CONNECTICUT YANKEE ATOMIC POWER COMPANY
TECHNICAL SUPPORT DOCUMENT

Haddam Neck Plant Health Physics Department Technical Support Document

Document Number: CY-HP-0242 Revision #: 0

Subject: Free Release Survey Results for the Emergency Operations Facility (EOF)

Date: May 10, 2007

Performed By: Jeff Wagner Date: 5/10/07

Reviewed By: Date: 5/10/07

Approved By: Date: 5/14/07

4. RADIOLOGICAL SURVEY RESULTS

4.1 FLOOR SURFACES – Greater than 10% of the floor surfaces were scanned with qualified detectors. All accessible floor surfaces were scanned with the floor monitor as an informational indicator. One location of potential elevated activity was identified in the north hallway. The potential elevated activity was identified in an area of approximately 18" long by 12" wide. Removable contamination measurements at the location were less than the MDA of the detection system. The carpet was removed at the location for further evaluation by gamma spectroscopy. The gamma spectroscopy evaluation was a qualitative result due to the geometry of the carpet piece. Gamma spectroscopy results identified Cs-137 and Co-60 in the carpet. The Co-60 identification is considered suspect due to the high error associated with the 1172 KeV peak. Due to the high error, HP Management determined only one of the two Co-60 peaks was found and therefore Co-60 was not positively identified in the sample of the carpet. The Cs-137 concentration identified in the sample is consistent with atmospheric fall-out levels encountered at the CY Site. The transport mechanism for the Cs-137 is most likely soil/mud adhered to an employees shoes and transferred to the carpet when the soil/mud left the shoe. The piece of carpet was disposed of as radioactive material. Following removal of the carpet piece, the floor surface below the carpet was surveyed with no measurements greater than background observed. One indication of elevated activity was identified on the tile floor surfaces in the west portions of the building. The hallway and former restroom floor and wall surfaces are coated with ceramic tiles. The ceramic tile on the floor was assessed using the Exploranium GR-130 Portable Mini-Spec. Potassium (K-40) was the only nuclide identified during the assessment. K-40 is a naturally occurring radioactive material. No other indications of contamination above background were identified during the survey.

4.2 INTERIOR WALL SURFACES BELOW 2 METERS – Greater than 10% of the interior wall surfaces below two meters were scanned. One indication of elevated activity was identified on the ceramic wall tiles in the west portion of the building. The ceramic tile was assessed using the Exploranium GR-130 Portable Mini-Spec. K-40 (a naturally occurring radioactive material) was the only nuclide identified during the assessment. No other indication of contamination above background was identified on the wall surfaces.

4.3 INTERIOR WALL SURFACES ABOVE 2 METERS – Greater than 5% of the interior wall surfaces above two meters were scanned. One indication of elevated activity was identified on the ceramic tile in the west portion of the building. The ceramic tile was assessed using the Exploranium GR-130 Portable Mini-Spec. K-40 (a naturally occurring radioactive material) was the only nuclide identified during the assessment. No other indication of contamination above background was identified.

4.4 INTERIOR CEILING SURFACES – Greater than 5% of the interior ceiling surfaces were scanned. One indication of elevated activity was identified on the exposed concrete surfaces in the mechanical equipment room in the northwest corner of the building. The concrete was assessed using the Exploranium GR-130 Portable Mini-Spec. K-40 (a naturally occurring radioactive material) was the only nuclide identified during the assessment. On indication of elevated activity was identified on the ceiling tile in the southwest corner of the building. The ceiling tile was assessed using the Exploranium GR-130 Portable Mini-Spec. K-40 was the only nuclide identified during the assessment. No other indication of contamination above background was identified.

4.5 EXTERIOR WALL SURFACES BELOW 2 METERS – Greater than 10% of the exterior wall surfaces below two meters were scanned. No indications of contamination above background were identified.

4.6 EXTERIOR WALL SURFACES ABOVE 2 METERS – Greater than 5% of the exterior wall surfaces above two meters were scanned. No indications of contamination above background were identified.

4.7 ROOF SURFACES – Greater than 5% of the roof surfaces were scanned. No indications of contamination were identified.

4.8 GAMMA SURVEYS – A gamma survey was performed using a Micro R meter to assess the building interior and exterior surfaces for the presence of previously undetected gamma emitters or high background conditions. No indication of contamination above expected background levels was identified in or on the building or the contents of the building.

4.9 FURNITURE AND CONTENTS OF THE BUILDING – Spot check surveys were performed on the furniture and contents of the building. Items that were small enough to fit into the SAM-9 were assessed using the SAM-9. Large items such as furniture were spot frisked at suspect locations such as the cloth covers on chairs and desk tops and drawer handles were spot checked for contamination. No indication of contamination above background was identified.

4.10 LOOSE SURFACE CONTMANINATION SURVEYS – One hundred seventy-three smear samples were collected on the interior, exterior and contents of the building. All smears were analyzed for beta-gamma contamination and 10% of the smears were analyzed for alpha contamination. All smear results were less than the minimum detectable activity for the counting systems used.

5. CONCLUSIONS

5.1 Other than the suspect piece of carpet described in Section 4.1 that was conservatively disposed of as radioactive material, radiological surveys of the interior and exterior surfaces of the building and the contents of the building did not identify any indication of contamination above background. The building satisfies the criteria for free release listed in Procedure GGGR-R2206-001, "Vehicle and Material Release from Radiologically Controlled Area and CY Site (RPM 2.2-22). Copies of the radiological survey plan and the survey results are contained in Attachment A to this document.

6. REFERENCES

6.1 CY Procedure GGGR-R2206-001, Vehicle and Material Release from Radiologically Controlled Areas and CY Site (RPM 2.2-22)

6.2 Radiological Survey Plan 07-006, Free Release of EOF Building.

7. ATTACHMENTS

7.1 Attachment A – Radiological Survey Plan 07-006, Free Release of EOF Building and Survey Results

ATTACHMENT A

Radiological Survey Plan 07-006, Free Release of EOF Building and Survey Results

RADIOLOGICAL SURVEY PLAN

FREE RELEASE OF EOF Building

1.0 ITEMS TO BE EVALUATED:

1.1 EOF Building (Interior and Exterior)

2.0 RADIOLOGICAL HISTORY:

2.1 The EOF building was used historically as an Emergency Operations Facility, a training center, and an in-processing center for the site. The Whole Body Counters and the respirator fit facility were also located in this building. This building currently is being used as office space for part of the decommissioning organization. Recently, the Health Physics Count Room and FSS instrumentation calibration facility have been relocated to this building. It has always been located outside of the RCA. The only licensed radioactive material used or stored in this building was/is sources used for calibration/source check of Health Physics instruments, sources used for calibration/source check of the Whole Body Counters, and soil samples containing small amounts of radioactivity.

Historically a minor spill occurred in the Whole Body Counter area when a liquid calibration source leaked. A small amount of loose contamination was present in this area. After decontamination, no detectable contamination could be identified. Only sealed sources have been used or stored in this building recently.

This building was constructed after the Vent Stack releases of the late 1970s and early 1980s.

3.0 SURVEY PLAN:

3.1 Perform a loose contamination assessment of the interior floor, walls, and ceiling.

3.2 Perform a loose contamination assessment of the exterior walls and roof.

3.3 Perform a fixed contamination assessment *with portable count rate instrument as follows:*

- Direct frisk 10% of the interior floor. A floor monitor may be used as an informational indicator. As much of the floor as possible shall be surveyed with this floor monitor (approximately 100%).
- Direct frisk approximately 10% of the interior walls.
- Direct frisk approximately 5% of the interior ceiling
- Direct frisk approximately 10% of the exterior walls below 2 meters
- Direct frisk approximately 5% of the exterior walls above 2 meters
- Direct frisk approximately 5% of the roof

3.4 Perform a fixed contamination assessment with portable count rate instrument of 10% of the furniture and equipment located in the EOF. Bias this assessment to areas that contain or have contained radioactive sources. Contact HP supervision for these locations. (Remove radioactive sources temporarily if required)

3.5 Perform a loose contamination assessment of the furniture and equipment located in the EOF. Bias this assessment to areas that contain or have contained radioactive sources. Contact HP supervision for these locations.

