

License No. 06-20971-01  
Docket No. 030-22168  
Control 143747  
Eastern Connecticut State University

9-5  
MS-16

Page 1 of 4

Dr. Colurso,

This refers to your letter dated May 18, 2009, with your survey results and the amendment dated May 18, 2009. Additional information is needed for the following:

1. In order to release Goddard Hall and the Media Center for unrestricted use, you need to demonstrate that these facilities meet the License Termination Criteria specified in Subpart E of 10 CFR Part 20. An acceptable method of doing so is described in NUREG-1757, Volume 2, Appendix B, which is located at the following web link: <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1757/v2/sr1757v2r1.pdf>

This reference describes an "alternate survey" method that may be used at facilities such as yours, instead of the more detailed decommissioning surveys required by the NUREG-1757. The surveys that you provided would be considered "samples" as described in the alternate survey method.

a. Please note that this reference requires 30 samples in an area of 100 square meters. Please review your surveys to ensure that the minimum criteria are met. If it is not, submit the additional survey results for samples. These samples should be from the permanent fixtures in the facilities remaining in the vacated areas such as floors, walls, hoods, benches, etcetera. Based on the survey results provided, more samples likely are required from such locations.

*RESPONSE: Please see attachments. I have acquired at least 30 samples per room.*

b. Please note that the alternate survey method requires a scan of the facilities to ensure that no areas of elevated radiation are detected. Provide the results of such scans for each room that you are requesting be released for unrestricted use.

*RESPONSE: Please see the same attachments. Scans were completed in each room.*

2009 JUL 27 PM 1:11

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REGION 1

143747

NUREG/REGNI MATERIALS-002

2. Based on the survey results you submitted, it appears that the areas used included rooms G107, M220, M218, M219, M220A, M220B, M222, G208 and G220. Confirm if these were the only rooms in which licensed activities were performed under the license. Briefly describe the estimated area (such as square footage) of these rooms and the total area of the building in which they are located, with a brief description of the building. Please describe the type of area in which the building is located (for example: rural, industrial, residential, etcetera).

*RESPONSE: Our previous license included the rooms listed above, except for G208. This room was the physics stockroom where magnets and radioactive discs were stored. All these items were below regulatory limits and were not part of our campus license. I surveyed that room before we moved to the new science building just to be safe. Additional surveys and scans of G208 are included with this response for the same reason.*

*One other room G106 was also part of our previous license. Even though we did not use that room for licensed activity, I have completed the required surveys and scans. Results are attached.*

*I have indicated the area of each room on the survey sheets in units of square meters. Our rooms were located in two buildings: Goddard Hall and Media Center. Floorplans for each building are included to identify the relative location/area of the rooms in question. Both buildings are located on our campus, which is surrounded by residential neighborhoods. A campus map is enclosed for clarity.*

3. Confirm if you wish to have the authorization for the gas chromatograph removed from your license.

*RESPONSE: Please remove the gas chromatograph from our license. The proposed amendment does not include the chromatograph on our equipment list.*

4. Prior to release of your facilities for unrestricted use, a Federal Register Notice will be published with the results of our Environmental Assessment for this release. This process may take more than 90 days. Please confirm if the proposed revisions provided in the amendment request are required prior to the publication of the Federal Register Notice. If so, we will issue the actions separately.

*RESPONSE: It would be helpful if the revisions were approved prior to the publication.*

5. Item 7 and Item 10 of your application refer to the Radiation Safety Committee and two categories of Authorized Users.

a. Confirm if you are applying to become a license of broad scope in accordance with 10 CFR Part 33. If so, additional information will be required and should be submitted in accordance with NUREG-1556, Volume 11.

**RESPONSE:** *We are absolutely NOT applying for a broad scope license.*

b. Confirm if you intend only to use the Radiation Safety Committee as described in your application to support your current license of limited scope.

