR	100 μR	N/A	P	DK
10-26-99	Bicron micro Rem	B 5042	N	12-23-99	DU # 2	μR/HR	7 μR	90 μR	N/A	P	DK
10-26-99	Ludlum model 12	121291	N	6-20-00	95TH100(487)	24,600 DPM	0 cpm	4700 cpm	Alpha 17.9%	P	FW
	Detector 43-68	061081	N	6-20-00	↓	—	—	—	—	—	—
10-26-99	Ludlum model 12	125308	N	6-15-00	95TC100(0488)	28,800 DPM	400 cpm	7000 cpm	Beta 22.9%	P	FW
	Detector 43-68	125327	N	6-15-00	—	—	—	—	—	—	—
10-27-99	Bicron micro-rem	B 500 Z	N	10-14-00	DU # 2	μR/HR	8 μR	140 μR	N/A	P	DKM
10-27-99	Ludlum model 3	102554	N	6-16-00	93TC 470	45,200 dpm	40 cpm	4,000 cpm	10%	P	DK
10-27-99	Ludlum model 3	102455	N	6-17-00	93TC 470	45,200 dpm	40 cpm	4,600 cpm	10%	P	DK
10-27-99	Ludlum model 239-1F model 2224	160668	N	10-15-00	95TH100(487)	24,600 DPM	16	4,283 cpm	Alpha 17.3%	P	DKM

DAILY INSTRUMENT RESPONSE CHECK LOG

PROJECT: Fort McCLELLAN

DATE	MODEL/TYPE	S/N	PHYSICAL DAMAGE Y/N	CAL DUE DATE	SOURCE I.D.	ACTIVITY	BKRD	READING	EFF	PASS/ FAIL P/F	TECH INIT
10-27-99	Ludlum model 239-1F model 43-37	088824	N	10-15-00	95TC100(0488)	28,800 DPM	850 cpm	6435 cpm	BETA 19%	P	DKM
10-27-99	Ludlum model 2224	132159	N	6-15-00	95TH100(487)	24,600 DPM	2 cpm	4106 cpm	ALPHA 16.6 %	P	DKM
	Detector 43-68	134485	N	↓	95TC100(0488) ~~95TH~~ DKM	28,800 DPM	276 cpm	5537 cpm	BETA 18.2 %	P	DKM
10-28-99	Micro-rem Bicron	B 5002	N	10-14-00	DU # 2	μR/HR	8 μR	300 μR DKM ~~cpm~~	N/A	P	DKM
10-28-99	Micro rem Bicron	B 5042	N	12-23-99	DU # 2	μR/HR	8 μR	300 cpm	N/A	P	DKM
10-28-99	Ludlum Model 239-1F Model 2224	160668	N	10-15-00	95TH100(487)	24,600 DPM	7 cpm	4192 cpm	Alpha 17.0 %	P	DKM
	Model 43-37	088824	N	10-15-00	95TC100(0488)	28,800 DPM	904 cpm	6568 cpm	Beta 19.6 %	P	DKM
10-28-99	Model 2224	132159 DKM ~~160668~~	N	10-15-00	95TH100(487)	24,600 DPM	DKM 71 cpm	4050 cpm	Alpha 16.4 %	P	DKM
	Detector 43-68	134485	N	10-15-00	95TC100(0488)	28,800 DPM	151 cpm DKM ~~462~~ cpm	5340 DKM ~~462~~ cpm	Beta 18%	P	DKM
10-29-99	Micro-rem Bicron 5002	5002	N	10-14-00	DU # 2	μR/HR	8 μR	150 μR DKM ~~cpm~~	NA	P	DKM
10-29-99	Ludlum Model 239-1F Model 2224	160668	N	10-15-00	95TH100(487)	24,600 DPM	7 cpm	4148 cpm	Alpha 16.8%	P	DKM
	Model 43-37	088824	N	10-15-00	95TC100(0488)	28,800 DPM	768 cpm	6267 cpm	BETA 19.0%	P	DKM
10-29-99	Ludlum Model 2224	132159	N	6-15-00	95TH100(487)	24,600 DPM	3 cpm	3953 cpm	Alpha 16.0 %	P	DKM
	Detector 43-68	134485	N	6-15-00	95TC100(0488)	28,800 DPM	238 cpm	5522 cpm	Beta 18.3 %	P	DKM
11-1-99	Micro-rem Bicron 5002	5002	N	10-14-00	DU # 2	μR/HR	8 μR	300 μR DKM ~~cpm~~	NA	P	DKM
11-1-99	Ludlum Model 239-1F Model 2224	160668	N	10-15-00	95TH100(487)	24,600 DPM	10 cpm	3987 cpm	Alpha 16.1 %	P	DKM
	Model 43-37	088824	N	10-15-00	95TC100(0488)	28,800 DPM	467 cpm	6147 cpm	Beta 19.7%	P	DKM
				N A							

DAILY INSTRUMENT RESPONSE CHECK LOG

PROJECT: Fort McClellan

DATE	MODEL/TYPE	S/N	PHYSICAL DAMAGE Y/N	CAL DUE DATE	SOURCE I.D.	ACTIVITY	BKRD	READING	EFF	PASS/ FAIL P/F	TECH INIT
11-1-99	Model 2224	132159	N	10-15-00	95TH100(487)	24,600 DPM	Alpha 1 cpm	4044 cpm	Alpha 16.4 %	P	DKM
	Model 43-68	134485	N	10-15-00	DKM 95TH100(0488)	28,800 DPM	Beta 232 cpm	5567 cpm	Beta 18.5 %	P	DKM
11-2-99	MICRO-REM BICRON	B 5002	N	10-14-00	DU # 2	DKM ~~300~~ uR/HR	8 uR	300 uR	NA	P	DKM
11-2-99	Sodium 239-1F Model 2224	160668	N	10-15-00	95TH100(487)	24,600 DPM	Alpha 2 cpm	3960 cpm	Alpha 16.0 %	P	DKM
	PR 43-37	088824	N	10-15-00	95TC100(0488)	28,800 DPM	Beta 958 cpm	6687 cpm	Beta 19.8 %	P	DKM
11-2-99	Model 2224	132159	N	10-15-00	95TH100(487)	24,600 DPM	Alpha Ø cpm	3944 cpm	Alpha 16.0 %	P	DKM
	PR 43-68	134485	N	10-15-00	95TC100(0488)	28,800 DPM	Beta 287 cpm	5566 cpm	Beta 18.3 %	P	DKM
11-2-99	Model 2224	132147	N	6-15-00	95TH100(487)	24,600 DPM	DKM Alpha +3 cpm	3999 cpm	~~BETA~~ DKM Alpha 16.2 %	P	DKM
	PR 43-68	134001	N	6-15-00	95TC100(0488)	28,800 DPM	Beta 118 cpm	5343 ~~18.1~~ DKM cpm	Beta 18.1 %	P	DKM
11-3-99	BICRON	B ~~55~~ DKM 5002	N	10-14-00	DU # 2	uR/hr	8 uR	300 uR	NA	P	DKM
11-3-99	Sodium 239-1F M-2224	160668	N	10-15-00	95TH100(487)	24,600 DPM	Alpha 5 cpm	3955 cpm	Alpha 16.0 %	P	DKM
	PR 43-37	088824	N	10-15-00	95TC100(0488)	28,800 DPM	Beta 857 cpm	6594 cpm	Beta 19.9 %	P	DKM
11-3-99	M-2224	132147	N	6-15-00	95TH100(487)	24,600 DPM	Alpha 2 cpm	3997 cpm	Alpha 16.2 %	P	DKM
	PR 43-68	134001	N	6-15-00	95TC100(0488)	24,800 DPM	Beta 242 cpm	5593 cpm	Beta 18.5 %	P	DKM
11-3-99	BICRON	B-5002	N	10-14-00	DU # 2	uR/HR	8 uR	300 uR	N/A	P	DK
	Model 3 Sodium	102554	N	6-16-00	TC 99 93TC4201591	45,200 dpm	40 cpm	80,000 cpm	10 %	P	DK
11-4-99	BICRON	B-5002	N	10-14-00	DU # 2	uR/HR	8 uR	300 uR	N/A	P	DK
	BICRON	B-5004-2	N	12-13-99	DU # 2	uR/HR	8 uR	300 uR	N/A	P	DK

DAILY INSTRUMENT RESPONSE CHECK LOG

PROJECT: Ft. McClellan

DATE	MODEL/TYPE	S/N	PHYSICAL DAMAGE Y/N	CAL DUE DATE	SOURCE I.D.	ACTIVITY	BKRD	READING	EFF	PASS/ FAIL P/F	TECH INIT
11-4-99	M-2224 239-1F	160668	N	10-15-00	95 TH100 (487)	24,600 DPM	9 cpm	3945 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N	↓	95TC100 (0488)	28,800 DPM	890 cpm	6115 cpm	β- 18.1 %	P	DKM
11-4-99	M-2224	132159	N	10-15-00	95TH100 (487)	24,600 DPM	4 cpm	3970 cpm	α 16.1 %	P	DKM
	PR 43-68	134485	N	10-15-00	95TC100 (0488)	28,800 DPM	264 cpm	5789 cpm	β- 19.1 %	P	DKM
11-5-99	Bicron	B-500-2	N	10-14-00	DU #2	mR/HR	8 mR	300 ~~cpm~~ mR DR	N/A	P	DKM
11-5-99	M-2224 239-1F	160668	N	10-15-00	95TH100 (487)	24,600 DPM	16 cpm	3972 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N	↓	95TC100 (0488)	28,800 DPM	928 cpm	6609 cpm	β- 20.0 %	P	DKM
11-5-99	M-2224	132159	N	↓	95TH100 (487)	24,600 DPM	2 cpm	3937 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N	↓	95TC100 (0488)	28,800 DPM	224 cpm	5794 cpm	β- 19.3 %	P	DKM
11-8-99	M-2224 239-1F	160668	N	10-15-00	95TH100 (487)	24,600 DPM	11 cpm	3922 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N	↓	95TC100 (0488)	28,800 DPM	878 cpm	6098 cpm	β- 18.1 %	P	DKM
	M-2224	132159	N	↓	95TH100 (487)	24,600 DPM	Ø cpm	5471 cpm	α 18.3 %	P	DKM
	PR 43-68	134485	N	↓	95TC100 (0488)	28,800 DPM	172 cpm	3944 cpm	β- 16.0 %	P	DKM
11-8-99	Bicron	B 500-2	N	10-14-00	DU #2	mR/HR	8 mR	300 ~~cpm~~ mR DR	NA	P	DKM
11-9-99	M-2224 239-1F	160668	N	10-15-00	95TH100 (487)	24,600 DPM	7 cpm	3955 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N	↓	95TC100 (0488)	28,800 DPM	827 cpm	6193 cpm	β- 18.6 %	P	DKM
11-9-99	M-2224	132159	N	↓	95TH100 (487)	24,600 DPM	2 cpm	3950 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N	↓	95TC100 (0488)	28,800 DPM	227 cpm	5600 cpm	β- 18.6 %	P	DKM

DAILY INSTRUMENT RESPONSE CHECK LOG

PROJECT: Ft. McClellan

DATE	MODEL/TYPE	S/N	PHYSICAL DAMAGE Y/N	CAL DUE DATE	SOURCE I.D.	ACTIVITY	BKRD	READING	EFF	PASS/ FAIL P/F	TECH INIT
11-9-99	Bicron	B 500 Z	N	10-14-00	Du # 2	mR/hr	8 mR	300 mR	NA	P	DKM
11-10-99	Bicron	B 500 Z	N	10-14-00	Du # 2	mR/hr	8 mR	300 mR	NA	P	DKM
11-10-99	M-2224 239-1F	160668	N	10-15-00	95TH100 (0487)	24,600 DPM	8 cpm	4024 cpm	α 16.3 %	P	DKM
	PR 43-37	088824	N		95TC100(0488)	28,800 DPM	873 cpm	6215 cpm	β- 18.5 %	P	DKM
11-10-99	M-2224	132159	N		95TH100(0487)	24,600 DPM	4 cpm	4037 cpm	α 16.4 %	P	DKM
	PR - 43-68	134485	N		95TC100(0488)	28,800 DPM	264 cpm	5545 cpm	β- 18.3 %	P	DKM
11-11-99	Bicron	B500Z	N	10-14-00	Du # 2	mR/hr	8 mR	300 mR	NA	P	DKM
11-11-99	M-2224 239-1F	160668	N	10-15-00	95TH100(0487)	24,600 DPM	7 cpm	3950 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N		95TC100(0488)	28,800 DPM	956 cpm	6427 cpm	β- 18.9 %	P	DKM
11-11-99	M-2224	132159	N		95TH100(0487)	24,600 DPM	2 cpm	3942 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N		95TC100(0488)	28,800 DPM	271 cpm	5522 cpm	β- 18.2 %	P	DKM
11-12-99	Bicron	B500Z	N	10-14-00	Du # 2	mR/hr	8 mR	300 mR	NA	P	DKM
11-12-99	M-2224 239-1F	160668	N	10-15-00	95TH100(487)	24,600 DPM	4 cpm	3941 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N		95TC100(0488)	28,800 DPM	864 cpm	6477 cpm	β- 19.4 %	P	DKM
11-12-99	M-2224	132159	N		95TH100(487)	24,600 DPM	5 cpm	3939 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N		95TC100(0488)	28,800 DPM	213 cpm	5727 cpm	β- 19.1 %	P	DKM
					N/A						

DAILY INSTRUMENT RESPONSE CHECK LOG

PROJECT: Ft. McClellan

DATE	MODEL/TYPE	S/N	PHYSICAL DAMAGE Y/N	CAL DUE DATE	SOURCE I.D.	ACTIVITY	BKRD	READING	EFF	PASS/ FAIL P/F	TECH INIT
11-15-99	Bicron	B 500 Z	N	10-14-00	Du # 2	μR/hr	8 μR	300 μR	N/A	P	DKM
11-15-99	M-2224 (239-1F)	160668	N	10-15-00	95TH100 (487)	24,600 dpm	7 cpm	3945 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N	↓	95TC100 (0488)	28,800 dpm	911 cpm	6138 cpm	β- 18.1 %	P	DKM
11-15-99	M-2224	132159	N	↓	95TH100 (487)	24,600 dpm	6 cpm	3939 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N	↓	95TC100 (0488)	28,800 dpm	162 cpm	5522 cpm	β- 18.6 %	P	DKM
11-16-99	Bicron	B 500 Z	N	10-14-00	Du # 2	μR/~~mR~~ DKM/hr	8 μR	300 μR	N/A	P	DKM
11-16-99	M-2224 (239-1F)	160668	N	10-15-00	95TH100 (487)	24,600 dpm	6 cpm	3945 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N	↓	95TC100 (0488)	28,800 dpm	880 cpm	6115 cpm	β- 18.1 %	P	DKM
11-16-99	M-2224	132159	N	↓	95TH100 (487)	24,600 dpm	5 cpm	3939 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N	↓	95TC100 (0488)	28,800 dpm	190 cpm	5534 cpm	β- 18.5 %	P	DKM
11-17-99	Bicron	B 500 Z	N	10-14-00	Du # 2	DKM ~~8~~ μR/hr	DKM ~~300~~ 8 μR	300 μR	N/A	P	DKM
11-17-99	M-2224 (239-1F)	160668	N	10-15-00	95TH100 (487)	24,600 dpm	4 cpm	3949 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N	↓	95TC100 (0488)	28,800 dpm	801 cpm	6478 cpm	β- 19.7 %	P	DKM
11-17-99	M-2224	132159	N	↓	95TH100 (487)	24,600 dpm	Ø cpm	3937 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N	↓	95TC100 (0488)	28,800 dpm	100 cpm	5502 cpm	β- 18.7 %	P	DKM
11-18-99	Bicron	B 500 Z	N	10-14-00	Du # 2	μR/hr ~~μR~~ DKM	8 μR	300 μR	N/A	P	DKM
	M-2224 (239-1F)	160668	N	10-15-00	95TH100 (0487)	24,600 dpm	4 cpm	3941 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N	↓	95TC100 (0488)	28,800 dpm	712 cpm	5993 cpm	β- 18.3 %	P	DKM

DAILY INSTRUMENT RESPONSE CHECK LOG

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DATE	MODEL/TYPE	S/N	PHYSICAL DAMAGE Y/N	CAL DUE DATE	SOURCE I.D.	ACTIVITY	BKRD	READING	EFF	PASS/ FAIL P/F	TECH INIT
11-18-99	M-2224	132159	N	10-15-00	95TH100(0487)	24,600 Dpm	1 cpm	3935 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N	10-15-00	95TC100(0488)	28,800 Dpm	285 cpm	5505 cpm	β- 18.1	P	DKM
11-19-99	Bicron	B-5002	N	10-14-00	Du # 2	μR/hr	7 μR	300 μR	NA	P	DKM
	M-2224 (239-1F)	160668	N	10-15-00	95TH100 (487)	24,600 Dpm	4 cpm	3942 cpm	α 16.0 %	P	DKM
	PR-43-37	088824	N		95TC100(0488)	28,800 Dpm	729 cpm	6150 cpm	β- 18.8 %	P	DKM
	M-2224	132159	N		95TH100(487)	24,600 DPM	Ø cpm	3932 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N		95TC100(0488)	28,800 DPM	150 cpm	5408 cpm	β- 18.2 %	P	DKM
11-21-99	Bicron	B-5002	N	10-14-00	Du # 2	μR/hr	8 μR	300 μR	NA	P	DKM
	M-2224 (239-1F)	160668	N	10-15-00	95TH100(487)	24,600 DPM	6 cpm	3949 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N		95TC100(0488)	28,800 DPM	745 cpm	5950 cpm	β- 18.0 %	P	DKM
	M-2224	132159	N		95TH100(487)	24,600 DPM	1 cpm	3937 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N		95TC100(0488)	28,800 DPM	215 cpm	5420 cpm	β- 18.0 %	P	DKM
11-22-99	Bicron	B 5002	N	10-14-00	Du # 2	μR/hr	8 μR	300 μR	N/R	P	DKM
	M-2224 (239-1F)	160668	N	10-15-00	95TH100(487)	24,600 DPM	6 cpm	3946 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N		95TC100(0488)	28,800 DPM	739 cpm	5944 cpm	β- 18.0 %	P	DKM
	M-2224	132159	N		95TH100(487)	24,600 DPM	1 cpm	3931 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N		95TC100(0488)	28,800 DPM	209 cpm	5428 cpm	β- 18.0 %	P	DKM
					N/A						