3.6 Perform a gamma scan surv4y with the MicroR meter (or equivalent) on the interior and exterior of the building checking for possible previously undetected gamma emitters or high background. (Remove radioactive sources temporarily if required)

3.7 If readings above background are observed or removable contamination found, report findings to HP Supervision

3.8 Refer to Health Physics Procedure 24265-000-GPP-GGGR-R2206-001, "Vehicle and Material Release From Radiologically Controlled Areas and Restricted Areas." Attachment "B" for positive instrument response criteria.

3.9 This building is going to be turned over intact at the end of the decommissioning. **DO NOT PAINT MARKINGS ON THE SURFACE OF THIS BUILDING WHILE PERFORMING THIS SURVEY.**

4.0 REVIEWS AND APPROVAL:

4.1 All radiological survey documentation obtained during the release of the EOF needs to be reviewed by HP Supervision.

APPROVED BY: _____ DATE: 2/14/07

HP Office trailer

CONNECTICUT YANKEE ATOMIC POWER COMPANY

SURVEY RECORD FORM

Surveyor's Name: (Printed)	Surveyor's Signature:	Location:	Date:	Time:
J. DeGostin, Rick A. Coco, J. Rand, CPHE	[signature]	EMERGENCY OPERATIONS FACILITY (EOF)	013007	1535
			Area #: 9402	Log #: 2067

A SURVEY OF FURNITURE & EQUIPMENT IN THE EOF ~~OF~~ RHC 013007 WAS PERFORMED IN ACCORDANCE WITH RADIOLOGICAL SURVEY PLAN # 07-06, "FREE RELEASE OF EOF BUILDING".

A 100% DIRECT FRISK SURVEY WAS PERFORMED ON THE CLOTH OF CLOTH CHAIRS, INCLUDING TWO IN SMOKE SHACK, A RANDOM (>10%) DIRECT FRISK OF OTHER PARTS OF CHAIRS, DESKS, TABLES, FILE CABINETS, STORAGE SHELVES & CABINETS, CUBICLE DIVIDERS, COUNTER TOPS, MISCELLANEOUS TOOLS & OTHER EQUIPMENT.

TOOLS & EQUIPMENT, INCLUDING SOME PAPERWORK, THAT FIT IN THE SMALL ARTICLE MONITOR (SAM)-9 WERE MONITORED WITH THE SAM-9.

DIRECT FRISK RESULTS WERE NDA ABOVE BACKGROUND.

MODEL 12 BACKGROUNDS = 40 TO 60 CPM

ELECTRA 1B BACKGROUNDS = 250 TO 310 CPM

TOOLS, EQUIPMENT & PAPERWORK MONITORED BY THE SAM-9 ALL CLEARED THE SAM-9.

A LOOSE CONTAMINATION SURVEY WAS PERFORMED ON ANOTHER SURVEY.

INSTRUMENTS USED

MODEL/SERIAL#	CAL DUE	PROBE/SERIAL#
MODEL 12/#209615	092807	HP-360/NA
MODEL 12/#209637	092307	HP-360/NA
ELECTRA 1B/# 5053	061407	BP19BD/# 262
ELECTRA 1B/# 5051	101907	BP19BD/# 257
SAM-9/# 254	072707	SCINTILLATION
NA	NA	NA

REASON FOR SURVEY

- [ ] ROUTINE
- [ ] RWP
- [x] OTHER

RADIOLOGICAL EVALUATION/RELEASE OF EOF FURNITURE & EQUIPMENT PER SURVEY PLAN # 07-06

Air Sample(s): [x] NO [ ] YES Indicate A/S location(s) on survey map and sampler(s) #'s & Cal Due dates in section above.

SMEAR RESULTS dpm/100cm²

βγ MDA= NA α MDA= NA

SMEAR	RESULTS Beta-Gamma	RESULTS Alpha	SMEAR	RESULTS Beta-Gamma	RESULTS Alpha
1			16		
2			17		
3			18		
4			19		
5			20		
6			21		
7	NA		22	NA	
8			23		
9			24		
10			25		
11			26		
12			27		
13			28		
14			29		
15			30		

Smear Continuation Sheet Used? [ ] YES [x] NO

Portable Count Rate Instrument Background: SEE NOTE cpm

Legend:

Dose rates are gamma and are in mrem/hr unless otherwise noted.
All smears in dpm/100cm² unless other wise noted.
All LAS's in ccpm/LAS unless other wise noted.

- (#) - Large Area Smear Location
- (#) - Smear Location
- (#) - Air Sample Location
- *# - Contact Dose Rate
- # - General Area (G/A) Dose Rate
- XXXX - Boundary
- SOP - Step Off Pad
- *#/# - Contact / 30cm(GA) Dose rates
- NHPD - No Hot Particles Detected
- CHPPTE - Contact HP Prior To Entry
- RCA - Radiologically Controlled Area
- RM - Radioactive Material(s)
- RA - Radiation Area
- HRA - High Radiation Area
- CA - Contaminated Area
- ARA - Airborne Radioactivity Area
- RPR - Respiratory Protection Required
- SRPTE - Survey Required Prior to Entry
- CPM - Counts per Minute
- NDA - No Detectable Activity
- LAS - Large Area Smear

Postings: [ ] RCA [ ] RM [ ] CA [ ] RA [ ] HRA [ ] Contact HP Prior to Entry [x] Outside The RCA [x] Other: OUTSIDE RESTRICTED AREA

HP MANAGER OR DESIGNEE REVIEW: [signature] DATE: 1/31/07

CONNECTICUT YANKEE ATOMIC POWER COMPANY

SURVEY RECORD FORM

Surveyor's Name: (Printed)	Surveyor's Signature:	Location:	Date:	Time:
RICK A. COCO / SAM MOYERS	RACoco RACoco FOR SAM MOYERS	EMERGENCY OPERATIONS FACILITY (EOF)	013107	1355
			Area #: 9402	Log #: 2068

THE FOLLOWING WAS SURVEYED IN ACCORDANCE WITH RADIOLOGICAL SURVEY PLAN #07-06, "FREE RELEASE OF EOF BUILDING":

USING SAM-9: LEAD BRICKS, SCRAP PIPE PIECES, HP GAS GAGES, HP INSTRUMENTATION EQUIPMENT, CABLES & MISCELLANEOUS EQUIPMENT, EQUIPMENT & MATERIAL IN HP SUPPLY ~~CABINRAC~~ 013107 ROOM (OLD MEN'S BATHROOM) WERE ALSO SURVEYED WITH SMALL ARTICLE MONITOR (SAM).

A MICROREM GENERAL AREA & RANDOM SCAN OF WALLS & EQUIPMENT WAS PERFORMED IN ALL AREAS EXCEPT EOF CAL LAB. DOSE RATES WERE 2 TO 10 MICROREM/HOUR. HIGHEST READINGS WERE ADJACENT TO CAL LAB.

A TOTAL OF NINETY EIGHT SMEARS WERE TAKEN ON THE FOLLOWING SURFACES & OR ITEMS:

FOURTY SEVEN ON FLOOR & CARPET
TWENTY EIGHT ON WALLS
FIVE ON CUBICLE DIVIDER WALLS
FOUR ON DESKS
FOUR ON FILE CABINETS
THREE ON TABLES
TWO ON STORAGE SHELVES
ONE ON INSIDE WALL WINDOW LEDGE
ONE INSIDE STORAGE CABINET
ONE ONE COMPUTER RAC 020107
ONE ON CLOSET SHELF &
ONE ON MAIL BIN SHELF

ALL SMEAR RESULTS WERE < MDA DPM/100CM² BETA-GAMMA & ALPHA

INSTRUMENTS USED

MODEL/SERIAL#	CAL DUE	PROBE/SERIAL#
SAM-9 / # 254	072707	SCINTILLATION
MICROREM THERMO/# 1492	121406	SCINTILLATION
APCV / #04000750	053107	GAS PROPORTIONAL
	NA	

REASON FOR SURVEY

☐ ROUTINE	RELEASE SURVEY OF EOF
☐ RWP	BUILDING, FURNITURE & EQUIPMENT
☒ OTHER	PER SURVEY PLAN 07-06

Air Sample(s): ☒ NO ☐ YES Indicate A/S location(s) on survey map and sampler(s) #'s & Cal Due dates in section above.