**RESPONSE:** *Our Radiation Safety Committee will only function as described in our limited scope license.*

c. Confirm that you understand that under your current license of limited scope, all persons, including those described as the "second category of Authorized Users" and Supervised Users, must work under the supervision of one of the individuals named on your license as an authorized user.

**RESPONSE:** *We have always understood that Supervised Users must work under the supervision of Authorized Users that we have specifically named. This has been clearly described in our previous licenses and the proposed amendment.*

**However, I did not realize that our "second category" of generic authorized users would require supervision. If that is the case, then please OMIT that group from our proposal. Accordingly, DELETE Item 7, Section B, paragraph 2 and DELETE Item 8, Section A.1, paragraph 2 from our amendment. The paragraph to be deleted, in both sections, reads as follows:**

*A second category of Authorized Users will apply to those faculty who meet the following criteria. Individuals who have been hired by the University as a full-time faculty member (even in a temporary capacity), completed their Ph.D. or equivalent, completed a recognized training program in the use of radioisotopes, have documented experience in the proper use of radioisotopes, and have been approved by members of the University Radiation Safety Committee.*

6. In Item 9, you describe a Ba-133 source in the Tri-Carb liquid scintillation counter and a Ra-226 source in the RackBeta liquid scintillation counter, These sources are possessed under the general license described in 10 CFR 31.5, and there should be a label somewhere on each liquid scintillation counter that states this. Under this general license, you are required to follow the manufacturer's instructions for performing leak tests for these sources, and may only transfer these sources to a manufacturer or an authorized waste disposal facility. These sources are not required to be listed on your specific license at this time.

*RESPONSE: We do follow the manufacturer's instructions for performing leak tests, and when necessary, we only transfer these sources to a manufacturer or an authorized waste disposal facility. We are required to list these materials on our Connecticut State DEP Registration, so I automatically included them in our NRC license. Should they be deleted from our list under Item 5, Section D?*

7. In Item 10, you state that surveys for photon radiation will be conducted with the Geiger-Mueller meter. Please note that the survey meter that is described in Item 9 is suitable for some alpha and beta surveys as well, and should be used to perform surveys of work areas where these radionuclides are used. In addition, more areas may be scanned with a survey meter than are typically sampled when performing wipe surveys. Confirm that your surveys will include both surveys with the meter, and wipe tests, in classrooms and laboratories where licensed materials are used.

*RESPONSE: Item 10, Section G, will add the following paragraph: Where suitable, the Geiger-Mueller meter will also be used for alpha and beta surveys of work areas where these radionuclides are used. When deemed appropriate, additional areas may be scanned with the Geiger-Mueller meter than are sampled by wipe tests. In summary, surveys will include those performed with both the Geiger-Mueller meter and wipe tests, in classrooms and laboratories where licensed materials are used.*

Please do NOT respond to this request for additional information by email. Please respond by regular mail as a hard copy with a signature is required for the response. You may contact me by email or by telephone if you have any questions about this request for additional information.

thanks,  
Betsy  
Betsy Ullrich, Senior Health Physicist  
Division of Nuclear Materials Safety, NRC Region I  
610-337-5040  
[elizabeth.ullrich@nrc.gov](mailto:elizabeth.ullrich@nrc.gov)

*We have done our best to comply with your instructions and requests. Please let us know if you require additional information. Thank you for your help.*

*Gloria J. Colurso, RSO*

*July 24, 2009*

*Gloria J. Colurso*



Designer and Manufacturer  
of  
Scientific and Industrial  
Instruments

CERTIFICATE OF CALIBRATION

**LUDLUM MEASUREMENTS, INC.**  
POST OFFICE BOX 810 PH. 325-235-5494  
501 OAK STREET FAX NO. 325-235-4672  
SWEETWATER, TEXAS 79556, U.S.A.

CUSTOMER EASTERN CONNECTICUT ST UNIV ORDER NO. 20134335/338329

Mfg. Ludlum Measurements, Inc. Model 3 Serial No. 43323

Mfg. Ludlum Measurements, Inc. Model 44-7 Serial No. PR028749

Cal. Date 26-May-09 Cal Due Date 26-May-10 Cal. Interval 1 Year Meterface 202-049

Check mark  applies to applicable instr. and/or detector IAW mfg. spec. T. 74 °F RH 48 % Alt 694.8 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 02/07/97.