DAILY INSTRUMENT RESPONSE CHECK LOG

PROJECT: Ft. McClellan

DATE	MODEL/TYPE	S/N	PHYSICAL DAMAGE Y/N	CAL DUE DATE	SOURCE I.D.	ACTIVITY	BKRD	READING	EFF	PASS/ FAIL P/F	TECH INIT
11-23-99	Bicron	B5002	N	10-14-00	Du # 2	μR/hr	8 μR	300 μR	N/A	P	DKM
	M-2224 (239-1F)	160668	N	10-15-00	95TH100(487)	24,600 DPM	5 cpm	3951 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N		95TC100(0488)	28,800 DPM	730 cpm	5954 cpm	β- 18.1 %	P	DKM
	M-2224	132159	N		95TH100(487)	24,400 DPM	Ø cpm	3940 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N		95TC100(0488)	28,800 DPM	199 cpm	5399 cpm	β- 18.0 %	P	DKM
11-24-99	Bicron	B5002	N	10-14-00	Du # 2	μR/hr	8 μR	300 μR	N/A	P	DKM
	M-2224(239-1F)	160668	N	10-15-00	95TH100(487)	24,600 DPM	4 cpm	3961 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N		95TC100(0488)	28,800 DPM	751 cpm	5962 cpm	β- 18.0 %	P	DKM
	M-2224	132159	N		95TH100(487)	24,600 DPM	2 cpm	3946 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N		95TC100(0488)	28,800 DPM	207 cpm	5402 cpm	β- 18.0 %	P	DKM
11-29-99	Bicron	B 500 Z	N	10-14-00	Du # 2	μR/hr	8 μR	300 μR	N/A	P	DKM
	M-2224(239-1F)	160668	N	10-15-00	95TH100(487)	24,600 DPM	7 cpm	3972 cpm	α 16.1 %	P	DKM
	PR 43-37	088824	N		95TC100(0488)	28,800 DPM	968 cpm	6283 ~~18.4~~ cpm	β- 18.4 %	P	DKM
	M-2224	132159	N		95TH100(487)	24,600 DPM	4 cpm	3952 cpm	α 16.0 %	P	DKM
	PR 43-68	134485	N		95TC100(0488)	28,800 DPM	234 cpm	5707 cpm	β- 19.0 %	P	DKM
11-30-99	Bicron	B 500-Z	N	10-14-00	Du # 2	μR/hr	8 μR	300 μR	NA	P	DKM
	M-2224(239-1F)	160668	N	10-15-00	95TH100(487)	24,600 DPM	6 cpm	3964 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N		95TC100(0488)	28,800 DPM	997 cpm	6249 cpm	β- 18.2 %	P	DKM

DAILY INSTRUMENT RESPONSE CHECK LOG

PROJECT: Ft. McClellan

DATE	MODEL/TYPE	S/N	PHYSICAL DAMAGE Y/N	CAL DUE DATE	SOURCE I.D.	ACTIVITY	BKRD	READING	EFF	PASS/ FAIL P/F	TECH INIT
11-30-99	M-2224	132159	N	10-15-00	95TH100(0487)	24,600 DPM	7 cpm	3977 cpm	α 16.1 %	P	DKM
↓	PR 43-68	134485	N	↓	95TC100(0488)	28,800 DPM	259 cpm	5489 cpm	β⁻ 18.1 %	P	DKM
12-2-99	BICRON	B-500-2	N	10-14-00	DU #2	μR/HR	8 μR	300 μR	NA	P	DKM
↓	M-2224(239-1F)	160668	N	10-15-00	95TH100(487)	24,600 dpm	10 cpm	3955 cpm	α 16.0 %	P	DKM
	PR 43-37	088824	N	↓	95TC100(0488)	28,800 dpm	894 cpm	6266 cpm	β⁻ 18.6 %	P	DKM
	M-2224	132159	N	↓	95TH100(487)	24,600 dpm	3 cpm	3936 cpm	α 16.0 %	P	DKM
↓	PR 43-68	134485	N	↓	95TC100(0488)	28,800 dpm	271 cpm	5475 cpm	β⁻ 18.0 %	P	DKM
12-3-99	BICRON	B-500-2	N	10-14-00	DU #2	μR/HR	8 μR	300 μR	NA	P	DKM
↓	M-2224(239-1F)	160668	N	10-15-00	95TH100(487)	24,600 DPM	9 cpm	3975 cpm	α 16.1 %	P	DKM
	PR 43-37	088824	N	↓	95TC100(0488)	28,800 DPM	920 cpm	6195 cpm	β⁻ 18.3 %	P	DKM
	M-2224	132159	N	↓	95TH100(487)	24,600 DPM	9 cpm	3955 cpm	α 16.0 %	P	DKM
↓	PR 43-68	DKM ~~133~~ 134485	N	↓	95TC100(0488)	28,800 DPM	301 cpm	5502 cpm	β⁻ 18.0 %	P	DKM
				N							
				P							

ATTACHMENT 4

SOURCE CONTROL

SOURCE DIRECTORY

SOURCE MASTER / CUSTODIAN DIRECTORY
(Circle applicable type)

Custodian Name:	Physical Inventory Performed By:
Frank Whitaker	Debora K. Goldston

Project / Location: FT. McCLELLAN / Anniston, AL.

ATG Source #	Location	Serial No.	Isotope	Inventory Date	Remarks
95TH 100 0487	FT. McCLELLAN	0487	Th 230	10-26-99	α Source 100 cm² (24,600 Dpm)
95TC 100 0488	FT. McCLELLAN	0488	Tc 99	10-26-99	β Source 100 cm² (28,800 dpm)
93TC 470 1591	FT. McCLELLAN	1591	Tc 99	10-26-99	BY Disc Source (45,200 dpm)
#2	FT. McCLELLAN		D/U Bullet	10-26-99	
93TC 470 1591	Oak Ridge, TN	1591	TC 99	11-5-99	Returned to Oak Ridge by Frank Whitaker

Reviewed and Approved By:	Date:

SOURCE DIRECTORY

SOURCE MASTER / CUSTODIAN DIRECTORY
(Circle applicable type)

Custodian Name:	Physical Inventory Performed By:
Frank Whitaker	Debora K. Goldston

Project / Location: FT. McCLELLAN / Anniston, AL.

ATG Source #	Location	Serial No.	Isotope	Inventory Date	Remarks
95TH 100 0487	FT. McCLELLAN	0487	Th 230	10-26-99	α Source 100 cm² (24,600 dpm)
95 TC 100 0488	FT. McCLELLAN	0488	Tc 99	10-26-99	β Source 100 cm² (28,800 dpm)
93 TC 470 1591	FT. McCLELLAN	1591	Tc 99	10-26-99	βγ Disc Source (45,200 dpm)
# 2	FT. McCLELLAN		D/U Bullet	10-26-99	
93TC 470 1591	Oak Ridge, TN	1591	TC 99	11-5-99	Returned to Oak Ridge by Frank Whitaker

Reviewed and Approved By:	Date:

ATTACHMENT 5

RADIATION / CONTAMINATION SURVEY LOG

RADIATION / CONTAMINATION
SURVEY LOG

ATG #	DATE	TIME	PROJECT	DESCRIPTION OF SURVEY	# of PAGES	TECH INITIALS
FM-01	10-27-99	1430	FORT McCLELLAN	Bldg # 337 FINAL RELEASE	12	DK
FM-02	10-28-99	1030		Bldg # 338 FINAL RELEASE	12	DK
FM-03	10-29-99	1000		SHIPMENT SURVEY OF AMERICUM CHECK SOURCES FOR LEAKING	1	DK
FM-04	11-1-99	0850		SHIPMENT SURVEY OF AMERICUM CHECK SOURCES OUTSIDE OF BOX	1	DK & [illegible]
FM-05	11-1-99	1100		Bldg # 339 FINAL RELEASE	8	DK
FM-06	11-2-99	1000		Bldg # 341 FINAL RELEASE	10	DK
FM-07	11-3-99	1000		Bldg # 3181 FINAL RELEASE	11	DK
FM-08	11-4-99	1100		Bldg # 345 FINAL RELEASE	15	DK
FM-09	11-5-99	0930		Bldg # 335 FINAL RELEASE	10	DK
FM-10	11-8-99	1245		Bldg # 228 FINAL RELEASE	8	DK
FM-11	11-10-99	0930		Bldg # 303-A FINAL RELEASE	8	DK
FM-12	11-11-99	1000		Bldg # 812 1/2 FINAL RELEASE	9	DK
FM-13	11-12-99	1100		Bldg # 257 FINAL RELEASE	8	DK
FM-14	11-15-99	1300		Bldg # 441L FINAL RELEASE	9	DK
FM-15	11-15-99	1530		Bldg # 256 FINAL RELEASE	10	DK
FM-16	11-23-99	1400		Bldg # 3132 FINAL RELEASE	34	DK
FM-17	11-30-99	1000		Bldg # 350 FINAL RELEASE	25	DK

ATTACHMENT 6

BACKGROUND READINGS

* 2d BACKGROUND READINGS TAKEN FOR BACK UP.

BACKGROUND AND EFFICIENCY

For _____ 1999

Instrument ID: BICRON ID: B-500-2

2224 — 160668
PROBE — 088824
2224 — 132159
PROBE — 134485

Date	Bkgd α	Bkgd βγ	Bldg #	Eff. Alpha	MICRO "R" BKG	Eff Beta/ Gamma	Initials
10-27-99	15	728	#337	17.3	5 uR	19.0	DK
	6	223		16.6		18.2	
10-28-99	5	421	#338	17.0	5 uR	19.6	DK
	1	151		16.4		18.0	
10-29-99	2	848	#339	16.8	6 uR	19.0	DK
	2	237		16.0		18.3	
11-2-99	6	446	#341	16.0	4 uR	19.8	DK
	3	137		16.0		18.3	
11-3-99	11	1216	#3181	16.0	20 uR	19.9	DK
	3	346	ROOM-35	16.2		18.5	
11-4-99	6	512	#345	16.0	4 uR	18.1	DK
	2	142		16.1		19.1	
11-5-99	7	432	#335	16.0	4 uR	20.0	DK
	1	106		16.0		19.3	
11-8-99	11	862	#228	16.6	10 uR	18.1	DK
	2	222		16.0		19.3	
* 11-8-99	9	1182	#3181	16.0	16 uR	19.2	DK
	3	309	ROOM-~~35~~ 41	16.2		18.2	

* 2α Background Readings Taken for Back up.

BACKGROUND AND EFFICIENCY

For _____ 1999

Instrument ID: Bicron ID: B-500-2

2224 — 160668

PROLE — 088824

2224 — 132159

PROLE — 134485

	Date	Bkgd α	Bkgd βγ	Bldg #	Eff. Alpha	micro R" BKg	Eff Beta/ Gamma	Initials
	11-10-99	1	428	# 303-A	16.3	5 μR	18.5	DK
		1	155		16.4		18.3	
	11-11-99	1	127	# 812 ½	16.0	2 μR	18.2	DK
	11-12-99	11	512	# 257	16.0	4 μR	18.1	DK
		3	139		16.0		19.1	
	11-15-99	4	280	# 4416	16.0	7 μR	18.6	D.K
		12	970		16.0		18.1	
*	11-15-99	9	981	# 4415	16.0	6 μR	18.6	DK
		1	319		16.0		18.1	
	11-15-99	14	1245	# 256	16.0	12 μR	18.1	DK
		2	387		16.0		18.6	
	11-23-99	4	712	# 3182	16.0	12 μR	18.3	DK
		Ø	100		16.0		18.7	
*	11-30-99	2	189	# 349	16.0	3 μR	18.2	DK
		1	115		16.1		18.1	
	11-30-99	8	448	# 350	16.0	3 μR	18.2	DK
		5	217		16.1		18.1	
*	11-30-99	11	512	# 349	16.0	3 μR	18.2	DK
		16	475		16.1		18.1	

ALLIED TECHNOLOGY GROUP, INC. FORM ATGF-013

ATTACHMENT 7

DOSIMETRY REPORT

Eberlin( )simetry Services
7021 Pan American Fwy NE
Albuquerque, NM 87109
(505) 345-9931 Voice (505) 761-5410 Fax
(888) 343-8537 Toll-Free

NVLAP

The dosimetry processsor is accredited by NVLAP of the U.S. Department of Commerce as having the competence to perform specified test in accordance with prescribed test methods and accreditation criteria.

Current TLD Occupational Radiation Exposure ( )ort

Approved for use in lieu of NRC Form 5

Charles Lamborn

Customer No. 08427

Dosages As Of: 1/31/00

Badge Number / Body Location	Work Facility / Work Location	Name / Birthdate	Age	Sex	ID / ID Type	Service 1 / Freq. 2	Date Issued / Date Returned	Dose for Period (mrem) Note 3 / Neutron	Deep	Lens / Shallow	Accumulated Dose (mrem) for Calendar Quarter / Accumulated Dose (mrem) for Calendar Year Deep	Lens	Shallow	Extremity	Perm. Annual Deep (rem) / Accum. Lifetime Deep (rem)
00000		CONTROL				T	12/1/99		24		65				5
					S	M	12/20/99				207				0
00001						T	12/1/99		0	5	0	5	13		5
					S	M	12/20/99		13		0	5	13		0
00002						T	12/1/99		0	0	0	0	0		5
					S	M	12/20/99		0		0	0	0		0
00003						T	12/1/99		0	0	0	0	0		5
					S	M	12/20/99		0		0	0	0		0
00004						T	12/1/99		0	0	0	0	0		5
					S	M	12/20/99		0		0	0	0		0
00005						T	12/1/99		0	0	12	12	12		5
					S	M	12/20/99		0		12	12	12		0.012
00006						T	12/1/99		0	0	0	0	0		5
					S	M	12/20/99		0		0	0	0		0
00007						T	12/1/99		0	0	0	0	0		5
					S	M	12/20/99		0		0	0	0		0
00008						T	12/1/99		0	0	0	0	0		5
					S	M	12/20/99		0		0	0	0		0
00009						T	12/1/99		0	0	0	0	0		5
					S	M	12/20/99		0		0	0	0		0
00020						T	12/1/99		0	0	0	0	0		5
						M	12/20/99		0		0	0	0		0

1 Service Codes
T,D - Whole Body
H,R - Ring Badge
J,L - Ankle Badge
K,W - Wrist Badge
N,E - Neutron
A Badge

2 Frequency Codes
W - Weekly
B - BiWeekly
M - Monthly
P - BiMonthly
Q - Quarterly
S - SemiAnnual
A - Annual
I - Irregular

3 Note Codes
C - Badge damaged
E - Reported by telephone or wire
F - Badge not used
G - Explanation attached
X - Contaminated
Z - Calculated control
P - Planned exposure

Company ALLIED TECHNOLOGY GROUP
Attention BARBARA WHITAKER
Address 669 EMORY VALLEY ROAD
OAK RIDGE, TN 37830

BADGE ISSUE LOG

PROJECT / LOCATION: **Fort McClellan Survey, Anniston, AL**				BADGE SERIES NO: **October 1999 08427-0001 - 0005**	
BADGE NO.	NAME	SOCIAL SECURITY NUMBER	NRC FORM 4 COMPLETE Y/N	PERIOD MONITORED FROM/TO	DATE OF BIRTH
00001	Frank C. Whitaker	227-62-4251	Y	10/25/99 - 12/3/99	10/19/46
00002	Richard Kountz	281-34-4199	N	10/25/99 - 12/3/99	2/09/40
00003	Debra Goldston	250-27-2460	N	10/25/99 - 12/3/99	1/03/60
00004					
00005					

ATTACHMENT 8

FM01 BUILDING 637 SURVEY DATA

RADIOLOGICAL SURVEY REPORT

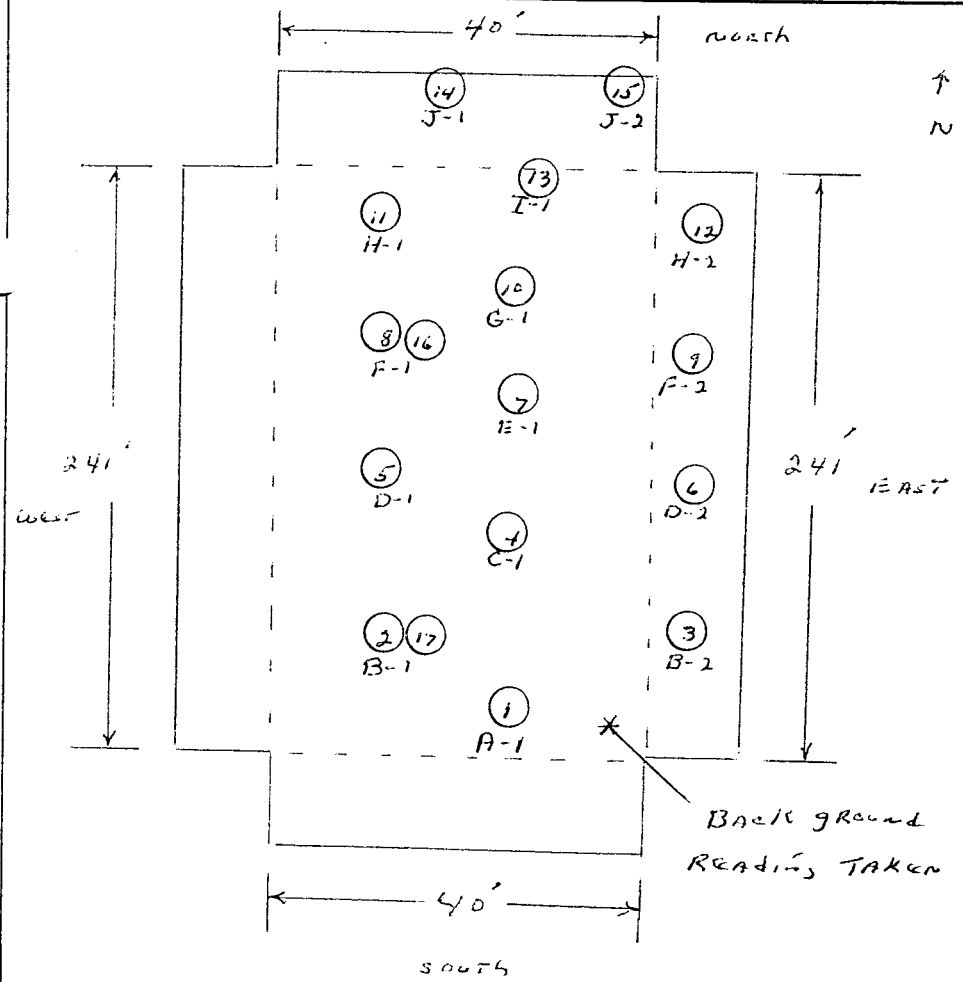
ATGS #: FM-01 BLDG 337

DATE: 10-27-99	INSTRUMENTATION USED				
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston/D. Kountz	BICRON	B-5002	N/A	5 uR	10-14-00
LOCATION: Bldg. ~~336~~ EXH. 337	PRM 43-71 / 2234	088824 / 160668	α 17.3 % / B-19	α 15 / B-128 cpm	10-15-00
REVIEWED BY: Jason Whitcher	PRM 43-68 / 2234	134485 / 132159	α 16.6 % / B-18.2	α 6 / B-223 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A %		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED



#	βγ	α
	See Attached sheet	
	N/A	

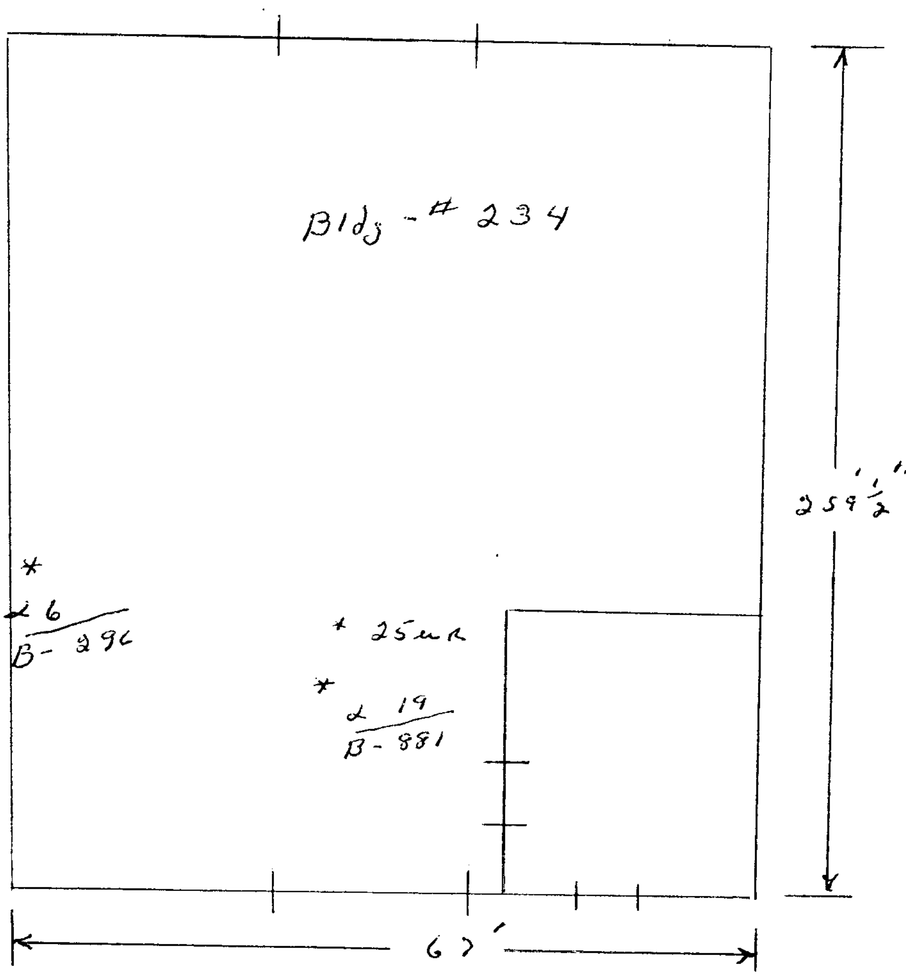
Remarks: SMEAR LOCATIONS (ALPHA/BETA)

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-01

DATE: 12-2-99	INSTRUMENTATION USED				
TIME: 1230	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kov-sc	BICRON	B-500-2	N/A	25uR	10-14-00
LOCATION: Bldg-# 234	PRAC 43-?? 2224	088824 160668	α 16 % B-18.6	α 19 B-881 CPM	10-15-00
REVIEWED BY:	PRAC 43-68 2224	134485 132159	α 16 B-18 %	α 6 B-296 CPM	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)	—	—	N/A	—	—

PURPOSE OF SURVEY: 2 d Background Readings Taken in Bldg # 234



SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	

Remarks: All Readings are in Cpm unless otherwise Notated

Bldg 337

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-01

DATE: 10-27-99	INSTRUMENTATION USED				
TIME: 1630	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kountz	Bicron	B-5002	N/A	5 μR	10-14-00
LOCATION: Bldg ~~335~~ 337	PRAC 43-37 / 2224	098834 / 160668	α 13.3% / β 19%	α 15 cpm / β 728	10-15-00
REVIEWED BY: Frank Whitten	PRAC 43-68 / 2224	134485 / 132159	α 16.6% / β 18.2%	α 6 / β 333 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

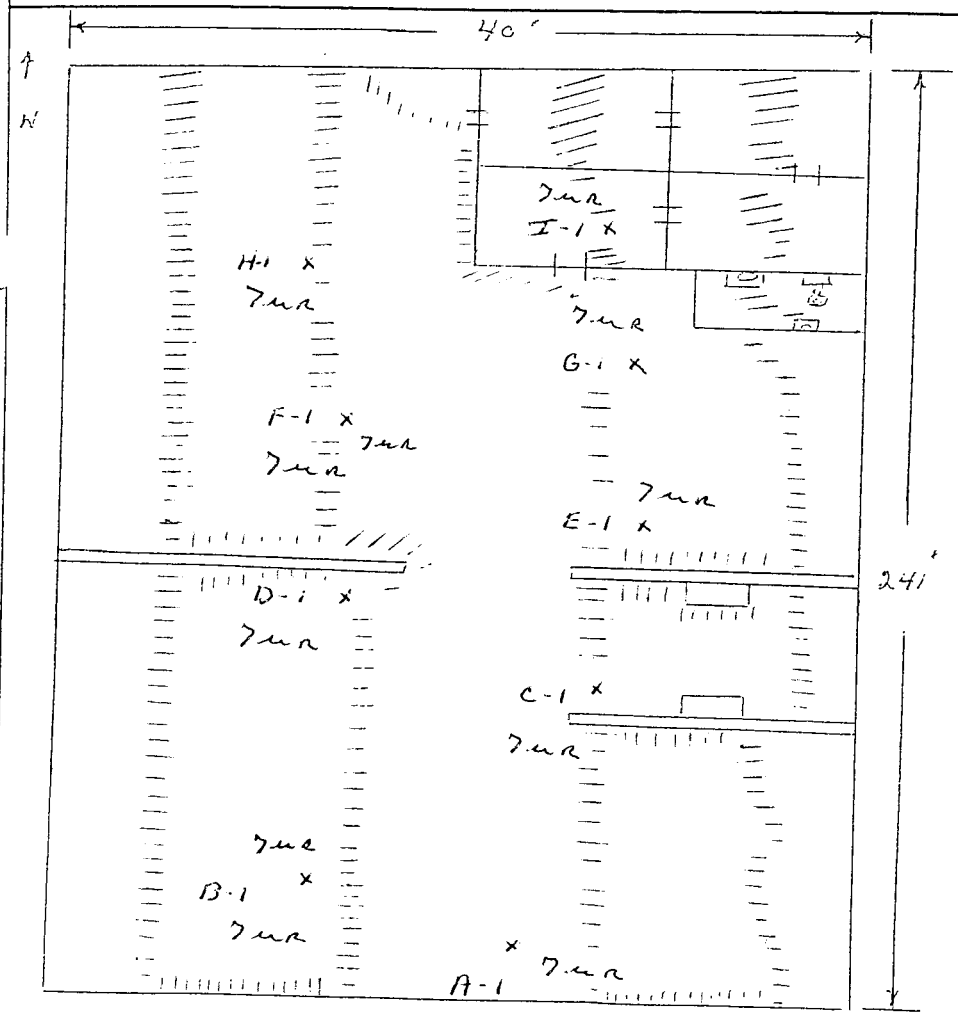
PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 18" PASSES ON FLOOR

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
	N	A



Remarks: MICRO "R" READINGS TAKEN ON SURFACE. \\\\\ = show AREA WHERE ALPHA, BETA and GAMMA SCANS WERE TAKEN

ALL SCAN SURVEYS ARE AT BACKGROUND LEVELS for ALPHA/BETA-GAMMA ACTIVITY.

BLDG 337

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-01

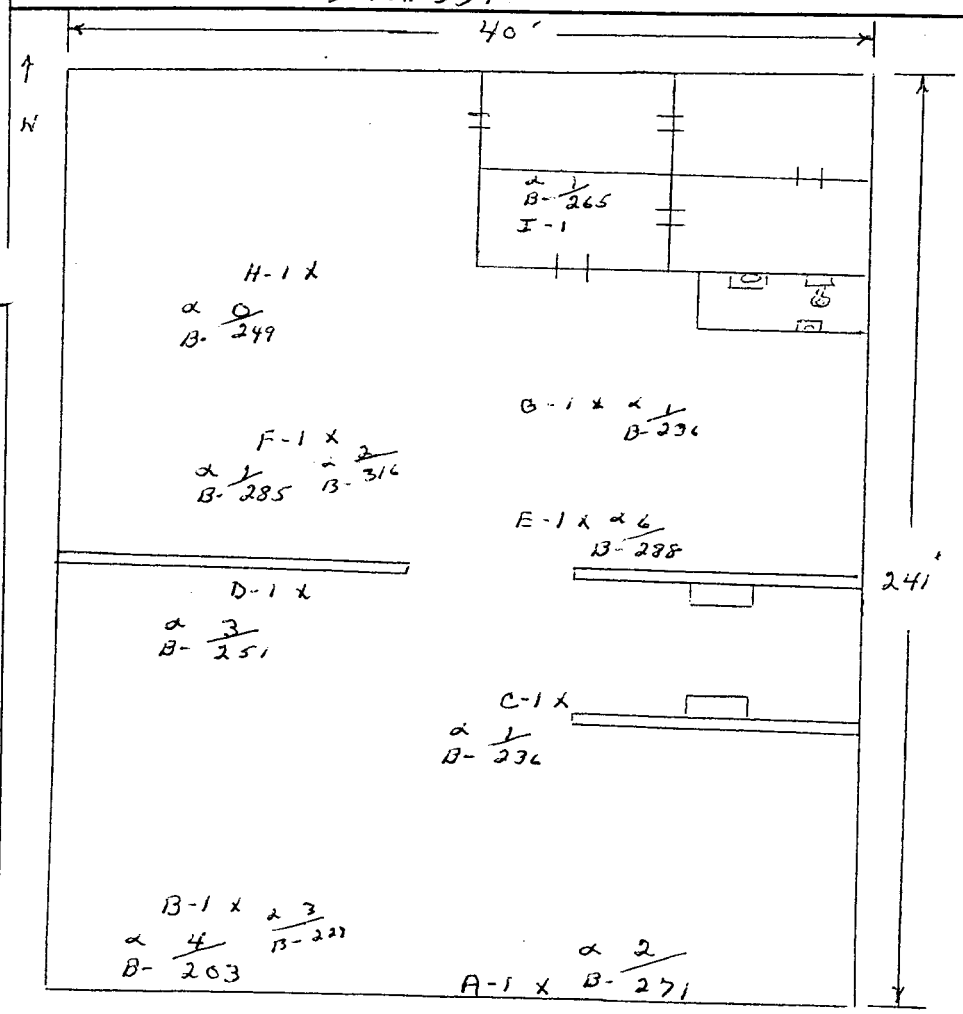
	INSTRUMENTATION USED				
DATE: 10-27-99					
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / Dr. Kounts	Bicron B-5002	B-5002	N/A	5 uR	10-14-00
LOCATION: Bldg. ~~335~~ 337	Ludlum 43-37 2224	98824 160668	α 33.3 β 19	α 15 β-228	10-15-00
REVIEWED BY: Frank Whitten	Ludlum 43-68 2224	134485 132159	α 16.6 β 18.2	α 6 β-233	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

BLDG. 337

SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED



#	βγ	α
	N/A	

Remarks: ONE MINUTE ALPHA AND BETA SURFACE ACTIVITY READINGS. ALL READINGS ARE in CPM UNLESS OTHERWISE NOTATED

BLDG. 337

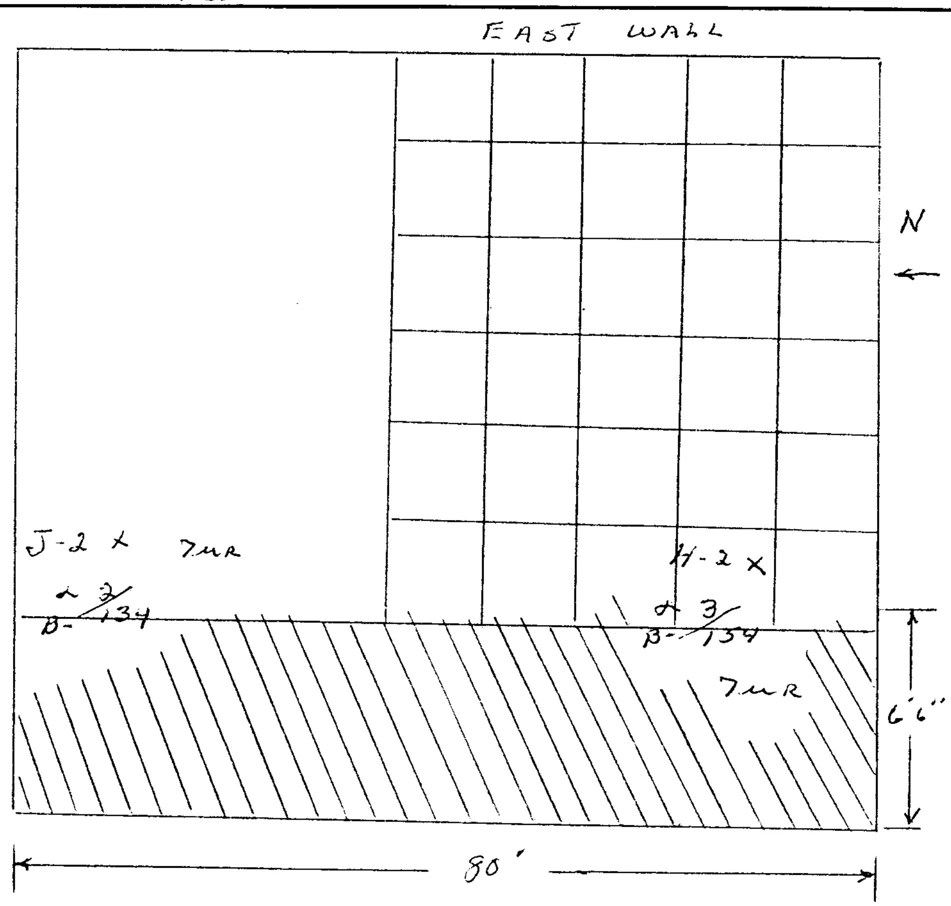
RADIOLOGICAL SURVEY REPORT

ATGS #: FM-01

DATE: 10-27-99	INSTRUMENTATION USED				
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Koontz	Bicron	B-5002	N/A	5 uR	10-14-00
LOCATION: Bldg ~~335~~ 337	43-37 / 2224	88824 / 160668	α 17.39, β 19?	α 15 cpm, β-228 cpm	10-15-00
REVIEWED BY: Frank Whitch	43-68 / 2224	134485 / 132159	α 16.6%, β 18.2%	α 6 cpm, β-223 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL Release survey

NOTE: SCANS were 6" PASSES ON WALLS
\\\ = shows where Alpha, Beta and Gamma scans were Taken



SMEAR RESULTS RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED		
#	βγ	α
N/A		

Remarks: ONE MINUTE ALPHA AND BETA SURFACE ACTIVITY READINGS, ALSO MICRO "R" READINGS TAKEN ON SURFACE

ALL SCAN READINGS ARE AT BACKGROUND UNLESS OTHERWISE NOTATED. for Alpha / Beta Ga Activity.

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ALL READINGS ARE IN CPM UNLESS OTHERWISE NOTATED

BLDG 337

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-01

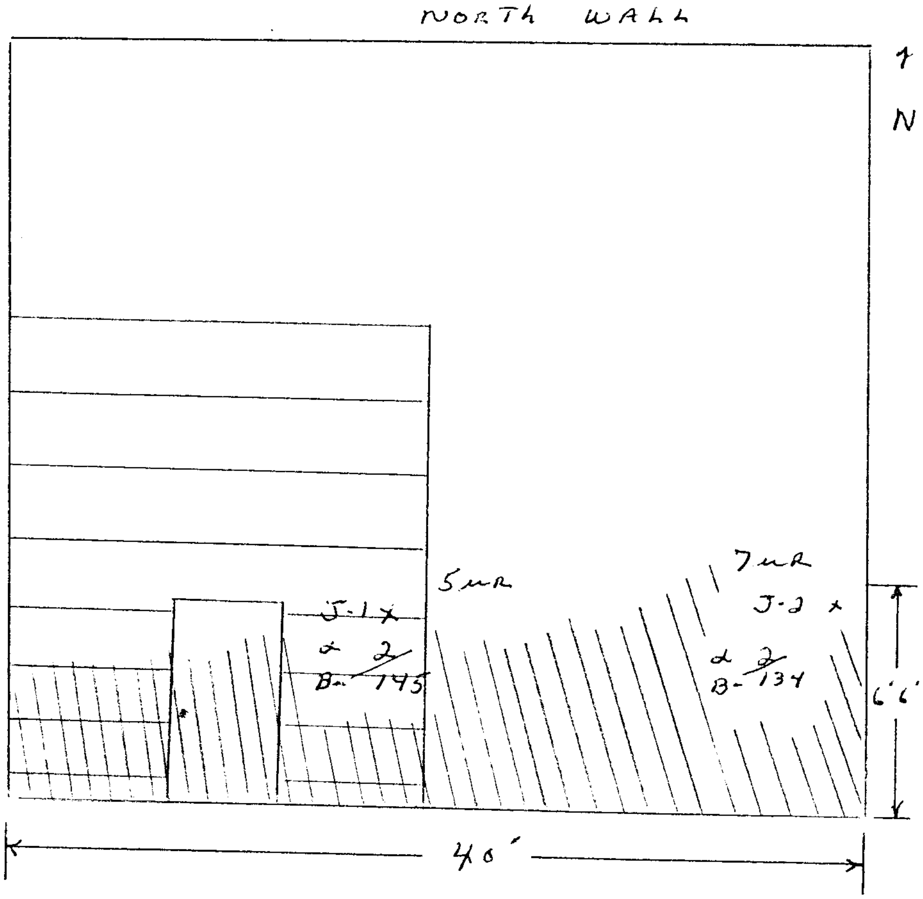
DATE: 10-27-99	INSTRUMENTATION USED				
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston/D. Koontz	Bicron	B-5062	N/A	5 uR	10-14-00
LOCATION: Bldg ~~335~~ 337	Probe 43-37 / 2224	098824 / 160668	α 17.3% / β 19%	α 15 Cpm / β- 738 Cpm	10-15-00
REVIEWED BY: [signature]	Probe 43-68 / 2234	134485 / 132159	α 16.6% / β 18.2%	α 6 Cpm / β- 223 Cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: Final Release Survey

Note: Scans were 6" passes on walls

\\\ = shows area where Alpha, Beta and Gamma scans were taken

NORTH WALL



SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	

Remarks: One minute Alpha and Beta surface activity readings, Also micro "R" readings taken on surface

All scan readings are at background levels for Alpha/Beta/γ activity

All readings are in Cpm unless otherwise notated.

Blds. 337

RADIOLOGICAL SURVEY REPORT

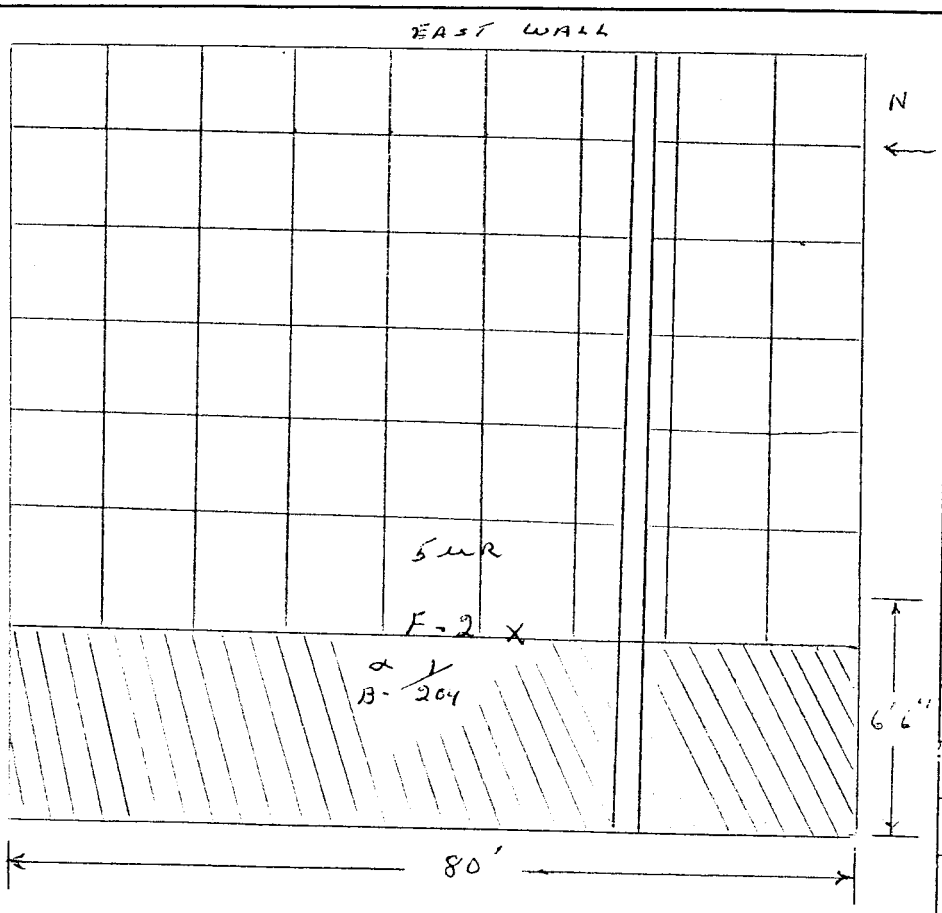
ATGS #: FM-01

DATE: 10-27-99	INSTRUMENTATION USED				
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldstein/D. Kourik	B-CRON	B-5002	N/A	5 uR	10-14-00
LOCATION: Blds. ~~335~~ 337	PRO44 43-68 / 2224	98824 / 160668	α 17.3% / β 19%	α 15 cpm / β-228 cpm	10-15-00
REVIEWED BY: Frank White	PRO44 43-68 / 2224	134485 / 132159	α 16.6% / β 18.2%	α 6 cpm / β-223 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS

\|\|\| = SHOWS AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN



SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	

Remarks: ONE MINUTE ALPHA AND BETA SURFACE ACTIVITY READINGS, ALSO MICRO "R" READINGS TAKEN ON SURFACE

ALL SCAN READINGS ARE AT BACKGROUND LEVELS for ALPHA/BETA ACTIVITY.