SMEAR RESULTS dpm/100cm²

βγ MDA= 56.7 α MDA= 13.0

SMEAR	RESULTS Beta-Gamma	RESULTS Alpha	SMEAR	RESULTS Beta-Gamma	RESULTS Alpha
1			16		
2			17		
3			18		
4			19		
5			20		
6			21		
7			22		
8	NA		23	NA	
9			24		
10			25		
11			26		
12			27		
13			28		
14			29		
15			30		

Smear Continuation Sheet Used? ☐ YES ☒ NO

Portable Count Rate Instrument Background: _____ cpm

Legend:
Dose rates are gamma and are in mrem/hr unless otherwise noted.
All smears in dpm/100cm² unless other wise noted.
All LAS's in ccpm/LAS unless other wise noted.

- (#) - Large Area Smear Location
- (#) - Smear Location
- - Air Sample Location
- *# - Contact Dose Rate
- # - General Area (G/A) Dose Rate
- XXXX - Boundary
- - Step Off Pad
- #/# - Contact / 30cm(GA) Dose rates
- NHPD - No Hot Particles Detected
- CHPPTE - Contact HP Prior To Entry
- RCA - Radiologically Controlled Area
- RM - Radioactive Material(s)
- RA - Radiation Area
- HRA - High Radiation Area
- CA - Contaminated Area
- ARA - Airborne Radioactivity Area
- RPR - Respiratory Protection Required
- SRPTE - Survey Required Prior to Entry
- CPM - Counts per Minute
- NDA - No Detectable Activity
- LAS - Large Area Smear

Postings: ☐ RCA ☐ RM ☐ CA ☐ RA ☐ HRA ☐ Contact HP Prior to Entry
☒ Outside The RCA ☒ Other: OUTSIDE RESTRICTED AREA

HP MANAGER OR DESIGNEE REVIEW: [signature] DATE: 2/1/07

CONNECTICUT YANKEE ATOMIC POWER COMPANY
SURVEY RECORD FORM

Surveyor Name: (Printed)	Surveyor Name: (Signature)	Location:
JD Rand / CPHE J. DiGostin	Cindy Ryan / [illegible]	ECF

Date: 1/31/07	Time: 1400	Log #: 2069
Area #: 9504	Map.#: N/A	Rev.#: N/A

INSTRUMENTS USED

	MODEL/SERIAL#	CAL DUE	PROBE/SERIAL#	CAL DUE
40-60cpm	H3 #209615	9/25/07	N/A	
40-60cpm	E140 #609	3/1/07		
SEE BELOW	ELECTRA #5048	9/26/07	BP19BD #269	9/26/07
	ELECTRA #5053	6/14/07	BP19BD #262	6/14/07

REASON FOR SURVEY

- [ ] ROUTINE
- [ ] RWP
- [x] OTHER: RELEASE Survey Plan #07-06

AirSample Control #: N/A | Total DAC Fraction: N/A

CONTAMINATION RESULTS (SMEARS) dpm/100cm²

βγ MDA= N/A | α MDA= N/A

SAMPLE #	RESULTS Beta-Gamma	RESULTS Alpha	SAMPLE #	RESULTS Beta-Gamma	RESULTS Alpha
	N/A			N/A	

Smear Continuation Sheet Used. [ ] YES [X] NO

PERFORMED A DIRECT FRISK SURVEY OF 10% OF THE E.O.F OFFICE AREAS WALLS. NO ELEVATED ACTIVITY ABOVE BACKGROUNDS WAS FOUND.

SMEARS WERE TAKEN, AND WILL BE SHOWN ON A SEPARATE SURVEY.

NOTE: THIS SURVEY DOES NOT INCLUDE FAN ROOM, OLD RESTROOMS, OR OLD MEDICAL AND DECON FACILITIES.

BACKGROUNDS (CPM)

ELECTRA #5048: 200-350 WALLBOARD; 350-500 CINDER BLOCK; 500-850 CERAMIC TILE

ELECTRA #5053: 250-300 WALL BOARD; 400-450 CINDER BLOCK; 700-750 CERAMIC TILE

Legend:

Dose rates are gamma and are in mRem/hr, unless otherwise noted.

(#)	- Large Area Swipe Location	HRA	- High Radiation Area
(#)	- AirSample Location	LHRA	- Locked High Radiation Area
(#)	- Smear Location	HPA	- Hot Particle Area
✲	- Contact Exposure Rate	CA	- Contaminated Area
#	- General Area Exposure Rate	HCA	- High Contamination Area
✕✕✕✕	- Indicates Boundary	ARA	- Airborne Radioactivity Area
RA	- Radiation Area	RM	- Radioactive Material(s)
SOP	- Step Off Pad	RCA	- Radiologically Controlled Area

HP MANAGER OR DESIGNEE REVIEW: [signature] DATE: 1/31/07

CONNECTICUT YANKEE ATOMIC POWER COMPANY
SURVEY RECORD FORM

Surveyor's Name: (Printed)	Surveyor's Signature:	Location:	Date:	Time:
CPHE RICK A. COLO / G. Walker	RACOLO GWalker	EMERGENCY OPERATIONS FACILITY (EOF)	021307	1330
			Area #: 9402	Log #: 2101

A SURVEY WAS PERFORMED IN ACCORDANCE WITH (IAW) RADIOLOGICAL SURVEY PLAN #07-06, "FREE RELEASE OF EOF BUILDING". GREATER THAN 5% OF THE ROOF WAS DIRECT FRISKED, GREATER THAN 5% OF THE EXTERIOR WALLS OVER 2 METERS WAS DIRECT FRISKED, GREATER THAN 10% OF THE EXTERIOR WALLS UNDER 2 METERS WAS DIRECT FRISKED & ALL SAFELY ACCESSIBLE SURFACES OF THE TOP OF THE WALLS (NORTH WALL & PART OF EAST & WEST WALLS) WAS DIRECT DIRECT FRISKED. ALL FRISK RESULTS WERE NDA ABOVE BACKGROUND.

MODEL 12 & E-140 BACKGROUNDS = 40-80 CPM.

ALL GENERAL AREAS (SAFELY ACCESSIBLE ON ROOF) WERE SCANNED WITH MICROREM METER PAYING SPECIAL ATTENTION TO CRACKS/SEAMS IN WALLS. MICROREM RESULTS WERE 2 TO 5 uREM/HR.

TWELVE SMEARS WERE TAKEN ON ROOF SURFACES & THIRTY THREE SMEARS WERE TAKEN ON EXTERIOR WALL SURFACES FOR A TOTAL OF FOURTY FIVE SMEARS. ALL SMEAR RESULTS WERE < MDA DPM/100cm² BETA-GAMMA & ALPHA.

GREATER THAN 10% OF AIR CONDITIONER UNIT ON ROOF & BUILDING VENT WERE DIRECT FRISKED WITH FRISK RESULTS ALL NDA ABOVE BACKGROUND. THESE WERE ALSO PART OF MICROREM SURVEY AS MENTIONED ABOVE.

NOTE: THE RUBBER ROOF HAD A LAYER OF ROCKS ON IT.

INSTRUMENTS USED

MODEL/SERIAL#	CAL DUE	PROBE/SERIAL#
MODEL 12 / # 209615	092807	HP-360 / NA
MODEL 12 / # 209637	092307	HP-360 / NA
E-140 / # 1634	022407	HP-360 / NA
THERMO MICROREM / # 1764	121507	SCINTILLATION
APC V / # 0400750	053107	GAS PROPORTIONAL
NA	NA	NA

REASON FOR SURVEY

- [ ] ROUTINE — EOF BUILDING FREE RELEASE
- [ ] RWP — IAW RADIOLOGICAL SURVEY PLAN
- [x] OTHER — # 07-06

Air Sample(s): [x] NO [ ] YES Indicate A/S location(s) on survey map and sampler(s) #'s & Cal Due dates in section above.