Instrument Volt Set 900 V Input Sens. 27 mV Det. Oper. 900 V at 27 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	150mR/hr	1.5	1.5
X 100	50mR/hr	0.5	0.5
X 10	15mR/hr	1.55	1.5
X 10	5mR/hr	0.58	0.55
X 1	1.5mR/hr = 3000 cpm	1.5	1.5
X 1	1.0mR/hr	1.0	1.0
X 0.1	300 cpm	1.5	1.5
X 0.1	100 cpm	0.5	0.5

\*Uncertainty within ± 10% C.F. within ± 20% X0.1 Range(s) Calibrated Electronically

REFERENCE CAL. POINT	INSTRUMENT RECEIVED	INSTRUMENT METER READING*	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/NCCL Z540-1-1994 and ANSI N323-1978 State of Texas Calibration License No. LO-1963

Reference Instruments and/or Sources:  S-394/1122  1131  781  059  280  60646  
Cs-137 Gamma S/N  1162  G112  M565  5105  T1008  T879  E552  E551  720  734  1616  Neutron Am-241 Be S/N T-304  
 Alpha S/N \_\_\_\_\_  Beta S/N \_\_\_\_\_  Other \_\_\_\_\_  
 m 500 S/N 189509  Oscilloscope S/N \_\_\_\_\_  Multimeter S/N 71300492

Calibrated By: Wardell Williams Date 26 MAY 09

Reviewed By: Ronald Hill Date 26 May 09

AC Inst.  Passed Dielectric (Hi-Pot) and Continuity Test  
Only  Failed: \_\_\_\_\_



# FIELD SERVICE REPORT

**PerkinElmer Inc.**

710 Bridgeport Ave  
Shelton, CT  
06484  
US

Telephone: 1 800 7624000 Fax: 1 203 9444914  
V.A.T. Code:

Service Order No. <b>000340300148</b>	Activity Code INS	Desired Start Date 8/21/2008	Model <b>TRICARBA2810</b>	Serial No. <b>DG08084184</b>
Engineer Name KHAN, HAFEEZ (VM 3850)		Work Center US204063	Contract No.	Expiration Date
Customer Name/Address EASTERN CONN STATE UNIV FACILITIES BLDG RECEIVING CHARTER OAK RD WILLIMANTIC CT 06226			Bill To Name/Address	
Contact Name <b>COLURSO, GLORIA</b>		Phone No. 860-465-5259 Cell # 860-428-3534	Fax No.	Customer PO No. <b>BF900030</b>

### Work Description

Act. Hrs.	Act. Date	Start / Finish	Short Description	Detailed Description
4	8/26/2008		Labor	<p>8-26-08.....Customer called in for their instrument to be install. Upon arrival the instrument and all of the boxes was moved to the lab where needed to be installed. I remove the top cover, remove the gas springs, and lifted the deck to install the lead shielding. Installed the lead, compression springs, mounted the arm for the monitor, once all completed I then lowered the deck into place and secure the top lid. I then powered up the instrument and loaded the xp product key. I then had to activate windows xp. Once all completed I then ran a SNC and these are the results:</p> <p>3H efficiency= 65.11% C14 efficiency = 93.22% Background = 10 counts</p> <p>I then perform customer training and explain how to setup protocols and use the quanta smart software.</p> <p>The install is all complete.</p>
2.5	8/26/2008		Portal to portal	Travel

### Materials

Qty	Part No.	Material Description	Kit
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Job Completed	Labor Hours	Travel Hours	PerkinElmer Engineer Signature	Date
<input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b>	<b>4.</b>	<b>2.5</b>		
Maintenance Done	Customer Signature		Date	
<input type="checkbox"/> <b>Maintenance/IPV protocol left with customer</b>				
Special Terms and Conditions				

Figure 4. Goddard Hall  
 First Floor  
 Drawing scale approximately 1" = 16'

Locations of rooms designated for the use of radioactive materials.