BLDG 337

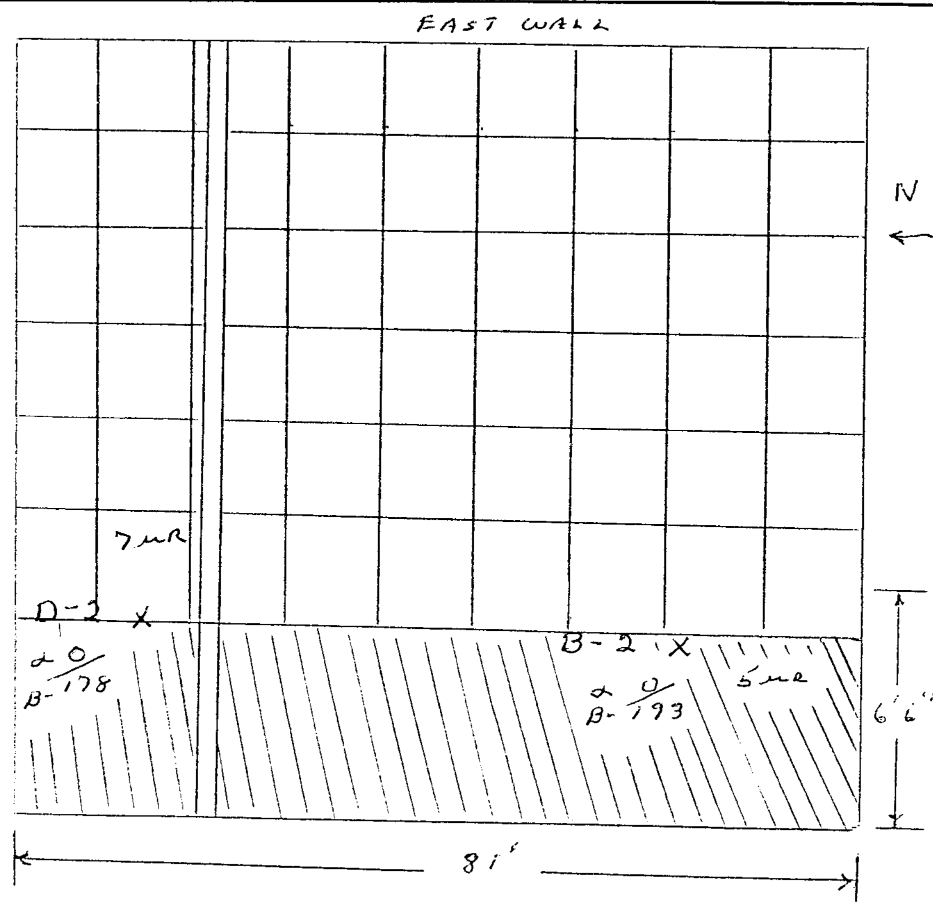
RADIOLOGICAL SURVEY REPORT

ATGS #: FM-01

DATE: 10-27-99	INSTRUMENTATION USED				
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Geidson / D. Kounts	BicRon	B-5002	N/A	5 uR	10-14-00
LOCATION: Bldg ~~335~~ 337	PRdc 43-37 / 2224	188824 / 160668	α 17.39% / β 19%	α 15 cpm / β-228 cpm	10-15-00
REVIEWED BY: Frank White	PRdc 43-68 / 2224	134485 / 132159	α 16.6% / β 18.2%	α 6 cpm / β-223 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (µR/hr)			N/A		

PURPOSE OF SURVEY: FINAL Release Survey

NOTE: SCANS WERE 6" PASSES ON WALLS
|||| = shows AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN



SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED

#	βγ	α
N/A		

Remarks: ONE MINUTE ALPHA AND BETA SURFACE ACTIVITY READINGS, ALSO MICRO "R" READINGS TAKEN ON SURFACE

ALL SCAN READINGS ARE AT BACKGROUND LEVELS FOR ALPHA / BETA & ACTIVITY.

ALL READINGS ARE IN CPM UNLESS OTHERWISE NOTATED

BLDG. 337

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-01

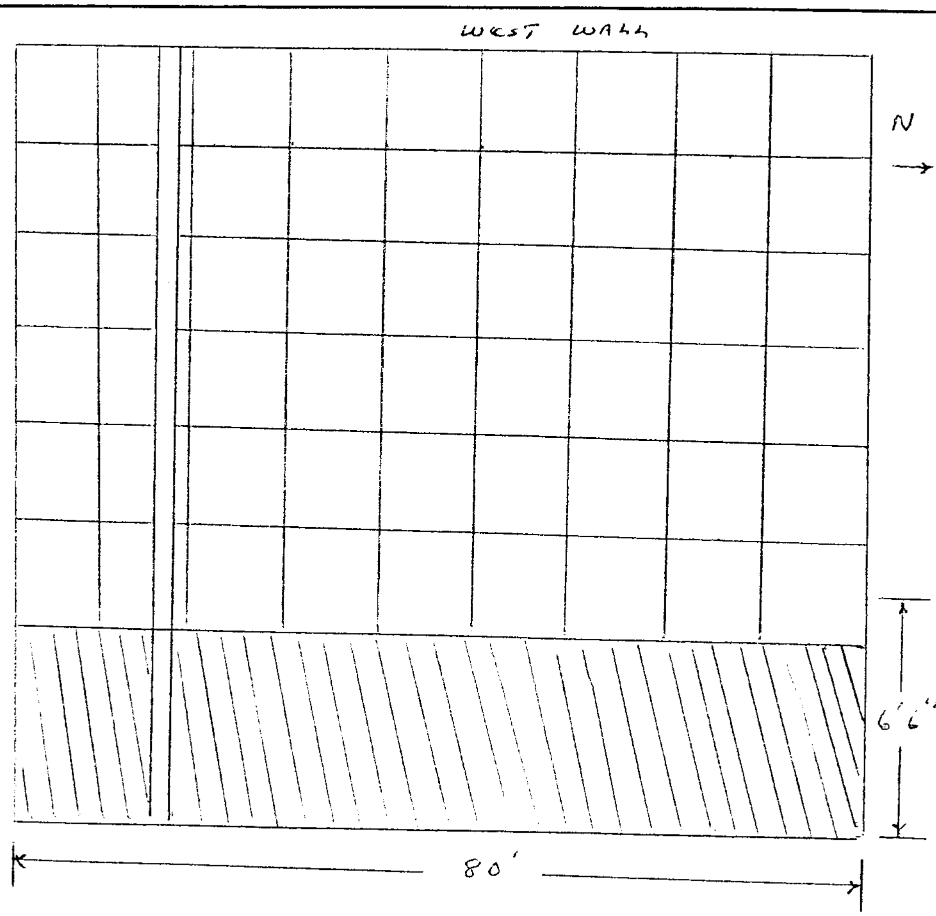
	INSTRUMENTATION USED				
DATE: 10-22-99					
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kounts	BICRON	B-5002	N/A	5 uR	10-14-00
LOCATION: Bldg. ~~335~~ 337	PROC 43-37 / 2234	88824 / 160668	α 17.3% / β 19%	α 15 cpm / β- 328 cpm	10-15-00
REVIEWED BY: Frank Vfitch	PROC 43-68 / 2234	134485 / 132159	α 16.6% / β 18.2%	α 6 cpm / β- 223 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED



#	βγ	α
	N/A	

Remarks: \\\\ = SHOW AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN

ALL SCAN READINGS ARE AT BACKGROUND LEVELS FOR ALPHA/BETA ACTIVITY.

BLDG. 337

RADIOLOGICAL SURVEY REPORT

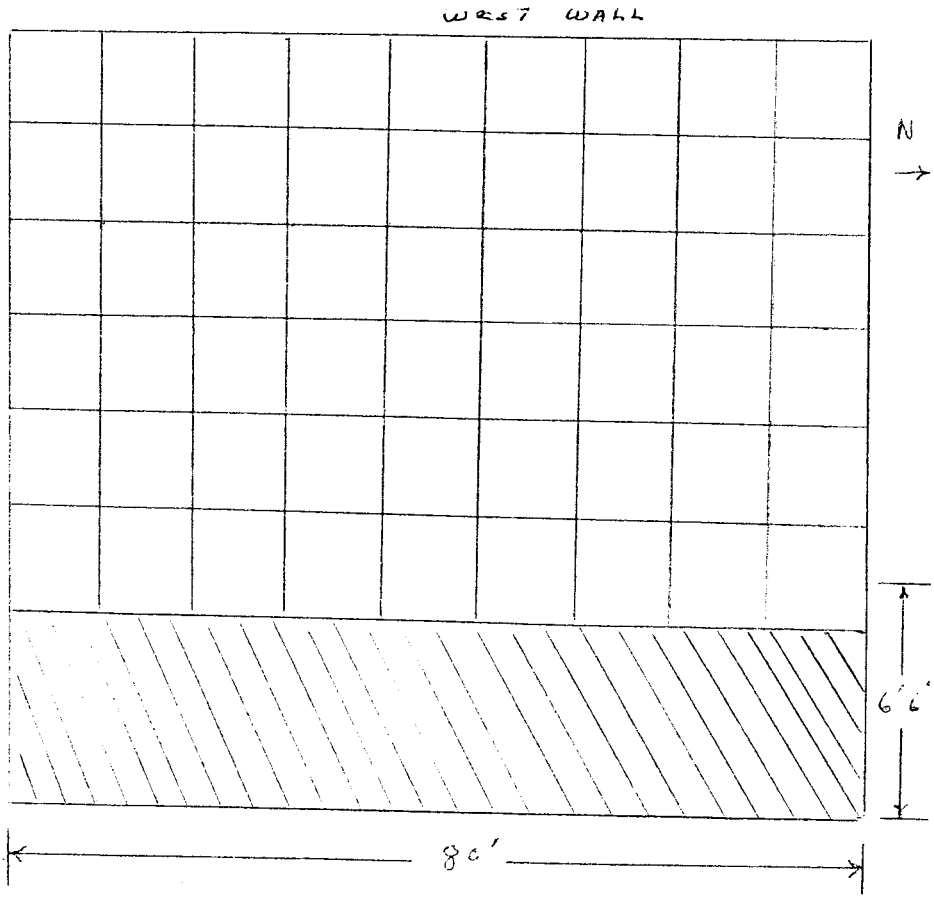
ATGS #: FM-01

DATE: 10-23-98	INSTRUMENTATION USED				
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kouwe / R.H.	BICRON	B-5002	N/A	5 uR	10-14-00
LOCATION: Bldg ~~335~~ 337	PROBE 43-37 / 2224	088834 / 160668	α 17.3% / β 19%	α 15 cpm / β - 238 cpm	10-15-00
REVIEWED BY: Frank Whitat	PROBE 43-68 / 2224	134485 / 132158	α 16.6% / β 18.2%	α 6 cpm / β - 223 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS

BLDG 337



SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	

Remarks: \\\\ = SHOW AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN

ALL SCAN READINGS ARE AT BACKGROUND LEVELS for ALPHA/BETA RADIOACTIVITY

BLDG. 337

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-01

DATE: 10-27-99	INSTRUMENTATION USED				
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kovatz	Bicron	B-5002	N/A	5 uR	10-14-00
LOCATION: Bldg ~~335~~ 337 (1st flr)	PR064 43-37 / 2224	088524 / 160668	α 17.3% / β - 19%	α 15 cpm / β - 228 cpm	10-15-00
REVIEWED BY: [signature]	PR064 43-68 / 2224	134485 / 132158	α 16.6% / β - 18.2%	α 6 cpm / β - 223 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

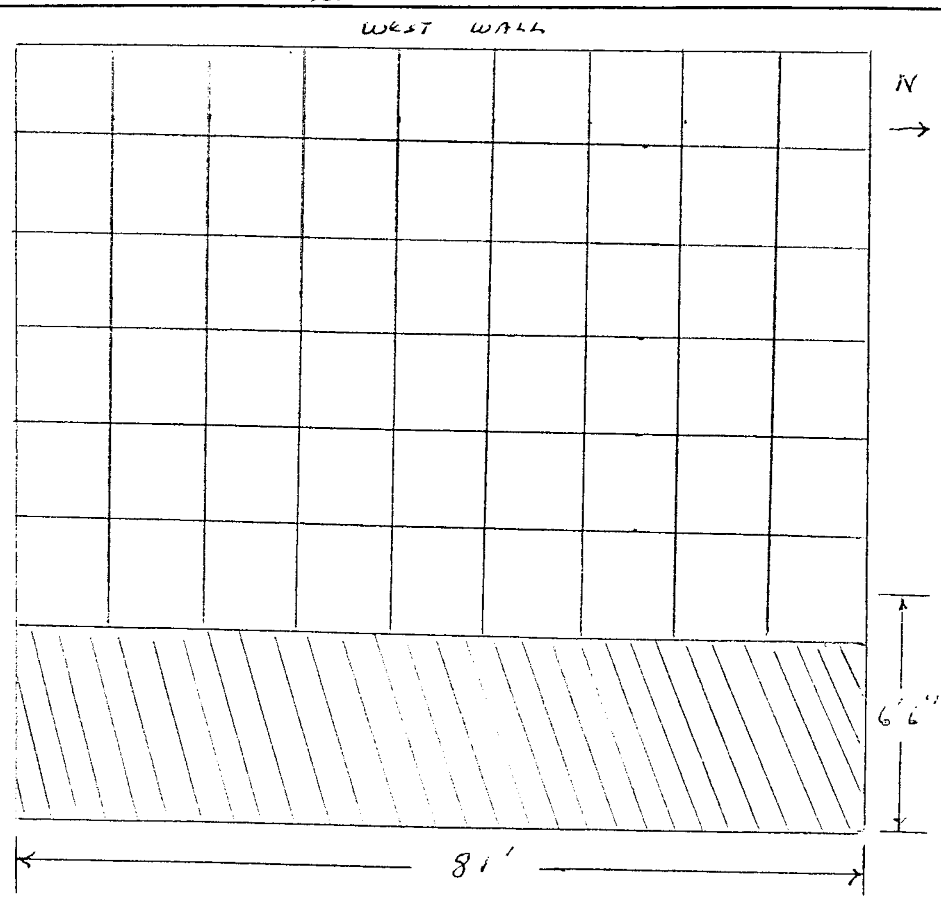
PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE! SCANS WERE 6" PASSES ON WALLS

BLDG 337

SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED



#	βγ	α
	N/A	

Remarks: \\\\ = SHOW AREA WERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN

ALL SCAN READINGS ARE AT BACKGROUND LEVELS FOR ALPHA / BETA γ ACTIVITY

BLDG. 337

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-01

DATE: 10-27-99	INSTRUMENTATION USED				
TIME: 1030	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kouwe	BICRON	B-5062	N/A	5 mR	10-14-00
LOCATION: Bldg 335 ~~337~~ FIRST	PROBE 43-31 / 2224	088834 / 160668	α 12.3% / β 19%	α 15 cpm / β - 223 cpm	10-15-00
REVIEWED BY: Frank Whitcher	PROBE 43-18 / 2224	134485 / 132159	α 16.6% / β 18.2%	α 6 cpm / β - 223 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

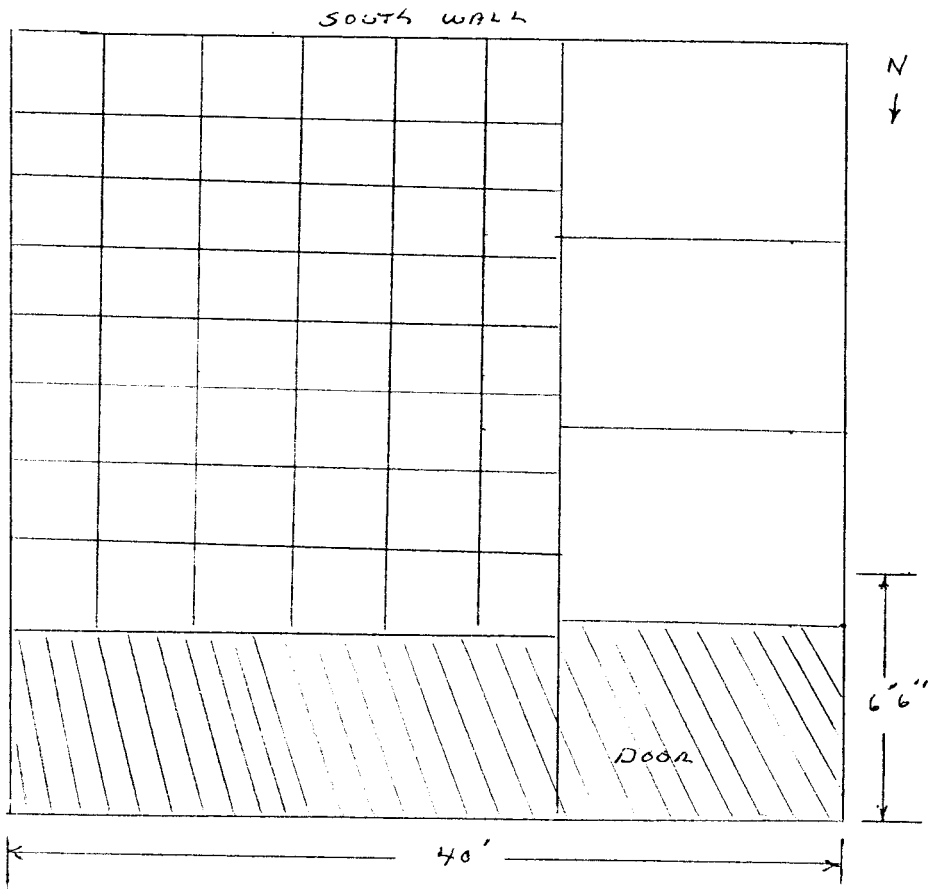
PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS

SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED

#	βγ	α



Remarks: ▨ = SHOW AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN

ALL SCAN READINGS ARE AT BACKGROUND LEVELS FOR ALPHA/BETA ACTIVITY

McClellan
Bldg-337

Number	Smear Location	Alpha Activity DPM/100 sq cm	Beta Activity DPM/100 sq cm
1	A-1	<16.62	<48.07
2	B-1	<16.62	<48.07
3	B-2	<16.62	<48.07
4	C-1	<16.62	<48.07
5	D-1	<16.62	<48.07
6	D-2	<16.62	<48.07
7	E-1	<16.62	<48.07
8	F-1	<16.62	<48.07
9	F-2	<16.62	<48.07
10	G-1	<16.62	<48.07
11	H-1	<16.62	<48.07
12	H-2	<16.62	<48.07
13	I-1	<16.62	<48.07
14	J-1	<16.62	<48.07
15	J-2	<16.62	<48.07
16	F-1	<16.62	<48.07
17	B-1	<16.62	<48.07

* QA SMEARS

ATTACHMENT 9

FM02 BUILDING 338 SURVEY DATA

BLDG. 338

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-02

DATE: 10-28-99	INSTRUMENTATION USED				
TIME: 1330	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kouiots	Bicron	B-5042	N/A	5 mR	12-23-99
LOCATION: Bldg 338	PRM 43-31 / 2224	088824 / 160665	α 17% / β 19.6%	α 5 cpm / β 42 cpm	10-15-00
REVIEWED BY: Frank Whitcra	PRM 43-68 / 2224	134485 / 132159	α 16.47% / β 18%	α 1 cpm / β 151 cpm	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

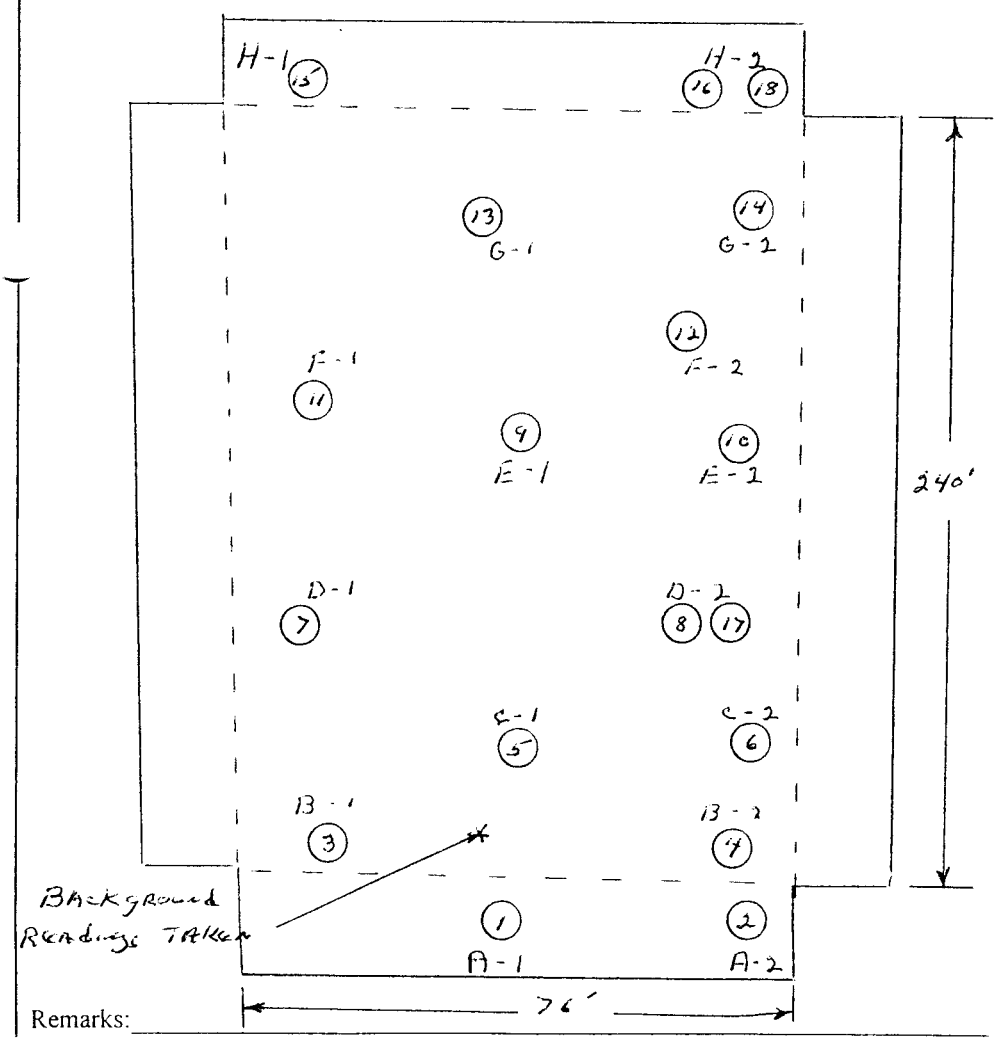
PURPOSE OF SURVEY: FINAL RELEASE SURVEY

← N

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
	See Attached Sheet	
	N/A	



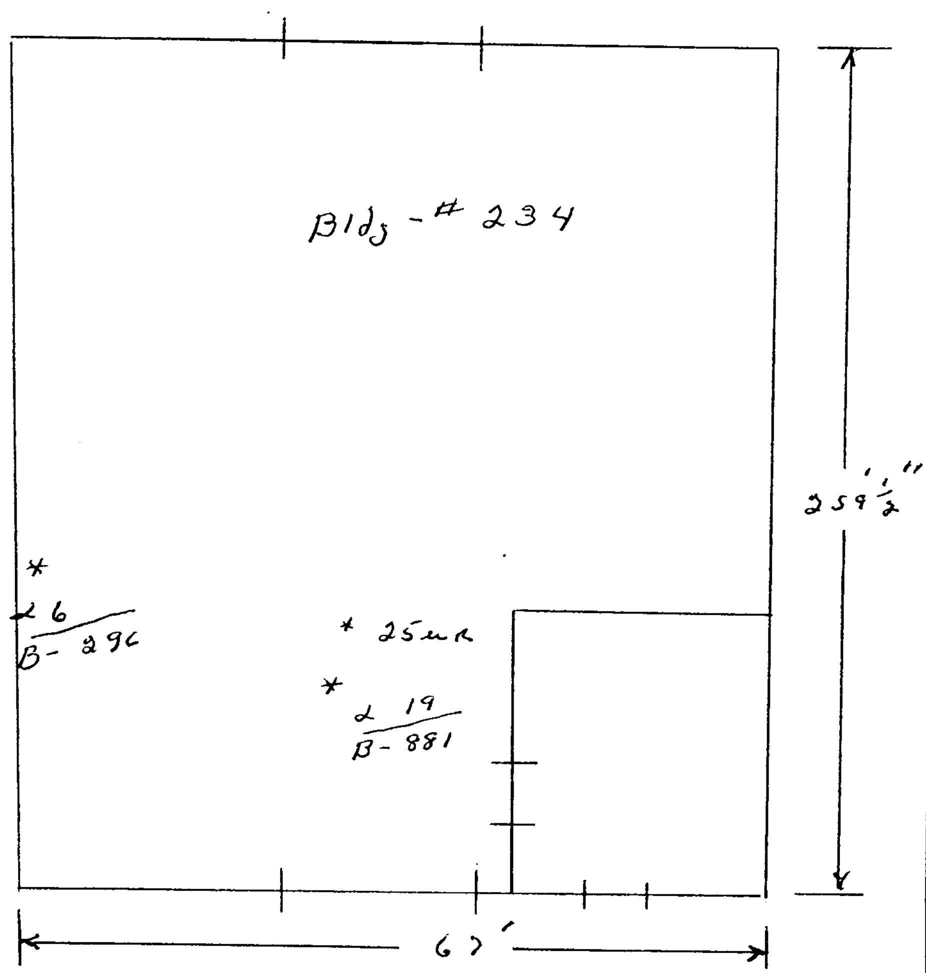
Remarks: SMEARS LOCATION

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-02

		INSTRUMENTATION USED			
DATE: 12-2-99					
TIME: 1230	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kou-sc	BICRON	B-500-2	N/A	25 uR	10-14-00
LOCATION: Bldg-# 234	PRAC 48-37 / 2224	088824 / 160668	α 16 / B- 18.6 %	α 19 / B- 881 CPM	10-15-00
REVIEWED BY:	PRAC 43-68 / 2224	134485 / 132159	α 16 / B- 18 %	α 6 / B- 296 CPM	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)	—	—	N/A	—	—

PURPOSE OF SURVEY: 2 α Background Readings Taken in Bldg # 234



SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	

Remarks: All Readings are in Cpm unless otherwise Notated

ALLIED TECHNOLOGY GROUP, INC. FORM ATGF-001 6/96

BLDG 338

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-02

DATE: 10-28-99	INSTRUMENTATION USED				
TIME: 1330	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldstein / D. Kowitz	BICRON	B 5642	N/A	5 uR	12-23-99
LOCATION: Bldg 338	PRoi 43-37 2224	085824 / 160668	α 17.9% / β 19.6%	α 5 cpm / β 421 cpm	10-15-00
REVIEWED BY: Frank Whitten	PRoi 43-68 2224	134485 / 132159	α 16.4% / β 18%	α 2 cpm / β 151 cpm	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

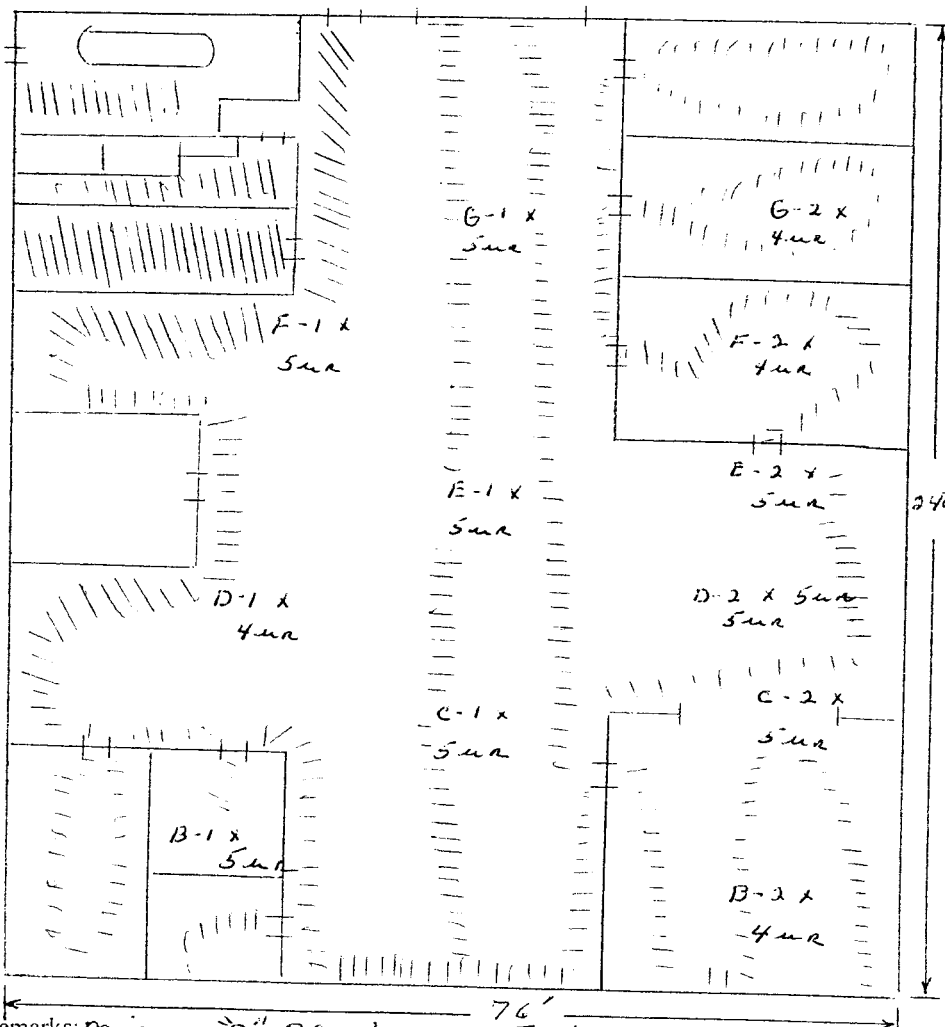
NOTE: SCANS WERE 18" PASSES ON FLOOR

← N

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	



Remarks: MICRO "R" READINGS TAKEN ON SURFACE

all = SHOWS AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN

ALL SCAN SURVEYS ARE AT BACKGROUND LEVELS FOR ALPHA / BETA ACTIVITY

BLDG. 338

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-02

DATE: 10-28-99	INSTRUMENTATION USED				
TIME: 1330	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldstein / D. Kocurek	BICRON	B5642	N/A	5 cpm	12-23-99
LOCATION: Bldg 338	PRM 43-37 / 2224	08824 / 160668	α 17.9% / β 19.6%	α 5 cpm / β 421 cpm	10-15-00
REVIEWED BY: [illegible]	PRM 43-68 / 2224	134485 / 132159	α 16.47% / β 18%	α 2 cpm / β 151 cpm	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

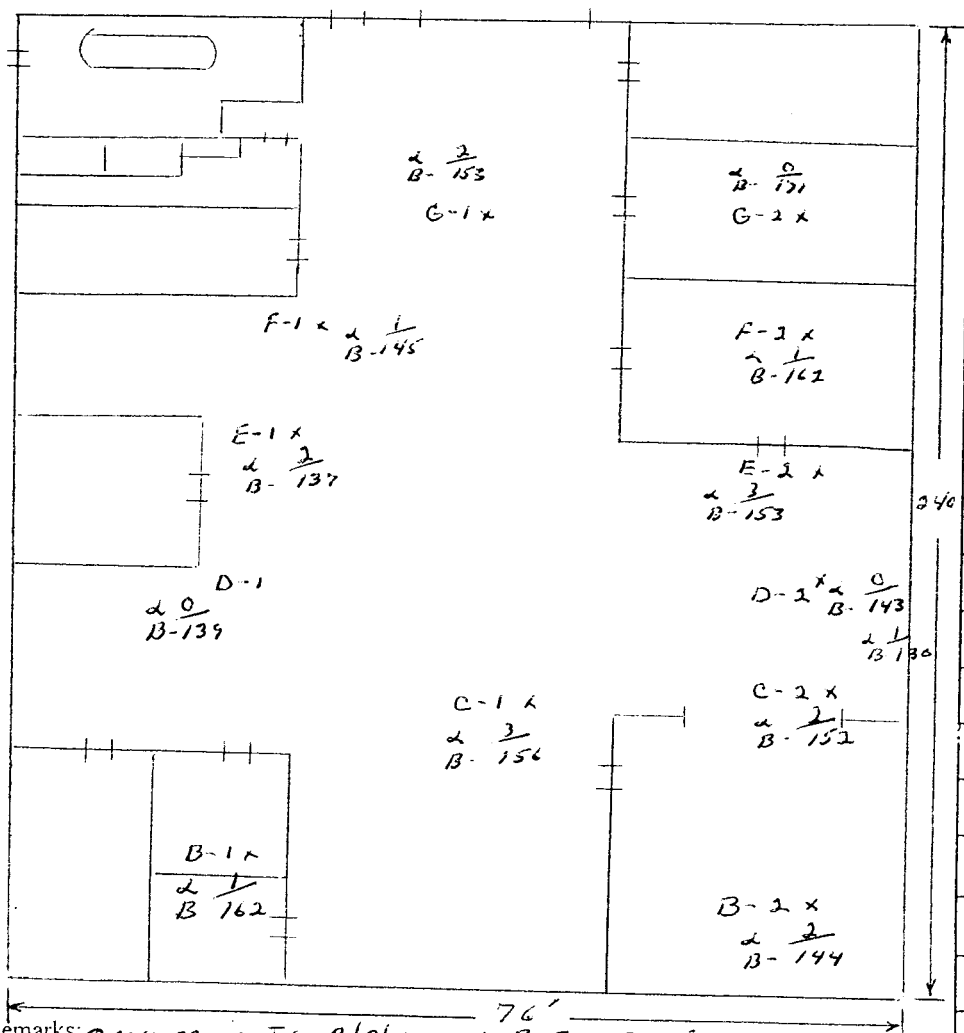
PURPOSE OF SURVEY: FINAL RELEASE SURVEY

← N

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α



Remarks: ONE MINUTE ALPHA AND BETA SURFACE ACTIVITY READINGS

ALL READINGS ARE IN CPM UNLESS OTHERWISE NOTATED.

BLDG 338

RADIOLOGICAL SURVEY REPORT

ATGS #: FM - 02

DATE: 10-28-99	INSTRUMENTATION USED				
TIME: 1330	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kouwe	BICRON	B-504-2	N/A	5 cpm	12-23-99
LOCATION: Bldg 338	PROBE 43-31 / 2224	088824 / 160668	α 17 / β-17.6	α 5 / β-421	10-15-00
REVIEWED BY: Frank Uhelski	PROBE 43-28 / 2224	134485 / 132159	α 16.4 / β-18	α 1 / β-151	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

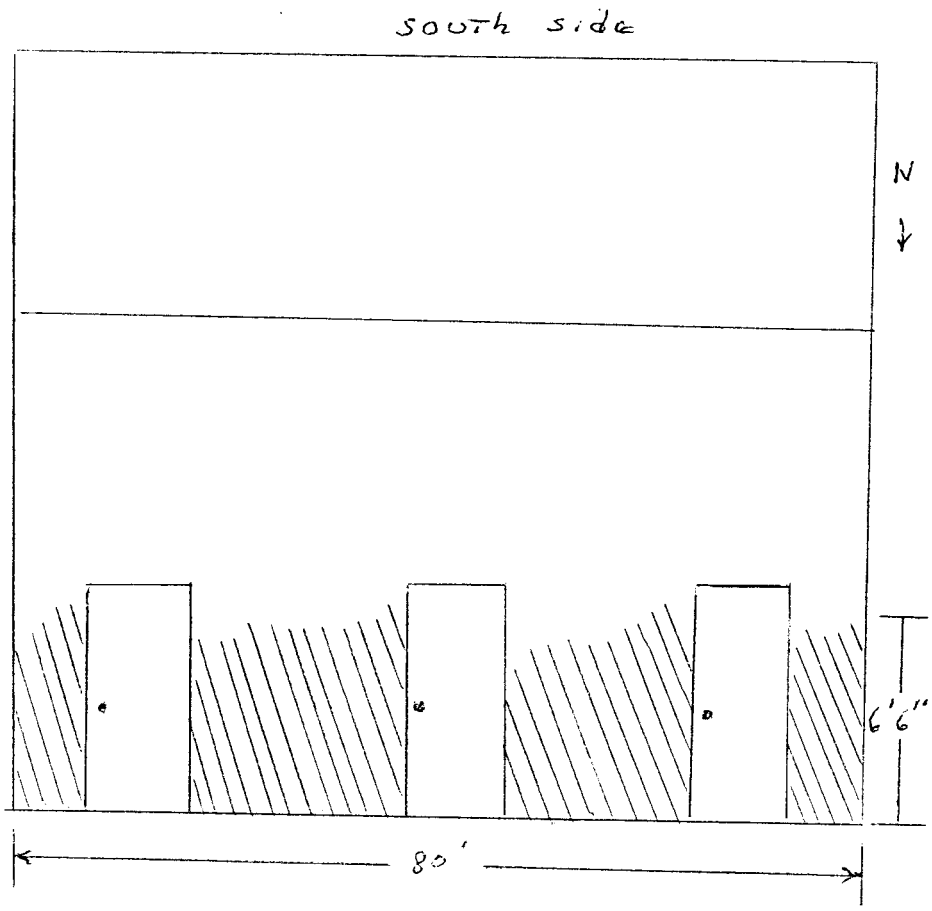
NOTE: SCANS WERE 6" PASSES ON WALLS

BLDG 338

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	



Remarks: ||| = SHOWS AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN

ALL READINGS ARE AT BACKGROUND LEVELS for ALPHA/BETA RADIOACTIVITY.