SMEAR RESULTS dpm/100cm²

βγ MDA= 58.4 α MDA= 14.7

SMEAR	RESULTS Beta-Gamma	RESULTS Alpha	SMEAR	RESULTS Beta-Gamma	RESULTS Alpha
1			16		
2			17		
3			18		
4			19		
5			20		
6			21		
7	NA		22	NA	
8			23		
9			24		
10			25		
11			26		
12			27		
13			28		
14			29		
15			30		

Smear Continuation Sheet Used? [ ] YES [x] NO

Portable Count Rate Instrument Background: NA cpm

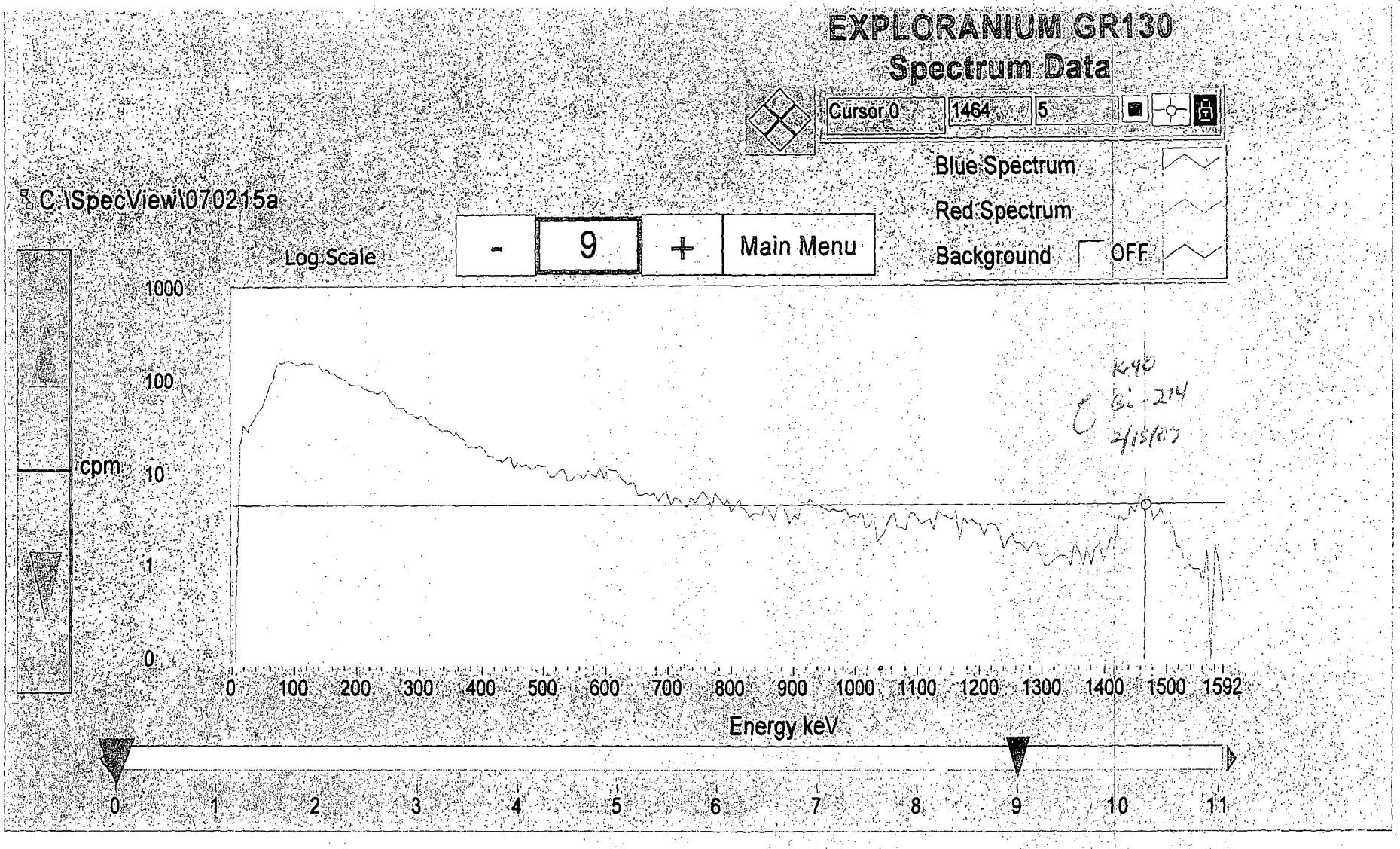
Legend:

Dose rates are gamma and are in mrem/hr unless otherwise noted.
All smears in dpm/100cm² unless other wise noted.
All LAS's in ccpm/LAS unless other wise noted.

- (#) - Large Area Smear Location
- (#) - Smear Location
- △# - Air Sample Location
- *# - Contact Dose Rate
- # - General Area (G/A) Dose Rate
- XXXX - Boundary
- SOP - Step Off Pad
- *#/# - Contact / 30cm(GA) Dose rates
- NHPD - No Hot Particles Detected
- CHRPTE - Contact HP Prior To Entry
- RCA - Radiologically Controlled Area
- RM - Radioactive Material(s)
- RA - Radiation Area
- HRA - High Radiation Area
- CA - Contaminated Area
- ARA - Airborne Radioactivity Area
- RPR - Respiratory Protection Required
- SRPTE - Survey Required Prior to Entry
- CPM - Counts per Minute
- NDA - No Detectable Activity
- LAS - Large Area Smear

Postings: [ ] RCA [ ] RM [ ] CA [ ] RA [ ] HRA [ ] Contact HP Prior to Entry [x] Outside The RCA [ ] Other: _____

HP MANAGER OR DESIGNEE REVIEW: [signature] DATE: 2/15/07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5
Blue Spectrum
Red Spectrum
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Log Scale
-
9
+
Main Menu
cpm
1000
100
10
1
0
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1592
Energy keV
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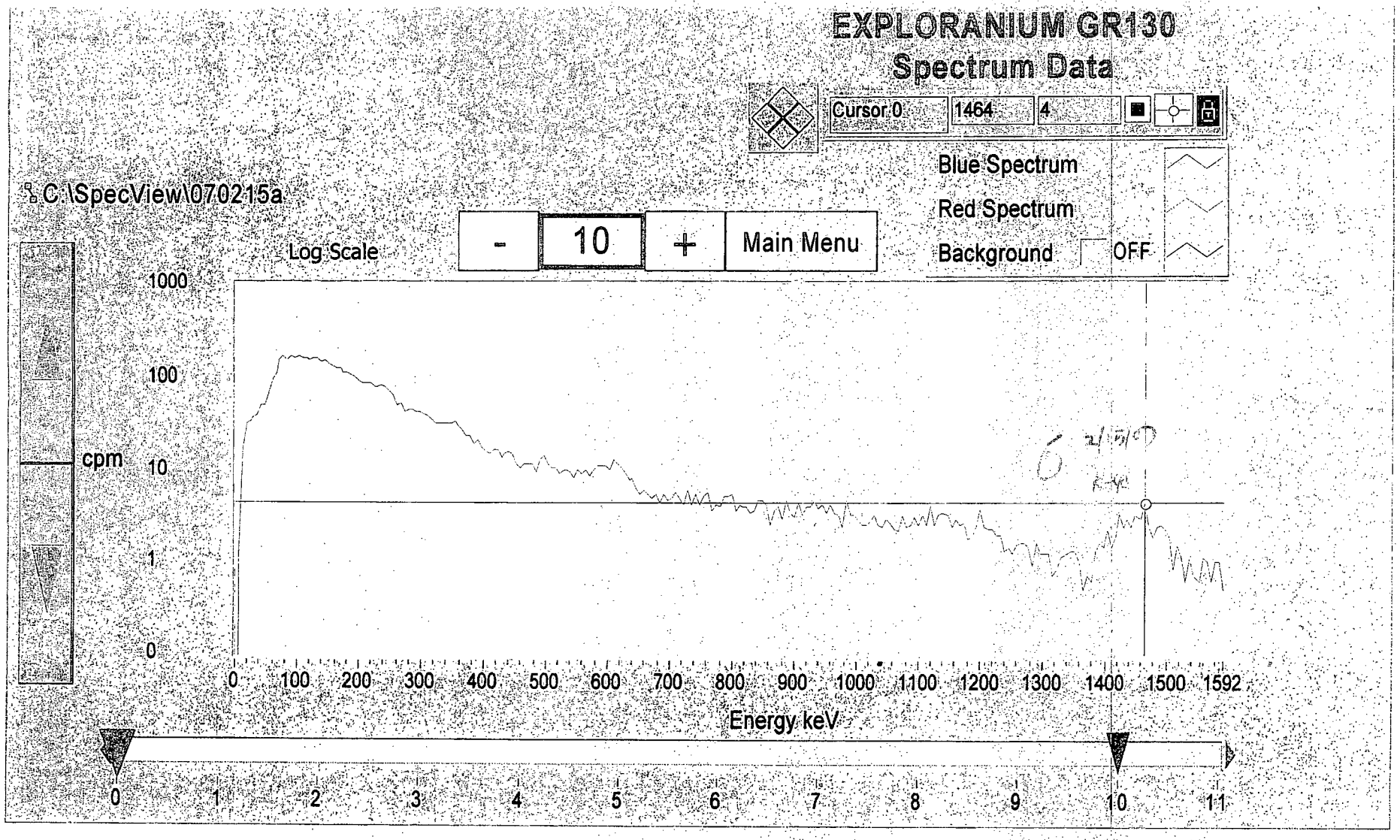
K40
Bi-214
7/15/07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Spectrum Data
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1464
4
Blue Spectrum
Red Spectrum
Background
OFF
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Log Scale
-
10
+
Main Menu
cpm
1000
100
10
1
0
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1592
Energy keV
0
1
2
3
4
5
6
7
8
9
10
11