(Note rooms 106 and 107.)

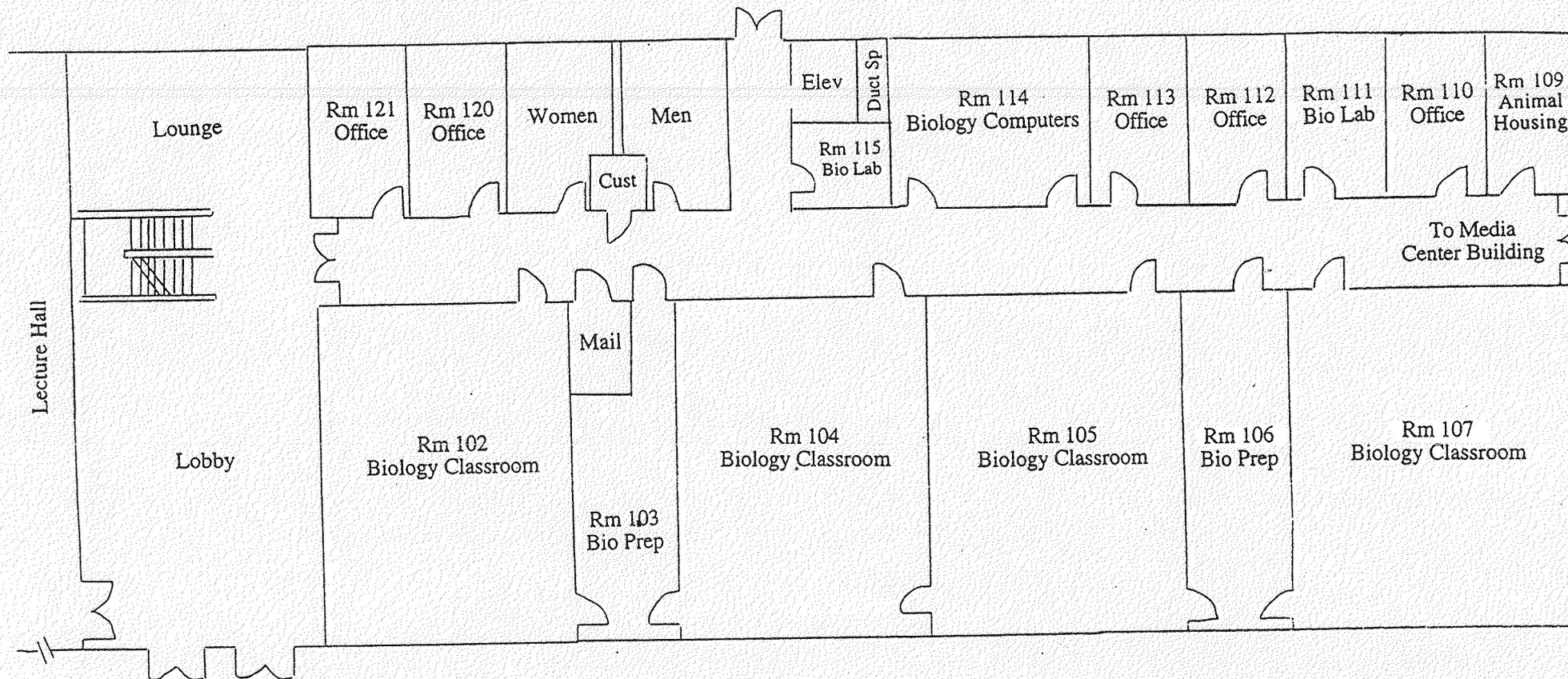