BLDG 338

RADIOLOGICAL SURVEY REPORT

ATGS #: FM1-02

DATE: 10-28-99	INSTRUMENTATION USED				
TIME: 1330	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: Dr. Goldstein / Dr. Kowitz	Bicron	B-504-2	N/A	5 cpm	12-23-98
LOCATION: Bldg. 338	PRdc 43-31 / 2224	088824 / 160668	α 17 / β- 19.6	α 5 / β- 421	10-15-00
REVIEWED BY: Frank Whitten	PRdc 43-68 / 2224	134485 / 132159	α 16.4 / β- 18	α 1 / β- 151	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

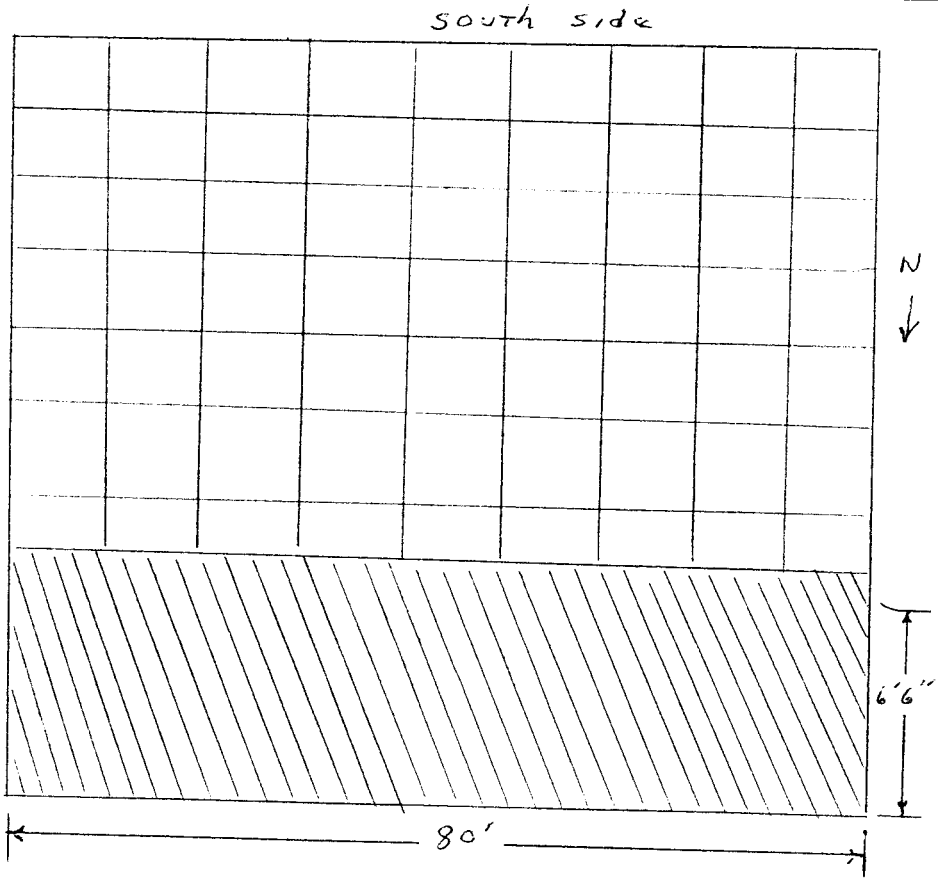
NOTE: SCANS WERE 6" PASSES ON WALLS

BLDG. 338

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α



Remarks: ||| = SHOWS AREA WHERE ALPHA, BETA and GAMMA SCANS WERE TAKEN

ALL READINGS ARE AT BACKGROUND LEVELS for ALPHA / BETA RADIOACTIVITY.

BLDG 338

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-02

	INSTRUMENTATION USED				
DATE: 10-28-99	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
TIME: 1330					
SURVEYOR: D. Goldston / D. Kounts	Bicron	B-504-Z	N/A	5 uR	12-23-99
LOCATION: Bldg 338	Probe 43-31 2224	98824 166668	α 17 β- 19.6	α 5 β- 421	10-15-00
REVIEWED BY:	Probe 43-68 2224	134485 132159	α 16.4 β- 18	α 1 β- 151	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

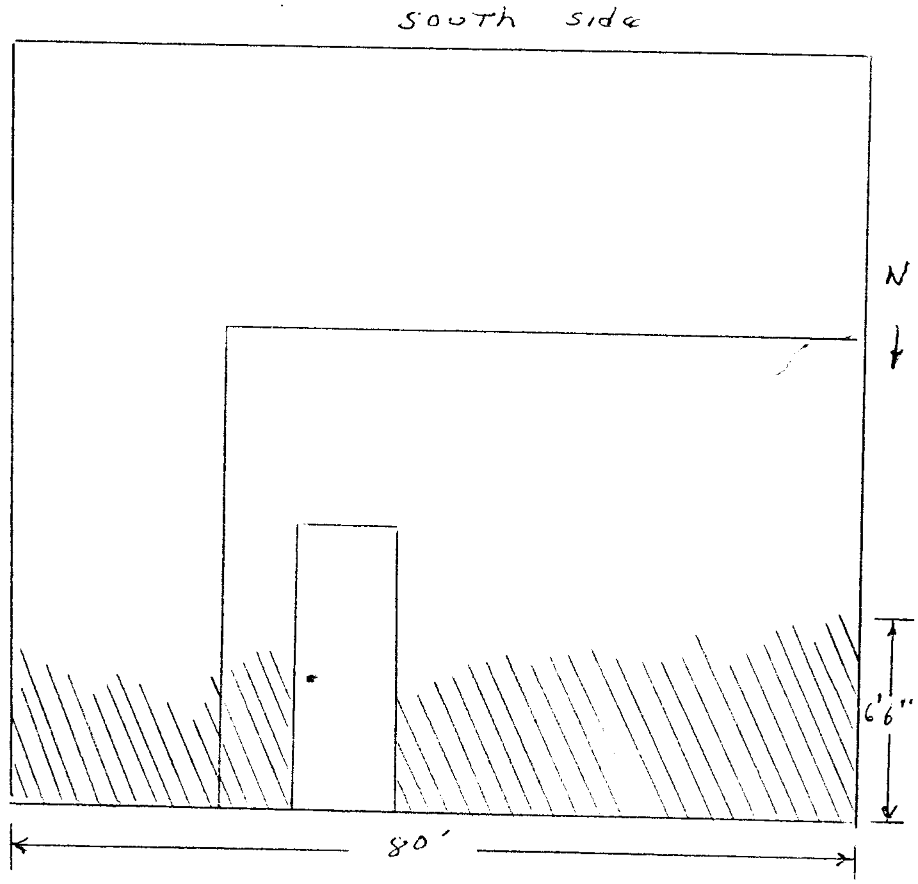
NOTE: SCANS WERE 6" PASSES ON WALLS

BLDG 338

SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	



Remarks: \\\\ = SHOWS AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN

ALL SCAN READINGS ARE AT BACKGROUND READINGS FOR ALPHA/BETA γ ACTIVITY

BLDG. 338

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-02

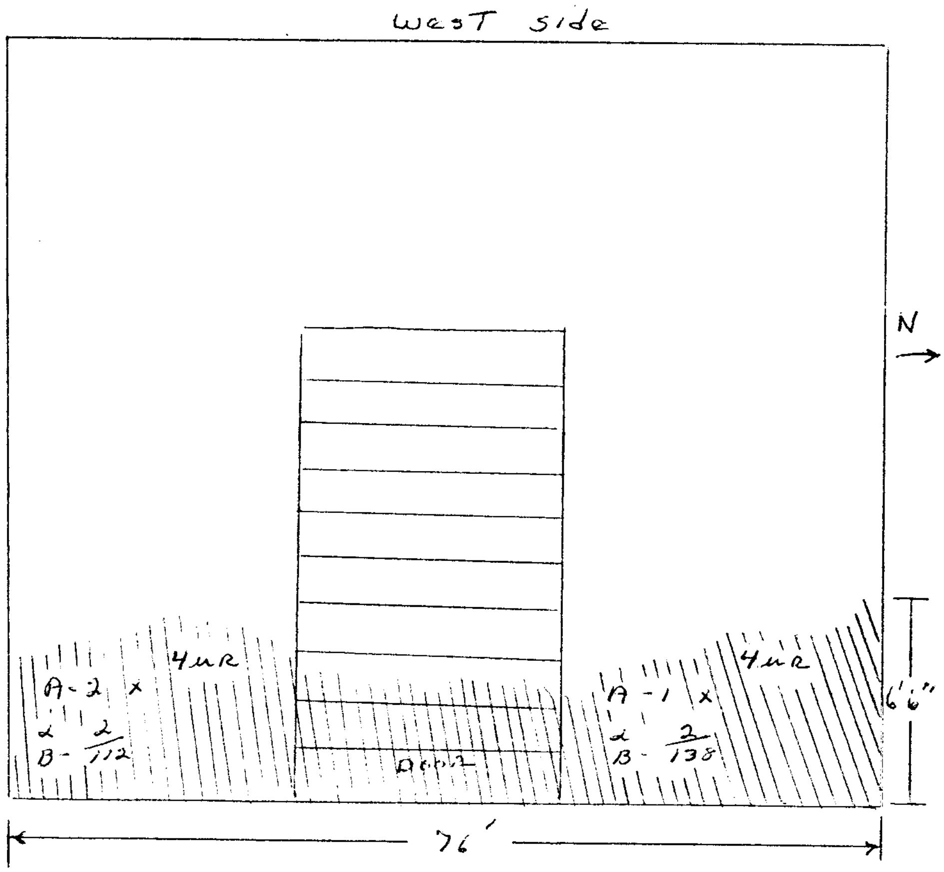
	INSTRUMENTATION USED				
DATE: 10-28-99	**MODEL**	**SERIAL #**	**EFF.%**	**BKGRD**	**CAL. DUE DATE**
TIME: 1330					
SURVEYOR: D. Goldston / D. Koults	Bicron	B-504-Z	N/A	5 uR	12-23-99
LOCATION: Bldg 338	Prob 43-37 / 2224	088824 / 160668	α 17 / β- 19.6	α 5 / β- 421	10-15-00
REVIEWED BY: [signature]	Prob 43-68 / 2224	134485 / 132159	α 16.4 / β- 18	α 1 / β- 151	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)	—		N/A	—	—

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS
//// = SHOWS AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN
BLDG. 338

SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED



#	βγ	α
	N/A	

Remarks: ONE MINUTE ALPHA AND BETA SURFACE ACTIVITY READINGS, ALSO MICRO "R" READINGS TAKEN ON SURFACE

ALL SCAN READINGS ARE AT BACKGROUND LEVELS FOR ALPHA/BETA γ ACTIVITY

BLDG. 338

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-02

	INSTRUMENTATION USED				
DATE: 10-28-99	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
TIME: 1330					
SURVEYOR: D. Goldstein/D. Kowalt	Bicron	B-504-2	N/A	5 uR	12-23-99
LOCATION: Bldg 338	Prcs 43-37 / 2224	098834 / 160668	α 17 / β 17.6	α 5 / β 421	10-15-00
REVIEWED BY: [signature]	PRC 43-68 / 2224	134485 / 132157	α 16.4 / β 18	α 1 / β 151	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)	—	—	N/A	—	—

PURPOSE OF SURVEY: FINAL Release Survey

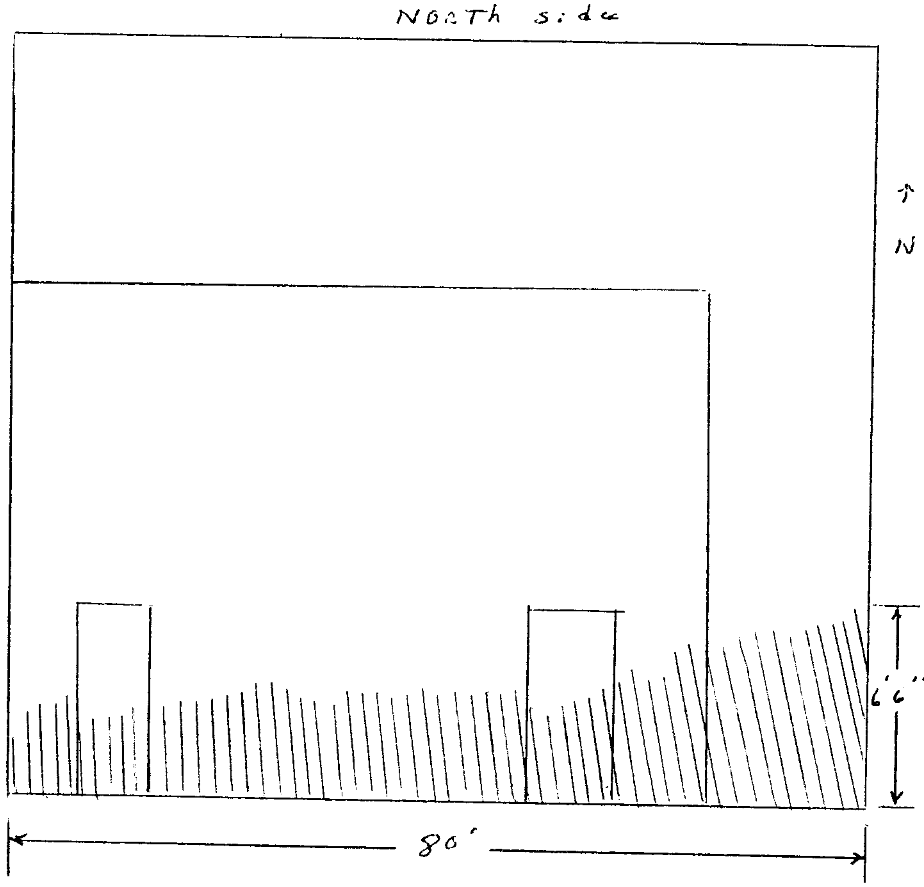
NOTE! SCANS WERE 6" PASSES ON WALLS

BLDG. 338

SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED

NORTH side



#	βγ	α
	N/A	

Remarks: [hatched] = shows AREA where ALPHA, BETA and GAMMA SCANS were TAKEN

ALL SCAN READINGS ARE AT BACKGROUND LEVELS for ALPHA/BETA ACTIVITY.

BLDG 338

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-02

DATE: 10-28-99	INSTRUMENTATION USED				
TIME: 1330	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston/D. Kountz	BICRON	B 504-2	N/A	Smear	12-23-99
LOCATION: Bldg 338	PROBE 43-37	088824	α 17	α 5	
	2224	160668	β 19.6	β 421	10-15-00
REVIEWED BY: Frank Whitten	PROBE 43-68	134485	α 16.4	α 1	
	2224	122159	β 18	β 151	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS

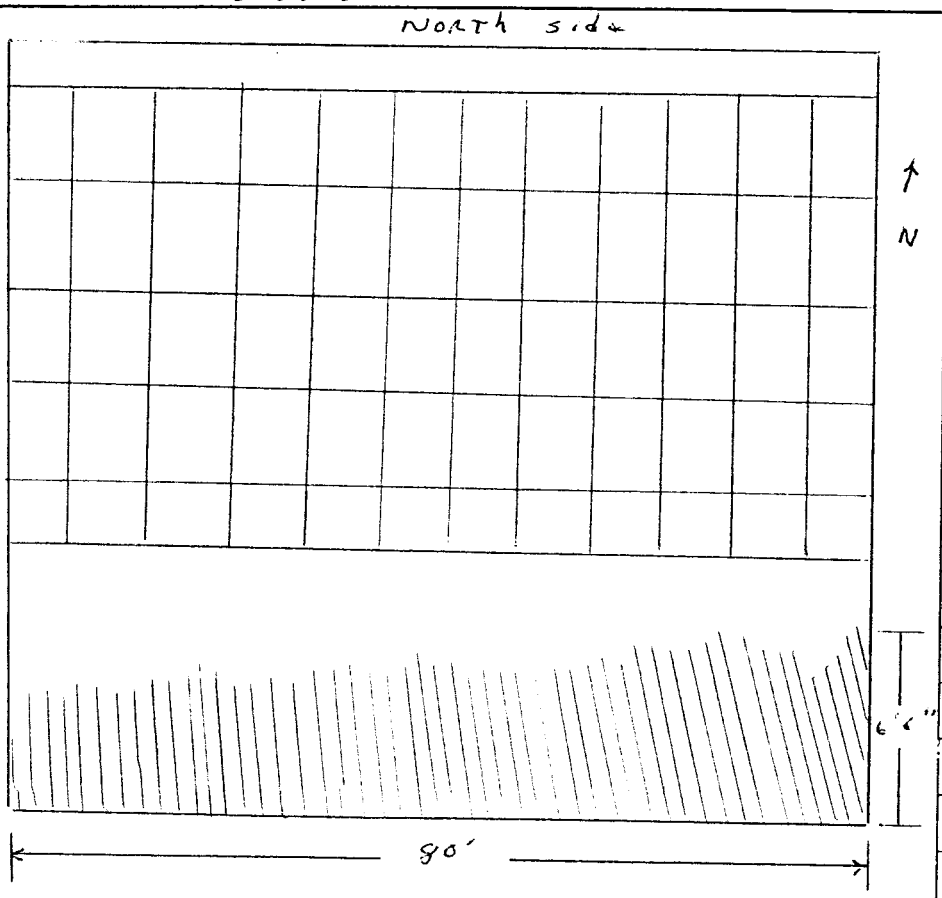
BLDG. 338

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α

N/A



Remarks: ≋ = shows AREA where ALPHA, BETA and GAMMA SCANS were TAKEN

ALL SCAN SURVEYS ARE AT BACKGROUND LEVELS for ALPHA/BETA RADIOACTIVITY.