SURVEY RECORD FORM

Surveyor's Name: (Printed)	Surveyor's Signature:	Location:	Date:	Time:
RICK A. COCO	RACoco	EMERGENCY OPERATIONS FACILITY (EOF)	021507	1520
			Area #: 9402	Log #: 2102

THE FOLLOWING WAS SURVEYED PER RADIOLOGICAL SURVEY PLAN # 07-06 REVISION 1, "FREE RELEASE OF EOF BUILDING":

THE FAN ROOM CONCRETE CEILING GREATER THAN 5% DIRECT FRISK. ELECTRA BACKGROUND 330-375 CPM, CONCRETE CEILING WAS 420-530 CPM. EXPLORANIUM SCAN #9 IDENTIFIED K-40.

CEILING TILE IN REMAINER OF EOF EXCEPT LUNCH ROOM, ~~MATERAC~~ 021507 MAGTEC CLOSET, FSS CLOSET, ENTRANCE HALL WAY, ROOMS IN SOUTH WEST CORNER, INSTRUMENT ROOM & CALIBRATION ROOM. GREATER THAN 5% DIRECT FRISK WAS PERFORMED. ELECTRA BACKGROUND 330-375 CPM. CEILING TILE WAS 420-530 CPM. EXPLORANIUM SCAN #10 IDENTIFIED K-40.

CEILING TILE IN LUNCH ROOM, MAGTEC CLOSET, FSS CLOSET, ENTRANCE HALLWAY & ROOMS IN SOUTH WEST CORNER (ELECTRA BACKGROUND WAS GREATER THAN 500CPM) WERE FRISKED WITH E-140. GREATER THAN 5% DIRECT FRISK WAS PERFORMED. E-140 BACKGROUND 40-80 CPM. CEILING TILE FRISK RESULTS WAS NDA ABOVE BACKGROUND.

CEILING IN INSTRUMENT ROOM & CALIBRATION ROOM WERE NOT FRISKED OR SMEARED.

A TOTAL OF TWENTY EIGHT SMEARS WERE TAKEN ON THE SURVEYED CEILING SURFACES. SMEAR RESULTS AS SHOWN.

INSTRUMENTS USED

MODEL/SERIAL#	CAL DUE	PROBE/SERIAL#
ELECTRA 1B / # 5051	101907	BP19BD / # 257
E-140 / # 1634	022407	HP-360 / NA
L-2200 / # 138681	032407	HP-210 / NA
L-2800 / # 138674	112107	43-2 / # P1438
EXPLORANIUM GR-130 / # 1177	101408	NA
NA	NA	NA

REASON FOR SURVEY

- ☐ ROUTINE
- ☐ RWP
- ☒ OTHER

FREE RELEASE OF EOF PER RADIOLOGICAL SURVEY PLAN # 07-06 REVISION 1

Air Sample(s): ☒ NO ☐ YES Indicate A/S location(s) on survey map and sampler(s) #'s & Cal Due dates in section above.

SMEAR RESULTS dpm/100cm²

βγ MDA= 322.4 α MDA= 12.6

SMEAR	RESULTS Beta-Gamma	RESULTS Alpha	SMEAR	RESULTS Beta-Gamma	RESULTS Alpha
1	<MDA	<MDA	16	<MDA	NA
2			17		
3		<MDA	18		
4		NA	19		
5			20		
6			21		
7			22		
8			23		
9			24		
10			25		
11			26		
12			27		
13			28	<MDA	NA
14			29	NA	
15	<MDA	NA	30		

Smear Continuation Sheet Used? ☐ YES ☒ NO

Portable Count Rate Instrument Background: NA cpm

Legend:

Dose rates are gamma and are in mrem/hr unless otherwise noted.
All smears in dpm/100cm² unless other wise noted.
All LAS's in ccpm/LAS unless other wise noted.

- (#) - Large Area Smear Location
- (#) - Smear Location
- △# - Air Sample Location
- *# - Contact Dose Rate
- # - General Area (G/A) Dose Rate
- ✕✕✕✕ - Boundary
- SOP - Step Off Pad
- */# - Contact / 30cm(GA) Dose rates
- NHPD - No Hot Particles Detected
- CHRPTE - Contact HP Prior To Entry
- RCA - Radiologically Controlled Area
- RM - Radioactive Material(s)
- RA - Radiation Area
- HRA - High Radiation Area
- CA - Contaminated Area
- ARA - Airborne Radioactivity Area
- RPR - Respiratory Protection Required
- SRPTE - Survey Required Prior to Entry
- CPM - Counts per Minute
- NDA - No Detectable Activity
- LAS - Large Area Smear

Postings: ☐ RCA ☐ RM ☐ CA ☐ RA ☐ HRA ☐ Contact HP Prior to Entry ☒ Outside The RCA ☐ Other: _____

HP MANAGER OR DESIGNEE REVIEW: [signature] DATE: 2/15/07

CONNECTICUT YANKEE ATOMIC POWER COMPANY

SURVEY RECORD FORM

Surveyor's Name: (Printed)	Surveyor's Signature:	Location:	Date:	Time:
Larry Fitzsimmons / Gary Walker	/ GWalker	Emergency Operations Facility (E.O.F.)	2·15·07	0945
			Area #: P402	Log #: 2107

INSTRUMENTS USED

MODEL/SERIAL#	CAL DUE	PROBE/SERIAL#
Eletra 500 /#5051	10 19 07	BP19 BD
Eletra 500 /#5052BD	7·12·7	BP 19BD
E140 /#1634	02 24 07	HP 360
E600 /#3686	01·9·07	43·37 / 437092
L2200 /#138681	03 24 07	HP 210
L2200 /#138674	11 21 07	43·2 / P1438

REASON FOR SURVEY

- [ ] ROUTINE
- [ ] RWP
- [x] OTHER — Survey Plan #07-06

Air Sample(s): [x] NO [ ] YES Indicate A/S location(s) on survey map and sampler(s) #'s & Cal Due dates in section above.

SMEAR RESULTS dpm/100cm²

βγ MDA= 322.4 | α MDA= 12.6

SMEAR	RESULTS Beta-Gamma	RESULTS Alpha	SMEAR	RESULTS Beta-Gamma	RESULTS Alpha
1			16		
2			17		
3			18		
4			19		
5			20		
6			21		
7	N		22	N	
8		A	23		A.
9			24		
10			25		
11			26		
12			27		
13			28		
14			29		
15			30		

Smear Continuation Sheet Used? [ ] YES [x] NO

Portable Count Rate Instrument Background: N/A cpm

- As required, in accordance with survey plan the following tasks were performed and completed. (Survey Plan 07-06)

- Direct frisk greater than ten percent of interior walls. of E.O.F. Bld.
  - Results are no detectable activity detected greater than background.