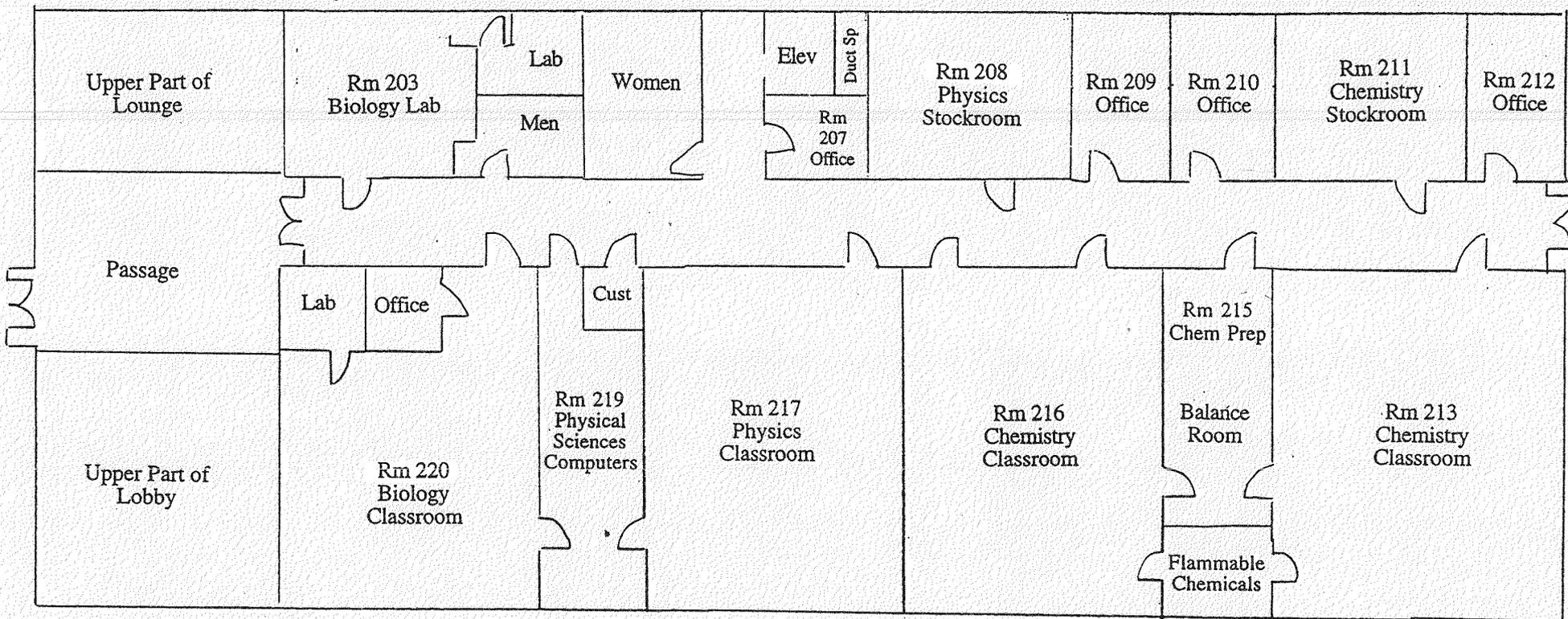