BLDG. 338

RADIOLOGICAL SURVEY REPORT

ATGS #: Fm-02

DATE: 10-28-99	INSTRUMENTATION USED				
TIME: 1330	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldstein / D. Kowitz	BICRON	B-5047-2	N/A	5 mR	12-23-99
LOCATION: Bldg 338	PROBE 43-37 / 2224	098824 / 160668	α 17 / β- 19.6	α 5 / β- 421	10-15-00
REVIEWED BY: Frank Whitcher	PROBE 43-68 / 2224	134485 / 132159	α 16.4 / β- 18	α 1 / β- 151	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS

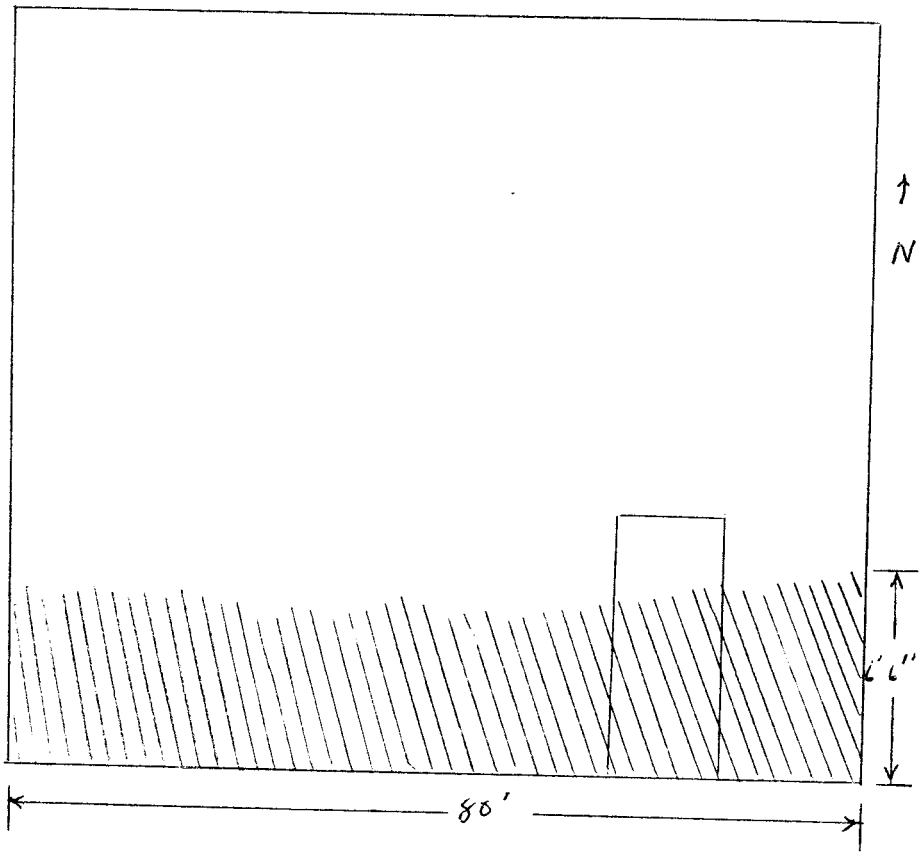
BLDG. 338

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	

NORTH side



Remarks: ▨ = shows AREA where ALPHA, BETA and GAMMA SCANS WERE TAKEN

ALL SCAN SURVEYS ARE AT BACKGROUND LEVELS for ALPHA / BETA ACTIVITY.

Bldg 338

RADIOLOGICAL SURVEY REPORT

ATGS #: F-M-02

DATE: 10-28-99	INSTRUMENTATION USED				
TIME: 1330	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston/D. Kounts	BICRON	B-504Z	N/A	5 uR	12-23-99
LOCATION: Bldg. 338	PRoll 43-37 / 2224	98834 / 160168	α 17 / B- 1916	α 5 / B 421	10-15-00
REVIEWED BY: Frank Whitcomb	PRoll 43-68 / 2224	134485 / 132159	α 16.4 / B- 18	α 1 / B 151	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

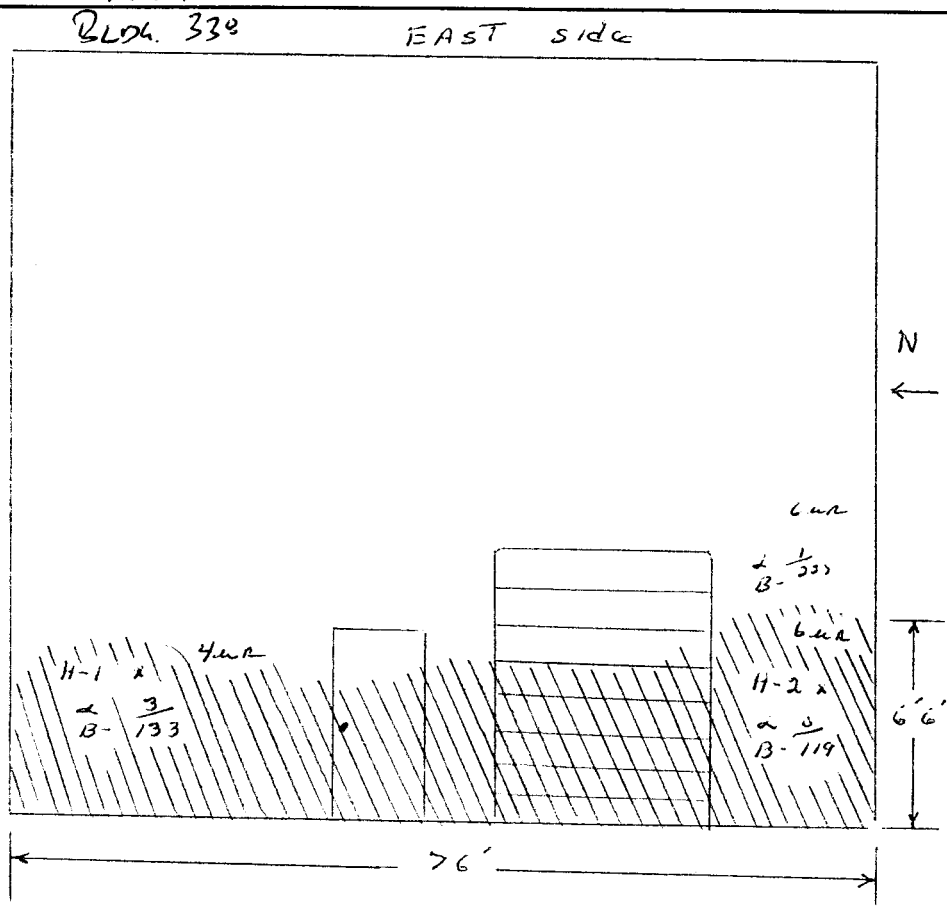
NOTE: SCANS WERE 6" PASSES ON WALLS

||| = SHOWS AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	



Remarks: ONE MINUTE ALPHA AND BETA SURFACE ACTIVITY READINGS, ALSO MICRO "R" READINGS TAKEN ON SURFACE

ALL SCAN SURVEYS ARE OF BACK GROUND LEVELS for ALPHA/BETA RADIOACTIVITY

McClellan
Bldg-338

Number	Smear Location	Alpha Activity DPM/100 sq cm	Beta Activity DPM/100 sq cm
1	A-1	<16.62	<48.07
2	A-2	<16.62	<48.07
3	B-1	<16.62	<48.07
4	B-2	<16.62	<48.07
5	C-1	<16.62	<48.07
6	C-2	<16.62	<48.07
7	D-1	<16.62	<48.07
8	D-2	<16.62	<48.07
9	E-1	<16.62	<48.07
10	E-2	<16.62	<48.07
11	F-1	<16.62	<48.07
12	F-2	<16.62	<48.07
13	G-1	<16.62	<48.07
14	G-2	<16.62	<48.07
15	H-1	<16.62	<48.07
16	H-2	<16.62	<48.07
17	D-2	<16.62	<48.07
18	H-2	<16.62	138

* QA SMEARS

ATTACHMENT 10

FM03/04 SURVEY DATA FOR AM SOURCE SHIPMENT

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-03

DATE: 10-29-99	INSTRUMENTATION USED				
TIME: 1000	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: Richard Kuntz	M-3	102554	10%	50 cpm	6-16-00
LOCATION: Ft. McCLELLAN Anniston, AL. COBRA Training Facility	probe 44-9	128044		N	A
REVIEWED BY: Frank C. Whitehead	M-2224	132159	Alpha 16%	3 cpm	6-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)	PROBE 43-68	134485	Beta 18.3%	238 cpm	6-15-00

PURPOSE OF SURVEY: TO RELEASE FOR shipment OFF SITE

Am.241 DETECTOR CELLS - 18 Cells

3X M43A1s And SOLO DETECTOR Cells.

SMEAR#

1. Z03-C-21681
2. Z03-C-50222
3. Z03-C-50314
4. Z03-C-30729
5. Z03-C-26476
6. Z03-C-24560
7. Z03-C-03535
8. Z03-C-29920
9. Z03-C-09524
10. Z03-C-14093
11. Z03-C-21580
12. Z03-C-10514
13. Z03-C-25262
14. Z03-C-03946
15. Z03-C-20884
16. Z03-C-14693
17. Z03-C-21188
18. Z03-C-32305

Remarks: Each cell approximately 2½" x 3". Smeared all outer surfaces.

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
1	< 1,000	< ~~20~~ 100 DPM
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
	N	A

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-04

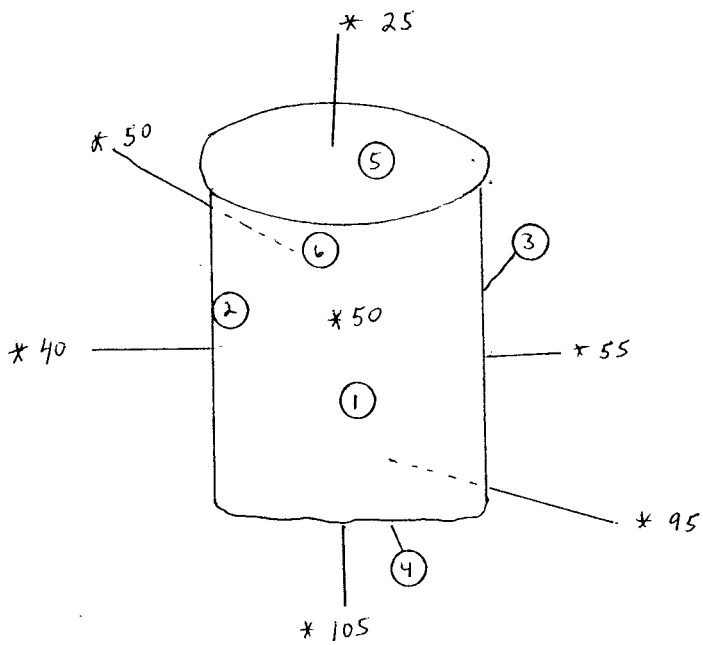
DATE: 11-1-99	INSTRUMENTATION USED				
TIME: 0850	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston	Micro-rem Bicron	B500Z	NA	10 uR	10-14-2000
LOCATION: Ft. McClellan, Anniston, AL.	M-2224	132159	Alpha 16.4 %	Alpha 1 cpm	10-15-2000
REVIEWED BY: [illegible]	PR-43-68	134495	Beta 18.5 %	Beta 232 cpm	10-15-2000
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N	A	

PURPOSE OF SURVEY: Shipment Survey of Americium Check Sources

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
1	< 1 R	< 100
2	↓	↓
3		
4		
5		
6		
		A
	N	



Remarks: Highest reading on bottom of container 105 uR/HR
< = Contact

ATTACHMENT 11

FM05 BUILDING 339 SURVEY DATA

BLDG 339

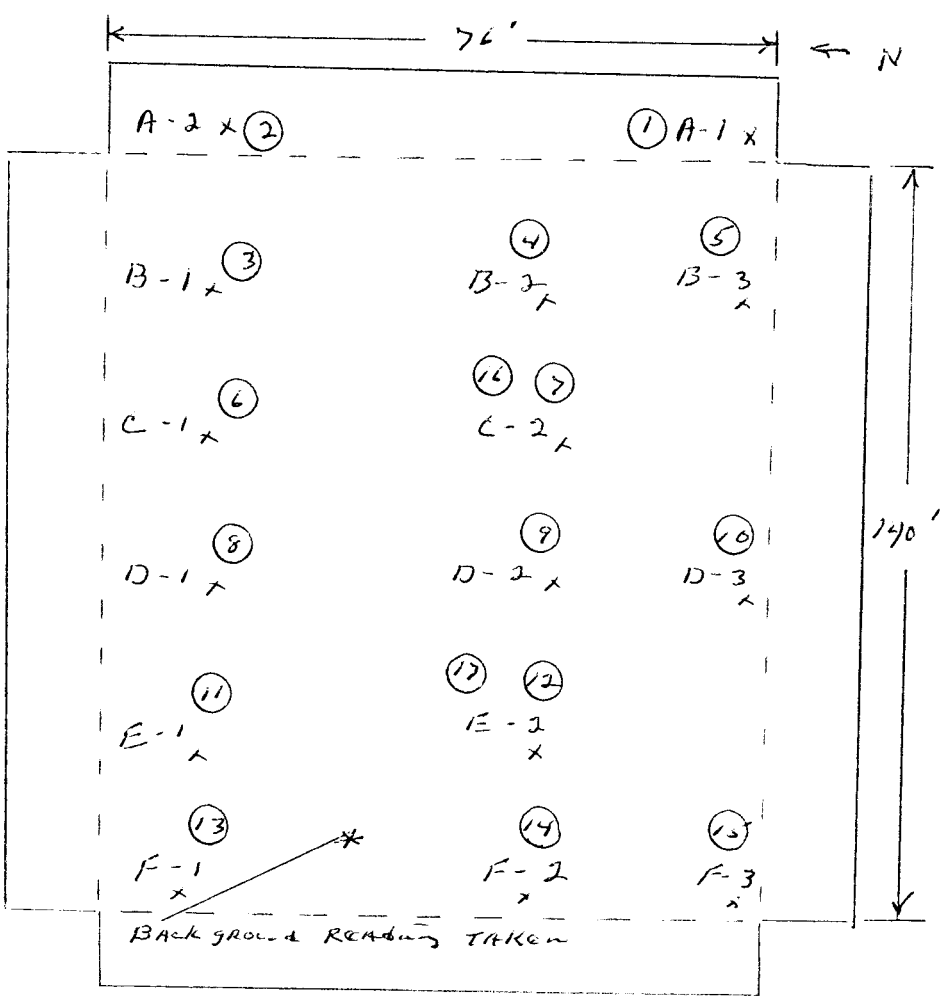
RADIOLOGICAL SURVEY REPORT

ATGS #: FM-05

	INSTRUMENTATION USED				
DATE: 10-29-99					
TIME: 1500	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kountz	Bicron	B5007	N/A	0 uR	10-14-00
LOCATION: Bldg # 339	PR 43-37 M-2224	080224 160668	α 16.8 β- 19.0	α 2 cpm β- 214 cpm	10-15-00
REVIEWED BY: Jennifer White	PR 43-68 M-2224	134485 132159	α 16.0 β- 18.3	α 2 cpm β- 237 cpm	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: Final Release Survey
BLDG 339

SMEAR RESULTS
RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED



#	βγ	α
	See	
	Attached	
	sheet	
	N/A	

Remarks: SMEAR LOCATION

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-05

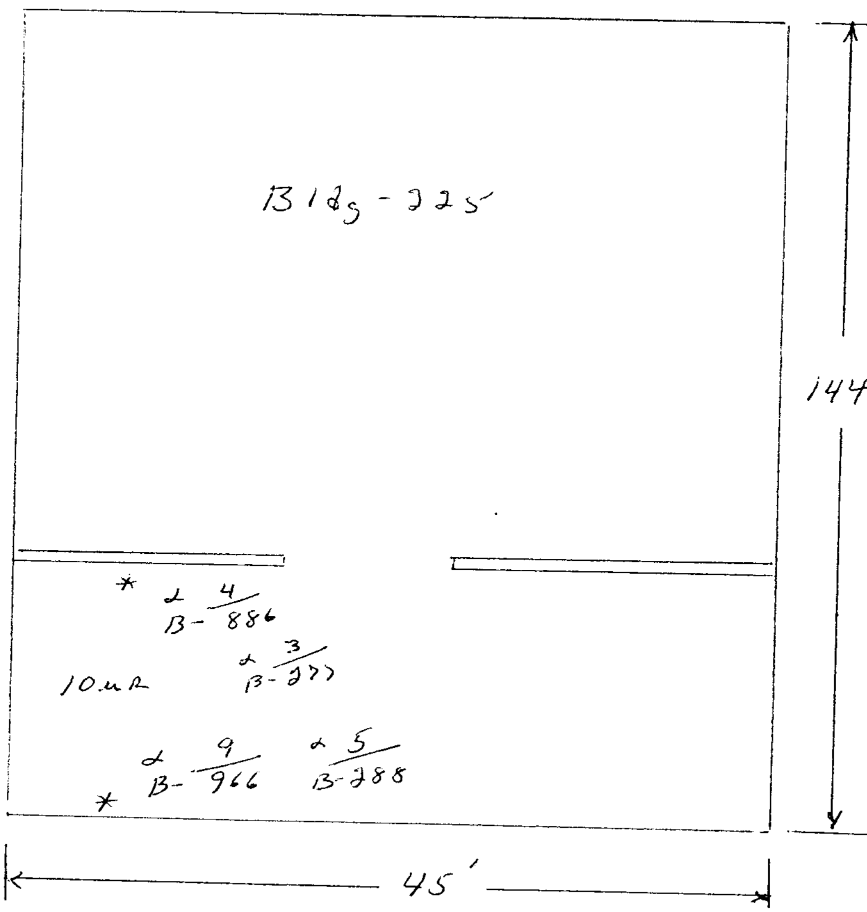
DATE: 12-2-99	INSTRUMENTATION USED				
TIME: 1130	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldstein / D. Koontz	Bicron	B-500-2	N/A	10 uR	10-14-00
LOCATION: Bldg - 225	PROC 43-32 2224	088874 160668	α 16 B-18.6	α 9 B-966	10-15-00
REVIEWED BY: [illegible]	PROC 43-68 2224	134485 132159	α 16 B-18	α 5 B-288	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)	—	—	N/A	—	—

PURPOSE OF SURVEY: 2nd Background Reading Taken in Bldg # 225

SMEAR RESULTS

RESULTS = $DPM/100cm^2$ UNLESS OTHERWISE NOTED

#	βγ	α
	N/A	



Remarks:

All Readings are in CPM unless otherwise Notated

BLDG 335

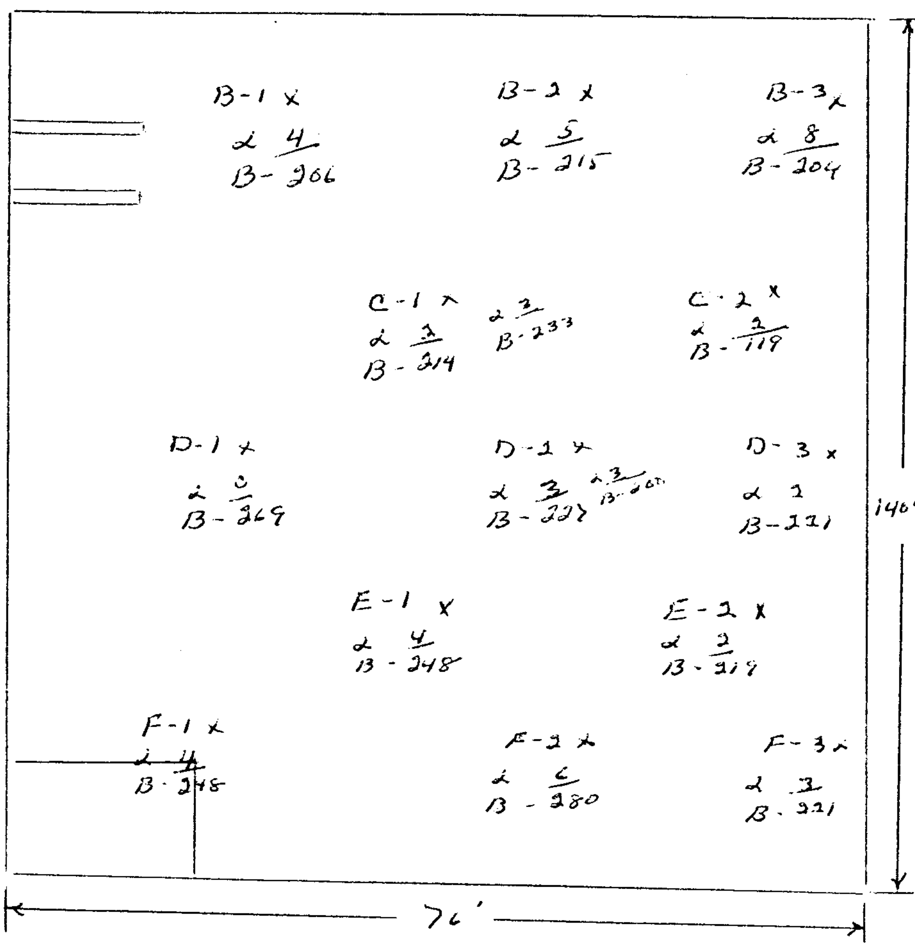
RADIOLOGICAL SURVEY REPORT

ATGS #: FM-05

	INSTRUMENTATION USED				
DATE: 10-29-99	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
TIME: 1300					
SURVEYOR: D. Goldstein / D. Kuntz	Bicron	B-5062	N/A	6 uR	10-14-00
LOCATION: Bldg # 339	PR 43-37 / M-2224	088824 / 160668	α 16.8 / β 19.0	α 2 cpm / β 848 cpm	10-15-00
REVIEWED BY: [signature]	PR 43-68 / M-2224	134425 / 132154	α 16.0 / β 18.3	α 2 cpm / β 237 cpm	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: Final Release Survey BLDG 335