- Direct frisked an approximately 100% of interior floor of the E.O.F. Bld.
  - Detected only one area on floor, (Carpeted) with elevated levels, (200 cpm above background detected), located on the north hallway floor. (2) Smears taken on suspected area, results are <M.D.A. βγ & α dpm 100cm², suspect area removed (Carpeting 6"x 12") from floor, for further evaluation.
  - All other areas of floor, findings are no detectable activity detected greater than background.
  - follow up survey, of E.O.F. floor surveyed greater than 10 percent of floor, findings are no detectable activity greater than background.

Eletra: Background 325-400 cpm / bkgd. E-140 Background 60-80 cpm

Legend:

Dose rates are gamma and are in mrem/hr unless otherwise noted.
All smears in dpm/100cm² unless other wise noted.
All LAS's in ccpm/LAS unless other wise noted.

- (#) - Large Area Smear Location
- (#) - Smear Location
- △ - Air Sample Location
- *# - Contact Dose Rate
- # - General Area (G/A) Dose Rate
- ✕✕✕✕ - Boundary
- SOP - Step Off Pad
- #/# - Contact / 30cm(GA) Dose rates
- NHPD - No Hot Particles Detected
- CHPPTE - Contact HP Prior To Entry
- RCA - Radiologically Controlled Area
- RM - Radioactive Material(s)
- RA - Radiation Area
- HRA - High Radiation Area
- CA - Contaminated Area
- ARA - Airborne Radioactivity Area
- RPR - Respiratory Protection Required
- SRPTE - Survey Required Prior to Entry
- CPM - Counts per Minute
- NDA - No Detectable Activity
- LAS - Large Area Smear

Postings: [ ] RCA [ ] RM [ ] CA [ ] RA [ ] HRA [ ] Contact HP Prior to Entry [x] Outside The RCA [ ] Other: _____

HP MANAGER OR DESIGNEE REVIEW: [signature] DATE: 2/22/07

****
10-MAY-2007 09:35:41.70

CONNECTICUT YANKEE
HADDAM NECK STATION
****

SAMPLE TITLE : - EOF - CARPET
REASON FOR ANALYSIS: Qualitative Analysis
RWP NUMBER : 0 * SURVEY ID : 0
SAMPLE ID : 070220001
SAMPLE TIME : 20-FEB-2007 08:15:00.00
SAMPLE TYPE : QUALITATIVE
****

DETECTOR : DET 1 * LIBRARY : FSS_DIRT
LAST ENERGY CAL : 20-FEB-2007 07:14 * ENERGY TOLERANCE: 1.00000
KEV/CHANNEL : 4.99909E-01
START CHANNEL : 100 * END CHANNEL : 4096
ACQ DATE & TIME : 20-FEB-2007 08:35 * DEADTIME (%) : 0.0%
PRESET LIVE TIME : 0 01:00:00 * SENSITIVITY : 5.00000
ELAPSED REAL TIME : 3601.1 Secs * GAUSSIAN SEN : 10.00000
ELAPSED LIVE TIME : 3600.0
DECAYED TO 0 DAYS HOURS
FILE IDENT : CAS$DISK:[NEU.SAMPLE.RP.OLD]070220001_ADC1_QUALITATIVE.CNF;1

****
ANALYSES : PEAK V16.8 NID V3.2 MINACT V2.8 WTMEAN V1.8
****

Collected by : R. COCO
REVIEWED BY : Oal Nunball
COMMENTS :

****

Post-NID Peak Search Report

It	Energy	Area	Bkgnd	FWHM	Channel	Left	Pw %Err	Fit	Nuclides
0	77.48*	36	110	0.86	155.30	151	8109.4		PB-214
									PB-212
0	187.39	40	103	1.79	375.26	366	18123.6		
1	238.84*	127	40	1.49	478.27	472	18 23.8	3.90E+00	PB-212
1	242.19*	63	28	1.50	484.98	472	18 45.3		PB-214
0	295.28*	73	38	1.11	591.26	584	14 44.6		PB-214
0	352.07*	128	46	1.16	704.99	699	13 28.8		PB-214
0	510.69*	13	8	2.11	1022.75	1014	15146.6		
0	609.64*	136	21	1.48	1221.05	1214	15 23.4		BI-214
0	661.63*	27	7	1.83	1325.28	1320	12 61.7		CS-137
0	769.97	14	17	0.88	1542.53	1536	12129.6		
0	1119.73	30	6	1.12	2244.39	2237	13 49.8		BI-214
0	1172.76*	23	0	2.41	2350.88	2341	19 58.8		CO-60
0	1332.13*	10	3	1.89	2671.02	2663	13137.4		CO-60
0	1460.07*	26	0	2.40	2928.17	2921	13 45.7		K-40
0	1762.93	17	0	1.27	3537.29	3530	14 48.5		

REPORT NAME : QA_CHECK (V9.1)
REPORT DATE : 10-MAY-2007 09:35
REQUESTOR : CAS_TECH

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

TITLE : - EOF - CARPET

SAMPLE No. : 070220001
SAMPLE TYPE : QUALITATIVE
COUNT TIME : 20-FEB-2007 08:35:29
SAMPLE TIME : 20-FEB-2007 08:15:00
LIBRARY : FSS_DIRT

OPERATOR NAME : CAS
SAMPLE GEOMETRY : 47mlfilter
SAMPLE QUANTITY : 1.00000E+00
DETECTOR : DET 1

ISOTOPE	PEAK ENERGY	ENERGY DIFF (KEV)	DECAY CORR uCi/each	COMMENTS
K-40	1460.80	-0.73	1.574E-04	* Peak FWHM = 2.4
CO-60	1332.49	-0.36	8.963E-06	* Peak FWHM = 1.9
				* Count Rate Error = 68.68
CS-137	661.65	-0.02	8.729E-06	* Peak FWHM = 1.8
PB-212	238.63	0.22	2.695E-05	* Peak FWHM = 1.5
BI-214	609.31	0.32	7.693E-05	* Peak FWHM = 1.5
PB-214	351.92	0.15	4.992E-05	* Peak FWHM = 1.2
AVG ENERGY DIFF =		-0.07	3.289E-04	= TOTAL GAMMA ACTIVITY
			3.112E-04	= Total NP Activity
			8.729E-06	= Total FP Activity
			8.963E-06	= Total AP Activity

77.48 KeV Peak was used in identifying 2 isotopes

UNIDENTIFIED/REJECTED PEAKS

ENERGY	NET AREA	FWHM	GAMMA/SEC	GAMMA/SEC /each	% ERROR	FLAG	POTENTIAL ID	ACTIVITY
187.39	40.	1.79	1.131E-01	1.131E-01	61.8	U	Ra-226	
510.69	13.	2.11	1.035E-01	1.035E-01	73.3	U	ANN-RD	0.000E+00
769.97	14.	0.88	1.711E-01	1.711E-01	64.8	U	Bi-214	
1762.93	17.	1.27	4.718E-01	4.718E-01	24.3	U	Bi-214	

Total Unidentified/Rejected Peaks = 4
% Unidentified/Rejected Peaks = 26.67

Flags: U - Unknown Line
R - Rejected During Analysis
P - Positively Identified (line not in analysis library)

CYAPCO
HADDAM NECK STATION

POST NID QA ANALYSIS

Performed by: _____

Reviewed by: _____

**** End Of Report (2 Pages) ****

CONNECTICUT YANKEE ATOMIC POWER COMPANY

SURVEY RECORD FORM

Surveyor's Name: (Printed)	Surveyor's Signature:	Location:	Date:	Time:
RICK A. COCO	RACoco	EMERGENCY OPERATIONS FACILITY (EOF)	022007	1055
			Area #: 9402	Log #: 2108

THE FOLLOWING WAS SURVEYED IAW RADIOLOGICAL SURVEY PLAN #07-06, "FREE RELEASE OF THE EOF BUILDING":