Figure 7. Goddard Hall  
Second Floor  
Drawing scale approximately 1" = 16'

Location of classroom designated for the use of radioactive materials.

(Note room 220.)





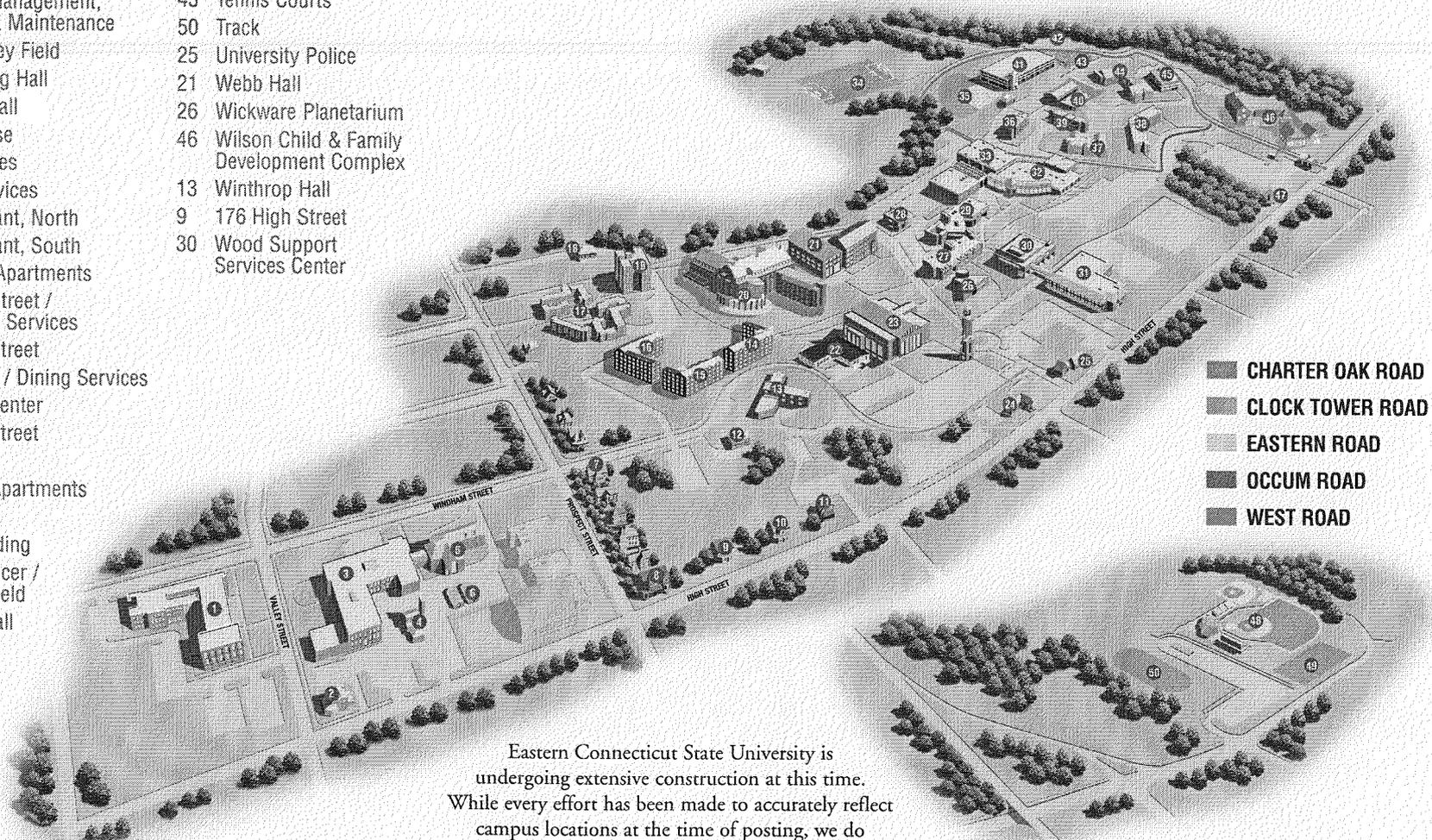
**KEY TO SERVICES**

- |   |   |
|---|---|
| 24 Admissions Building                              | 16 Nutmeg Hall                                  |
| 42 Arboretum  | 38 Occum Hall                                   |
| 48 Baseball Field                                   | 41 Parking Garage                               |
| 2 Beckert Hall                                      | 7 333 Prospect Street                           |
| 36 Burnap Hall                                      | 3 Shafer Hall                                   |
| 5 Burr Hall   | 20 Science Building                             |
| 14 Constitution Hall                                | 23 J. Eugene Smith Library                      |
| 39 Crandall Hall                                    | 35 Spector Softball Field                       |
| 22 Eastern Hall                                     | 33 Sports Center                                |
| 45 Facilities Management,<br>Planning & Maintenance | 32 Student Center                               |
| 49 Field Hockey Field                               | 43 Tennis Courts                                |
| 31 Gelsi-Young Hall                                 | 50 Track  |
| 27 Goddard Hall                                     | 25 University Police                            |
| 8 Grant House                                       | 21 Webb Hall                                    |
| 6 Greenhouses                                       | 26 Wickware Planetarium                         |
| 18 Health Services                                  | 46 Wilson Child & Family<br>Development Complex |
| 28 Heating Plant, North                             | 13 Winthrop Hall                                |
| 4 Heating Plant, South                              | 9 176 High Street                               |
| 19 High Rise Apartments                             | 30 Wood Support<br>Services Center              |
| 11 192 High Street /<br>Counseling Services         |   |
| 47 372 High Street                                  |   |