← N



SMEAR RESULTS RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED		
#	βγ	α
	N/A	

Remarks: One Minute Alpha and Beta surface Activity Readings in counts per minute

BLDG 339

RADIOLOGICAL SURVEY REPORT

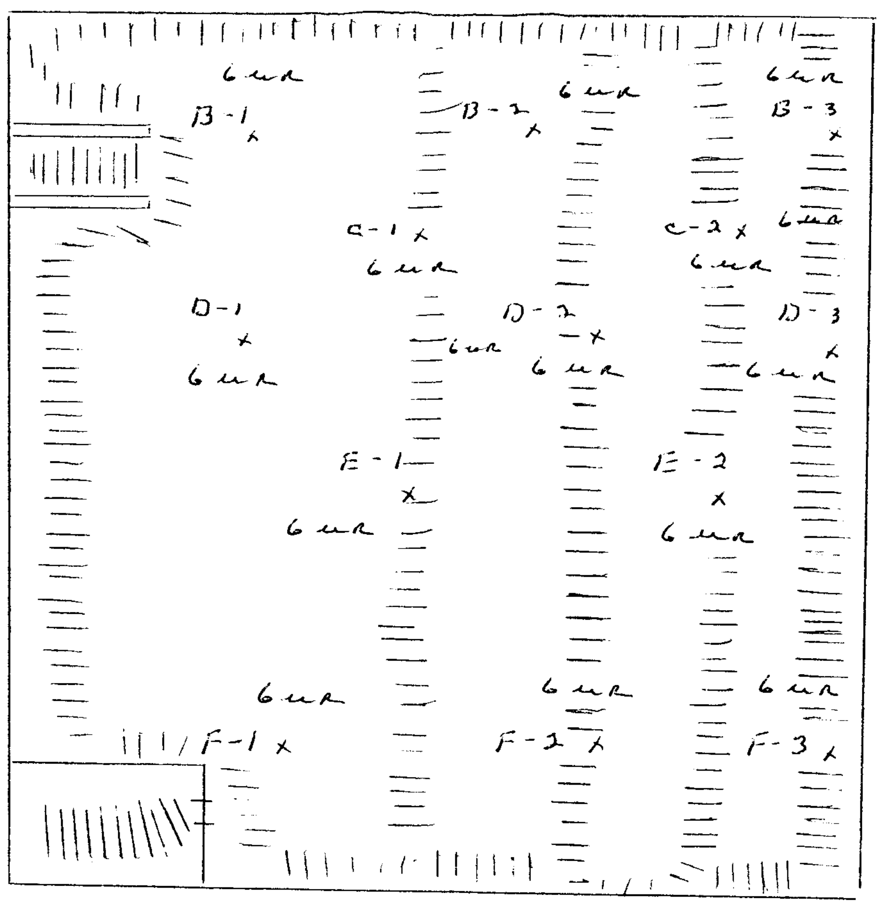
ATGS #: FM-05

	INSTRUMENTATION USED				
DATE: 10-27-99	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
TIME: 1300					
SURVEYOR: D. Goldston / D. Kountz	Bicron	B-506-2	N/A	6 ur	10-14-00
LOCATION: Bldg 339	PRM 43-32 2224	088824 160668	α 16.8 β 19	α 1 β-849	10-15-00
REVIEWED BY: Frank White	PRM 43-68 2224	134485 132159	α 16 β 18.5	α 2 β-237	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)	—	—	N/A	—	—

PURPOSE OF SURVEY: Final Release survey

NOTE: SCANS were 18" PASSES on Floor

BLDG 339 ← N



SMEAR RESULTS RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED		
#	βγ	α
N/A		

Remarks: Micro "R" Readings TAKEN on SURFACE

≡ = shows where Alpha, BETA and GAMMA SCANS were TAKEN

ALL SCAN SURVEYS ARE AT BACKGROUND LEVELS for ALPHA/BETA ACTIVITY

BLDG 339

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-05-04 DIL

DATE: 10-29-99	INSTRUMENTATION USED				
TIME: 1300	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / Dr. Kennedy	BICRON	B 5002	N/A	6 uR	10-14-00
LOCATION: Bldg 339	M-2224 PR 43-37	160668 088824	α 16.8 β- 19.0	α 2 cpm β- 848 cpm	10-15-00
REVIEWED BY: Frank Wheat	M-2224 PR 43-68	132159 134485	α 16.0 β- 18.3	α 2 β- 237	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: Final Release Survey

NOTE! SCANS WERE 6" PASSES ON WALLS

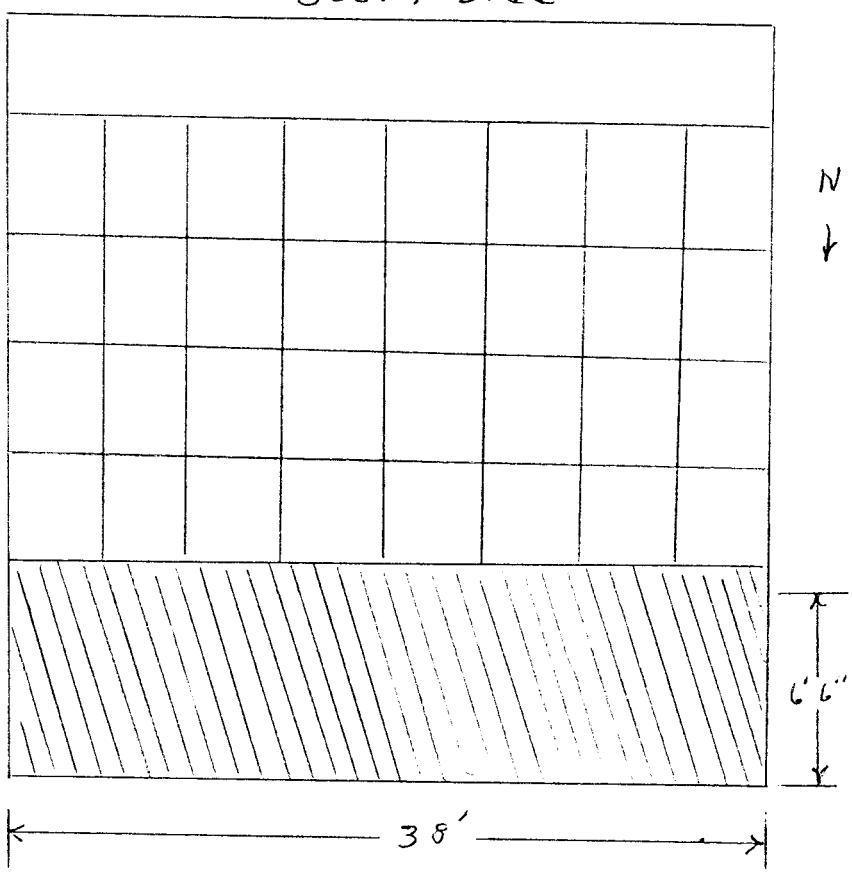
BLDG. 339

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α
	N	
	A	

SOUTH side



Remarks: ??? = shows AREA where ALPHA, BETA and GAMMA SCANS WERE TAKEN

ALL SCAN SURVEYS ARE AT BACKGROUND LEVELS FOR ALPHA / BETA ACTIVITY

BLDG 339

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-~~04~~ 05 DL

DATE: 10-29-99	INSTRUMENTATION USED				
TIME: 1300	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldstein / D. Kounts	Bicron	B5002	N/A	6 μR	10-14-00
LOCATION: Bldg 339	Probe 43-37 / 2224	/ 160668	α 16.8 / β- 19	α 2 / β- 848	10-15-00
REVIEWED BY: Mark White	Probe 43-68 / 2224	134485 / 132159	α 16 / β- 18.3	α 2 / β- 837	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS

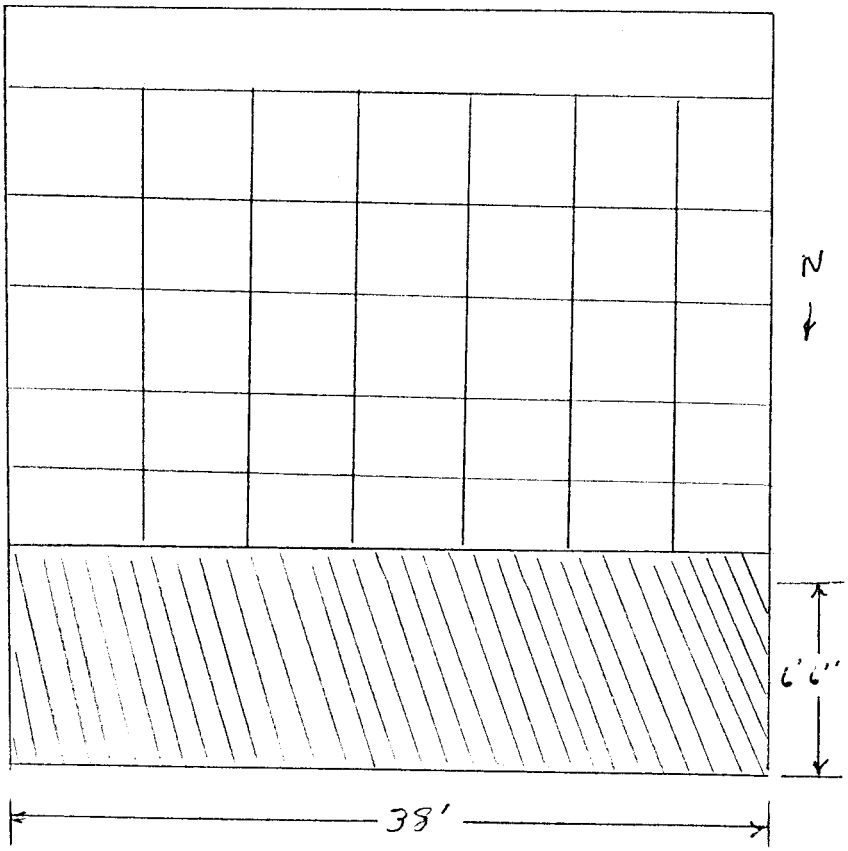
BLDG. 339

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED

#	βγ	α

SOUTH SIDE



Remarks: ▨ = SHOWS AREA WHERE ALPHA, BETA AND GAMMA SCANS WERE TAKEN

ALL SCAN SURVEYS ARE AT BACKGROUND LEVELS FOR ALPHA/BETA ACTIVITY.

BLDG. 339

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-05 (04 crossed out) DIL

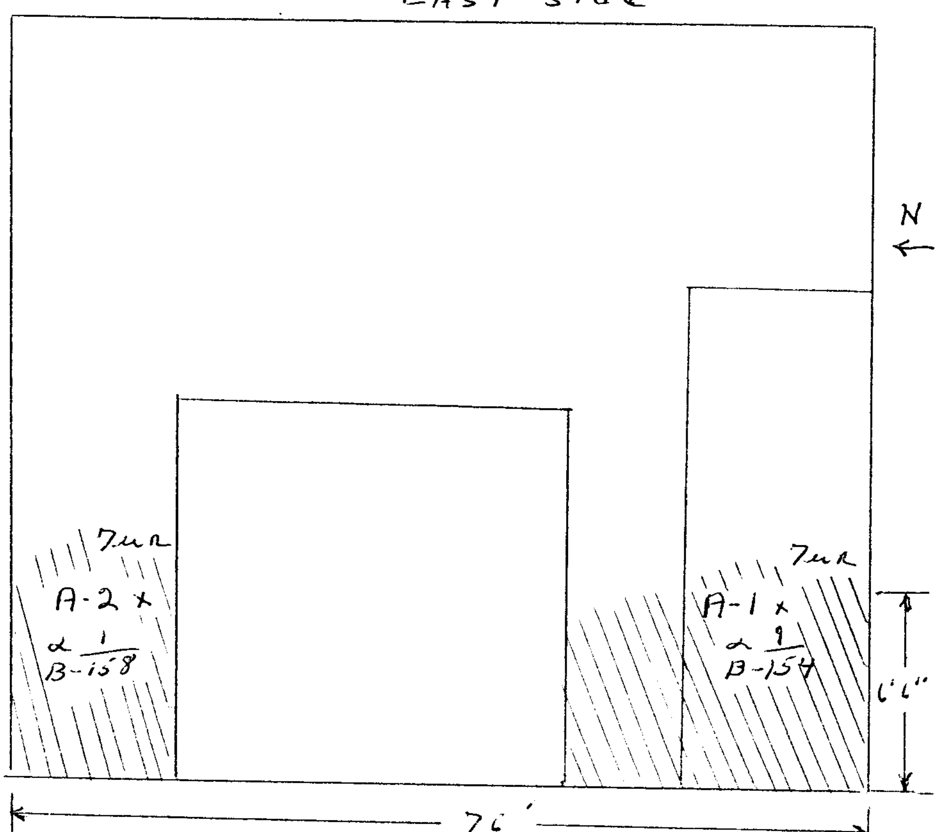
DATE: 10-29-99	INSTRUMENTATION USED				
TIME: 1300	MODEL	SERIAL #	EFF.%	BKGRD	CAL. DUE DATE
SURVEYOR: D. Goldston / D. Kountz	Bicron	B-500-2	N/A	6 ur	10-14-00
LOCATION: Bldg 339	Prole 43-37 2224	088824 160668	α 16.8 β-19	α 2 β-848	10-15-00
REVIEWED BY: Frank Whitaker	Prole 43-68 2224	134485 132159	α 16 β-18.3	α 2 β-237	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS

BLDG. 339

EAST side



SMEAR RESULTS

RESULTS = DPM/100cm² UNLESS OTHERWISE NOTED

#	βγ	α
N/A		

Remarks: \\\\ = shows AREA where Alpha, Beta and Gamma scans were taken

ALL SCAN SURVEYS ARE AT BACKGROUND LEVELS FOR ALPHA / BETA & γ ACTIVITY

BLDG. 339

RADIOLOGICAL SURVEY REPORT

ATGS #: FM-05

DATE: 10-29-99	INSTRUMENTATION USED				
TIME: 1300	**MODEL**	**SERIAL #**	**EFF.%**	**BKGRD**	**CAL. DUE DATE**
SURVEYOR: D. Goldstein / D. Howard	BICRON	B-560-Z	N/A	6 uR	10-14-00
LOCATION: Bldg 339	Prob 43-37 / 2224	028824 / 160668	α 16.8 / B-19	α 8 / B-848	10-15-00
REVIEWED BY: Frank White	Prob 43-68 / 2224	134485 / 132159	α 16 / B-18.3	α 2 / B-237	10-15-00
Smear Locations Circled. Dose Rates = microR/hr (μR/hr)			N/A		

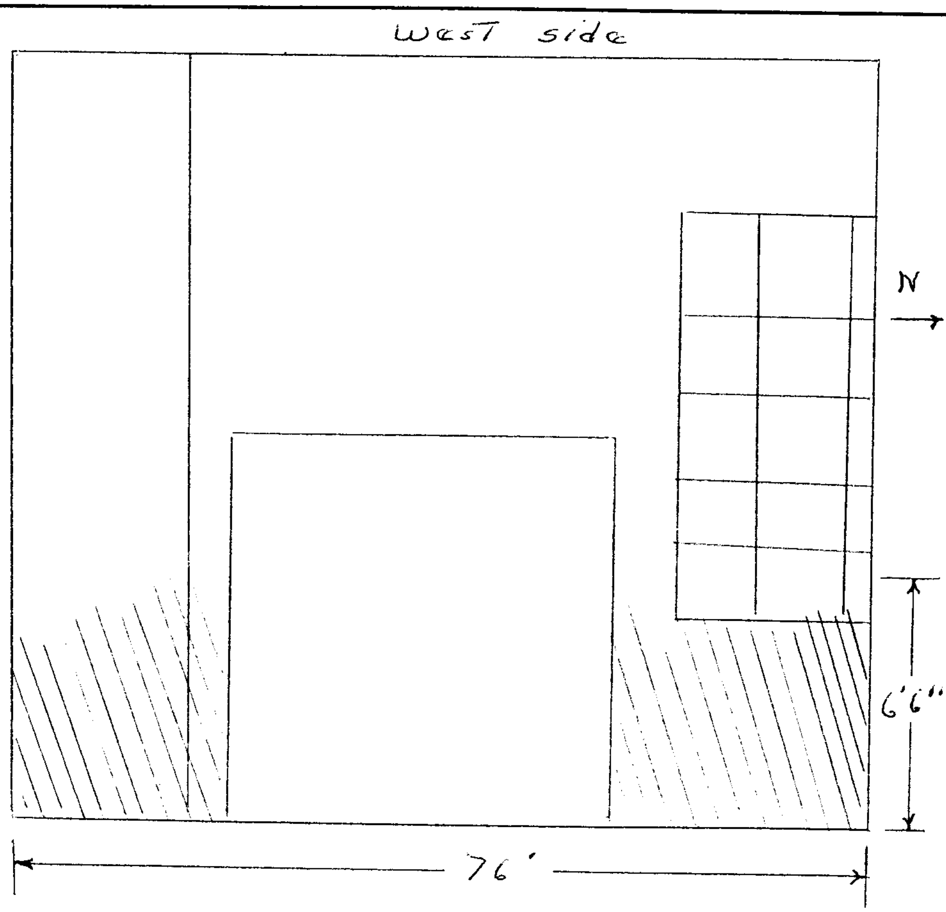
PURPOSE OF SURVEY: FINAL RELEASE SURVEY

NOTE: SCANS WERE 6" PASSES ON WALLS

BLDG. 339

SMEAR RESULTS

RESULTS = DPM/100cm²
UNLESS OTHERWISE NOTED



#	βγ	α
	N/A	

Remarks: \\\\ = shows AREA where Alpha, BETA and GAMMA SCANS were TAKEN

All SCAN SURVEYS ARE AT BACKGROUND LEVELS for ALPHA / BETA & ACTIVITY

McClellan
Bldg-339

Number	Smear Location	Alpha Activity DPM/100 sq cm	Beta Activity DPM/100 sq cm
1	A-1	<16.16	<40.68
2	A-2	<16.16	<40.68
3	B-1	<16.16	<40.68
4	B-2	<16.16	<40.68
5	B-3	<16.16	<40.68
6	C-1	<16.16	<40.68
7	C-2	<16.16	<40.68
8	D-1	<16.16	<40.68
9	D-2	<16.16	<40.68
10	D-3	<16.16	<40.68
11	E-1	<16.16	<40.68
12	E-2	<16.16	<40.68
13	F-1	<16.16	<40.68
14	F-2	<16.16	<40.68
15	F-3	<16.16	<40.68
16	* C-2	<16.16	<40.68
17	* E-2	<16.16	<40.68

* QA SMEARS