- WALLS IN FSS STORAGE CLOSET, ENTRANCE HALL WAY & ROOMS IN SOUTH WEST CORNER OF EOF.
  MODEL 12 BACKGROUND = 40-60 CPM (SHEET ROCK WALLS & METAL DOORS)
  MODEL 12 BACKGROUND = 80-120 CPM (TILE WALLS)
  GREATER THAN 5% OVER TWO METERS HIGH & GREATER THAN 10% UNDER TWO METERS HIGH WERE DIRECT FRISKED SURVEYED. FRISK RESULTS WERE NDA ABOVE BACKGROUND.
- FLOORS IN FSS STORAGE CLOSET, ENTRANCE HALLWAY & ROOMS IN SOUTH WEST CORNER OF EOF.
  MODEL 12 BACKGROUND = 80-120 CPM (TILE FLOORS)
  GREATER THAN 10% OF FLOOR SURFACES WERE DIRECT FRISKED SURVEYED. FRISK RESULTS WERE NDA ABOVE BACKGROUND.
- SHELVES IN FSS STORAGE CLOSET. RANDOM SPOT DIRECT FRISK.
  MODEL 12 BACKGROUND = 60-80 CPM
  FRISK RESULTS WERE NDA ABOVE BACKGROUND.
- ELEVATED FRISK RESULTS ON CARPET (PREVIOUS SURVEY) WAS REMEDIATED TO FLOOR TILE. ELECTRA BACKGROUND = 280-320 CPM. DIRECT FRISK OF FLOOR TILE RESULTS WERE NDA ABOVE BACKGROUND.

NOTE: UNSUSTAINED FLUCTUATION UP TO 600CPM FOUND ON WALL & FLOOR TILE SURFACES.
EXPLORANIUM SCAN SPECTRUM #12 (WALL TILE)
EXPLORANIUM SCAN SPECTRUM #13 (FLOOR TILE)

ELECTRA BACKGROUND IN ABOVE MENTIONED AREAS, EXCEPT CARPET REMEDIATION LOCATION WAS > 500CPM THEREFORE MODEL 12 WAS USED TO FRISK.

INSTRUMENTS USED

MODEL/SERIAL#	CAL DUE	PROBE/SERIAL#
ELECTRA 1B/# 5053	061407	BP19BD/#262
MODEL 12/# 209615	092807	HP-360/NA
EXPLORANIUM GR-130/#1177	101408	NA
	NA	

REASON FOR SURVEY

☐ ROUTINE	FREE RELEASE OF EOF BUILDING
☐ RWP	IN ACCORDANCE WITH (IAW) RADIOLOGICAL
☒ OTHER	SURVEY PLAN # 0706 REVISION 1

Air Sample(s): ☒ NO ☐ YES Indicate A/S location(s) on survey map and sampler(s) #'s & Cal Due dates in section above.

SMEAR RESULTS dpm/100cm²

βγ MDA= NA α MDA= NA

SMEAR	RESULTS Beta-Gamma	RESULTS Alpha	SMEAR	RESULTS Beta-Gamma	RESULTS Alpha
1			16		
2			17		
3			18		
4			19		
5			20		
6			21		
7	NA		22	NA	
8			23		
9			24		
10			25		
11			26		
12			27		
13			28		
14			29		
15			30		

Smear Continuation Sheet Used? ☐ YES ☒ NO

Portable Count Rate Instrument Background: NA cpm

Legend:
Dose rates are gamma and are in mrem/hr unless otherwise noted.
All smears in dpm/100cm² unless other wise noted.
All LAS's in ccpm/LAS unless other wise noted.

- (#) - Large Area Smear Location
- (#) - Smear Location
- △ - Air Sample Location
- *# - Contact Dose Rate
- # - General Area (G/A) Dose Rate
- ✕✕✕✕ - Boundary
- SOP - Step Off Pad
- *#/# - Contact / 30cm(GA) Dose rates
- NHPD - No Hot Particles Detected
- CHPPTE - Contact HP Prior To Entry
- RCA - Radiologically Controlled Area
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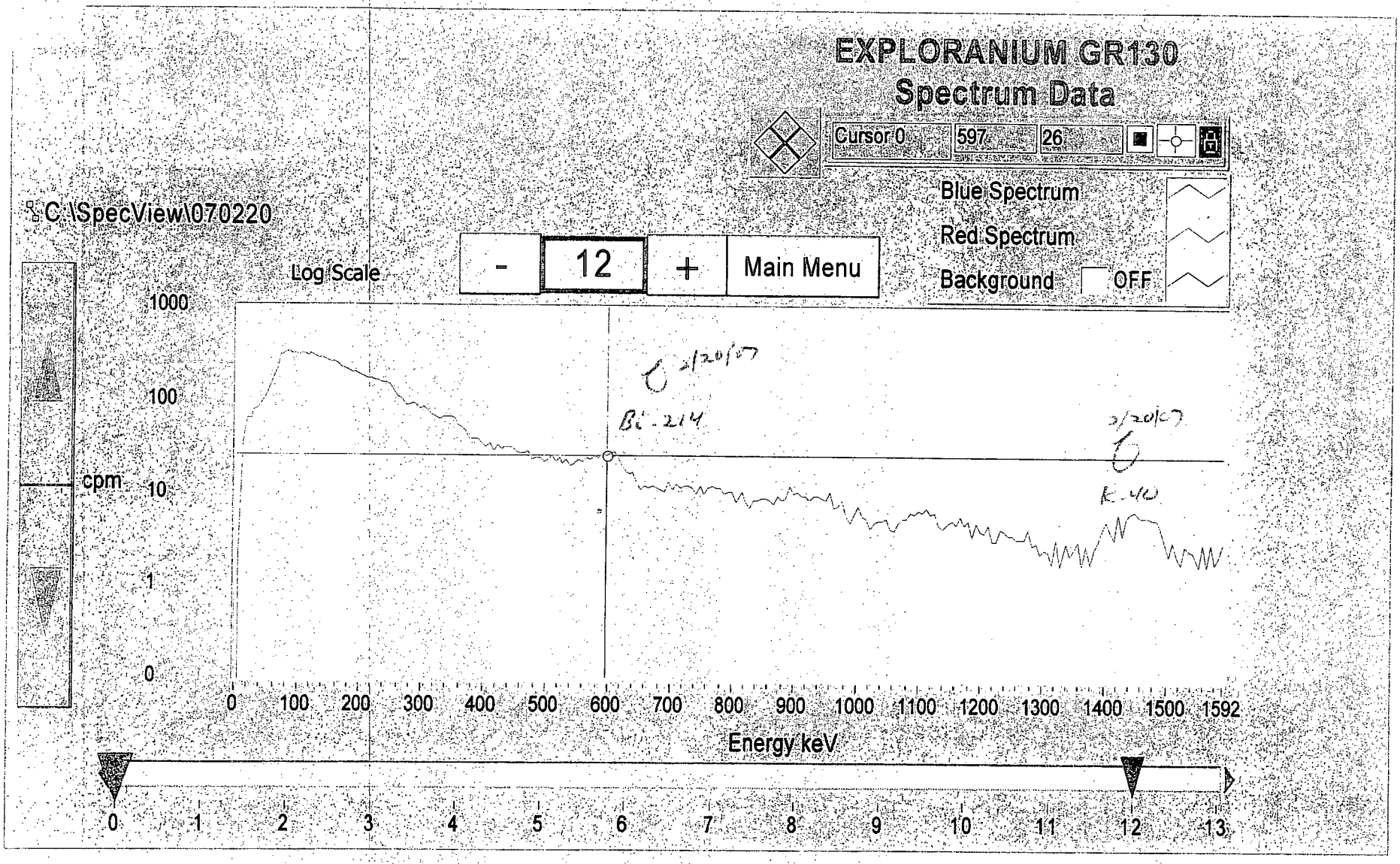
- RPR - Respiratory Protection Required
- SRPTE - Survey Required Prior to Entry
- CPM - Counts per Minute
- NDA - No Detectable Activity
- LAS - Large Area Smear

Postings: ☐ RCA ☐ RM ☐ CA ☐ RA ☐ HRA ☐ Contact HP Prior to Entry ☒ Outside The RCA ☐ Other: _____