| 40 Hurley Hall / Dining Services                    |   |
| 12 Interfaith Center                                |   |
| 10 182 High Street                                  |   |
| 15 Laurel Hall                                      |   |
| 17 Low Rise Apartments                              |   |
| 44 Mead Hall  |   |
| 29 Media Building                                   |   |
| 34 Nevers Soccer /<br>Lacrosse Field                |   |
| 37 Nijadlik Hall                                    |   |
| 1 Noble Hall  |   |



EASTERN CONNECTICUT STATE UNIVERSITY

# Campus Map



Eastern Connecticut State University is undergoing extensive construction at this time. While every effort has been made to accurately reflect campus locations at the time of posting, we do apologize for any inconvenience this may cause.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**GODDARD HALL, ROOM 106, ROOM SIZE 35 square meters**

<b>Isotope: H-3</b>					
<b>Survey Date: June 29, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Main door outside	11	10	1	65	2
Main door inside	9	10	0	65	0
Light switch front	11	10	1	65	2
Door to 107 outside	15	10	5	65	8
Door to 107 inside	13	10	3	65	5
Light switch back right	8	10	0	65	0
Door to 105 outside	10	10	0	65	0
Door to 105 inside	11	10	1	65	2
Light switch back left	14	10	4	65	6
Data/voice outlets	15	10	5	65	8
Window sill and frame	16	10	6	65	9
Heater vents	11	10	1	65	2
Doors of wall cabinet 1	7	10	0	65	0
Shelves of cabinet 1	16	10	6	65	9
Doors of wall cabinet 2	14	10	4	65	6
Shelves of cabinet 2	12	10	2	65	3
Doors of wall cabinet 3	14	10	4	65	6
Shelves of cabinet 3	11	10	1	65	2
Doors of wall cabinet 4	10	10	0	65	0
Shelves of cabinet 4	10	10	0	65	0
Doors of wall cabinet 5	11	10	1	65	2
Shelves of cabinet 5	12	10	2	65	3
Doors of wall cabinet 6	15	10	5	65	8
Shelves of cabinet 6	15	10	5	65	8
Doors of wall cabinet 7	12	10	2	65	3
Shelves of cabinet 7	15	10	5	65	8
Countertop	10	10	0	65	0
Cupboard drawers outside	11	10	1	65	2
Cupboard drawers inside	11	10	1	65	2
Walls front and left	15	10	5	65	8
Walls back and right	13	10	3	65	5
Floor drain	14	10	4	65	6
Floor front	14	10	4	65	6
Floor center	12	10	2	65	3
Floor back	12	10	2	65	3
C-14 standard	104,039				
<b>END OF SURVEYS G106</b>					

Permissible limit < 220 dpm per 100 square cm.