HP MANAGER OR DESIGNEE REVIEW: [signature] DATE: 2/21/07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597
26
Blue Spectrum
Red Spectrum
Background
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C:\SpecView\070220
Log Scale
-
12
+
Main Menu
1000
100
cpm
10
1
0
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1592
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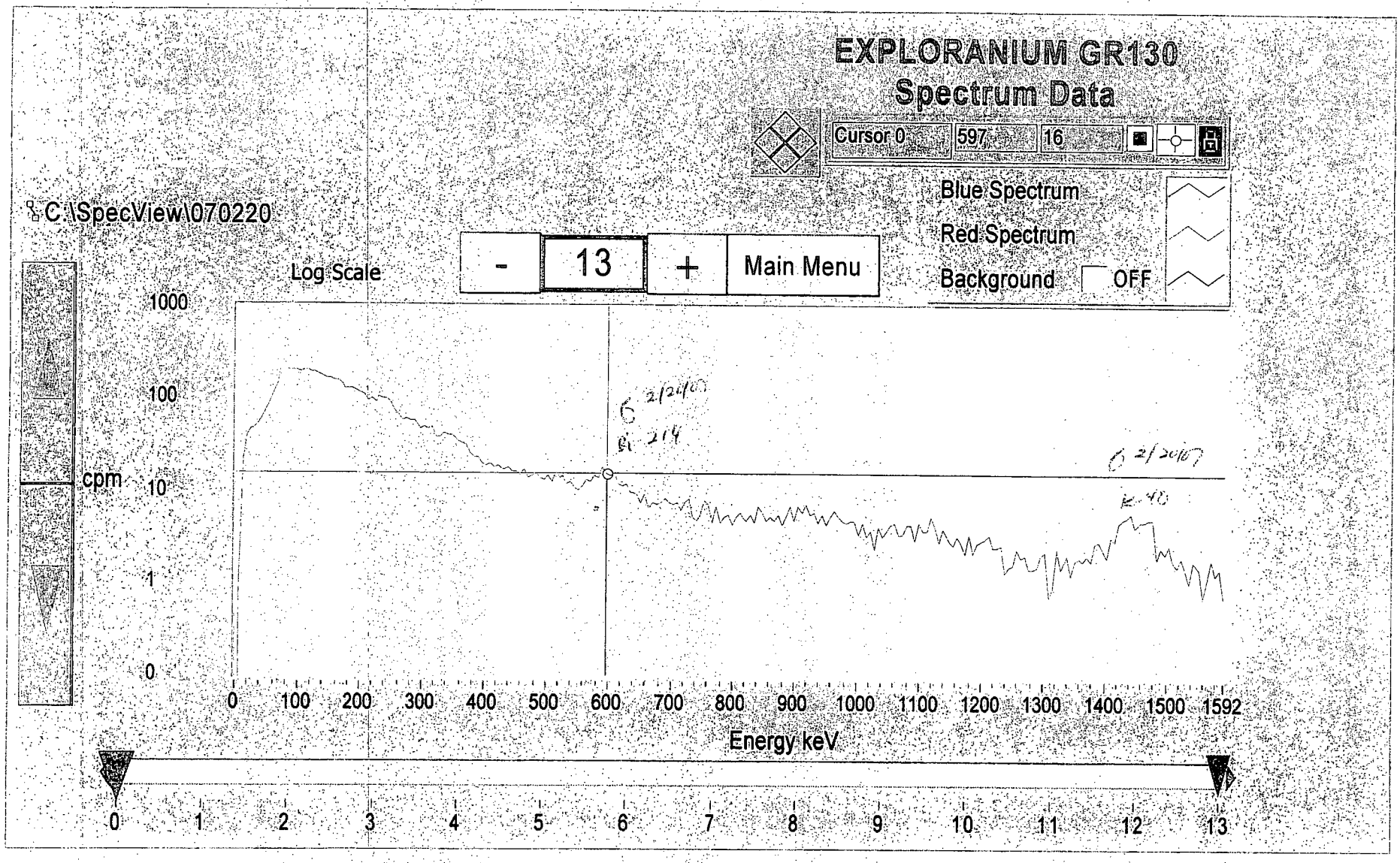
Bi-214
K-40


EXPLORANIUM GR130
Spectrum Data
Cursor 0
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+
Main Menu
cpm
1000
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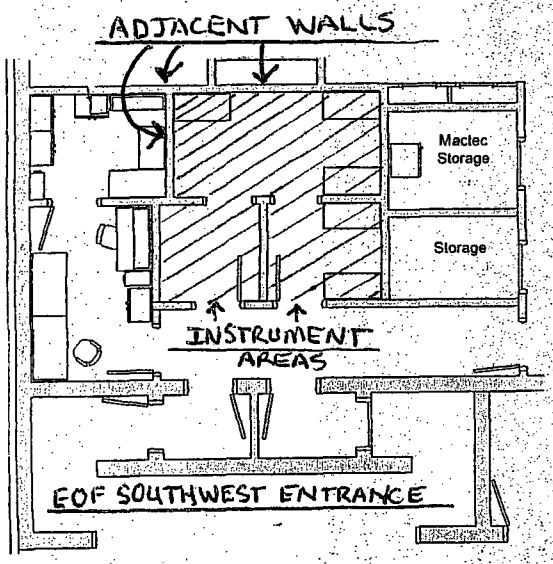
0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1592
Energy keV
0 1 2 3 4 5 6 7 8 9 10 11 12 13

CONNECTICUT YANKEE ATOMIC POWER COMPANY
SURVEY RECORD FORM

Surveyor's Name: (Printed)	Surveyor's Signature:	Location:	Date:	Time:
Robin Neal	[signature]	EMERGENCY OPERATIONS FACILITY (EOF)	5-1-2007	1100
			Area #: 9402	Log #:

THE Following EOF INSTRUMENT AREAS were SURVEYED IN ACCORDANCE with RADIOLOGICAL SURVEY PLAN # 07-06, "FREE RELEASE OF The EOF Building".

- 100% DIRECT FRISK SURVEY of FLOORS - No Detectable Activity
- 10% Direct FRISK SURVEY of WALLS - NO Detectable Activity
- 5% Direct FRISK Survey of Ceiling - No Detectable Activity
- 10% Direct FRISK of Furniture & Equipment - No Detectable Activity
- 10% Direct Frisk Survey of ADJACENT WALLS - No Detectable Activity



SURVEYS PERFORMED in shaded areas were not Previously Performed Due To high Background Radiation levels Caused by Radioactive Sources stored in these Areas.

INSTRUMENTS USED

MODEL/SERIAL#	CAL DUE	PROBE/SERIAL#
ELECTRA/262	9/26/07	BP19BD/266

REASON FOR SURVEY

- ☐ ROUTINE
- ☐ RWP
- ☒ OTHER: EOF FREE RELEASE Radiological Survey Plan # 07-06

Air Sample(s): ☑ NO ☐ YES Indicate A/S location(s) on survey map and sampler(s) #'s & Cal Due dates in section above.

SMEAR RESULTS dpm/100cm²

βγ MDA= N/A α MDA= N/A

SMEAR	RESULTS Beta-Gamma	RESULTS Alpha	SMEAR	RESULTS Beta-Gamma	RESULTS Alpha
1			16		
2			17		
3			18		
4			19		
5			20		
6	N	A	21	N	A
7			22		
8			23		
9			24		
10			25		
11			26		
12			27		
13			28		
14			29		
15			30		

Smear Continuation Sheet Used? ☐ YES ☒ NO

Portable Count Rate Instrument Background: 600 cpm

Legend:
Dose rates are gamma and are in mrem/hr unless otherwise noted.
All smears in dpm/100cm² unless other wise noted.
All LAS's in ccpm/LAS unless other wise noted.

- Large Area Smear Location
- Smear Location
- Air Sample Location
- *# - Contact Dose Rate
- # - General Area (G/A) Dose Rate
- Boundary
- Step Off Pad
- #/# - Contact / 30cm(GA) Dose rates
- NHPD - No Hot Particles Detected
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- NDA - No Detectable Activity
- LAS - Large Area Smear

Postings: ☐ RCA ☐ RM ☐ CA ☐ RA ☐ HRA ☐ Contact HP Prior to Entry ☒ Outside The RCA ☐ Other: _____

HP MANAGER OR DESIGNEE REVIEW: [signature] DATE: 5/7/07