**G106** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached. Background = 0.01 - 0.03 mRem per hour.

Surveys of all room areas = 0.01 - 0.03 mRem per hour.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**GODDARD HALL, ROOM 107, ROOM SIZE 100 square meters**

<b>Isotope: H-3</b>					
<b>Survey Date: June 29, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Main door outside	10	10	0	65	0
Main door inside	10	10	0	65	0
Light switch front	11	10	1	65	2
Sink disposal switch	10	10	0	65	0
Data/voice outlet	10	10	0	65	0
Electrical outlets	13	10	3	65	5
Air conditioner left	11	10	1	65	2
Air conditioner right	12	10	2	65	3
Window sill and frame	15	10	5	65	8
Heater vents side	7	10	0	65	0
Heater vents back	7	10	0	65	0
Bulletin board	9	10	0	65	0
Doors of wall cabinet	16	10	6	65	9
Shelves of wall cabinet	12	10	2	65	3
Floor cabinet doors left	14	10	4	65	6
Floor cabinet shelves left	11	10	1	65	2
Floor cabinet doors right	14	10	4	65	6
Floor cabinet shelves right	11	10	1	65	2
Countertop left	9	10	0	65	0
Cupboard doors left	8	10	0	65	0
Cupboard shelves left	13	10	3	65	5
Countertop right	9	10	0	65	0
Cupboard doors right	8	10	0	65	0
Cupboard shelves right	14	10	4	65	6
Walls front and left	11	10	1	65	2
Walls back and right	13	10	3	65	5
Floor drain	10	10	0	65	0
Floor front left	15	10	5	65	8
Floor front center	7	10	0	65	0
Floor front right	10	10	0	65	0
Floor back left	10	10	0	65	0
Floor back center	9	10	0	65	0
Floor back right	7	10	0	65	0
C-14 standard	104,039				
<b>END OF SURVEYS G107</b>					

Permissible limit < 220 dpm per 100 square cm.

**G107** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached.  
Background = 0.01 - 0.03 mRem per hour.  
Surveys of all room areas = 0.01 - 0.03 mRem per hour.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**GODDARD HALL, ROOM 208, ROOM SIZE 37 square meters**

<b>Isotope: C-14</b>					
<b>Survey Date: July 14, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Main door outside	13	11	2	93	2
Main door inside	15	11	4	93	4
Light switch	21	11	10	93	11
Fire extinguisher	12	11	1	93	1
Metal floor cabinet	18	11	7	93	8
Front table	17	11	6	93	6
File cabinet drawers	19	11	8	93	9
Refrigerator outside	15	11	4	93	4
Refrigerator inside	13	11	2	93	2
Front/right cabinet top	17	11	6	93	6
Front/right cabinet doors	15	11	4	93	4
Front/right cabinet shelves	12	11	1	93	1
Front benchtop	15	11	4	93	4
Front/left cabinet top	11	11	0	93	0
Front/left cabinet drwrs 1	23	11	12	93	13
Front/left cabinet drwrs 2	19	11	8	93	9
Front/left cabinet drwrs 3	23	11	12	93	13
Heating vents	15	11	4	93	4
Window sill and frame	21	11	10	93	11
Side benchtop	17	11	6	93	6
Side bench left drawers	8	11	0	93	0
Side bench right drawers	11	11	0	93	0
Wall shelves, side	21	11	10	93	11
Pegboard	14	11	3	93	3
Electrical outlets	13	11	2	93	2
Small storage cabinet	18	11	7	93	8
Tall bookcase	12	11	1	93	1
Wall shelves, front	13	11	2	93	2
Wooden table	11	11	0	93	0
Wall storage cabinet	13	11	2	93	2
Glass cabinet doors	15	11	4	93	4
Glass cabinet shelves	15	11	4	93	4
Hampdon Engr instrument	12	11	1	93	1
Walls front and left	15	11	4	93	4
Walls back and right	15	11	4	93	4
Floor front	10	11	0	93	0
Floor center	15	11	4	93	4
Floor back	18	11	7	93	8
C-14 standard	104,288				
<b>END OF SURVEYS G208</b>					

Permissible limit < 220 dpm per 100 square cm.

**G208** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached. Background = 0.01 - 0.03 mRem per hour. Surveys of all room areas = 0.01 - 0.03 mRem per hour.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**GODDARD HALL, ROOM 220, ROOM SIZE 90 square meters**

<b>Isotope: C-14</b>					
<b>Survey Date: July 14, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Main door outside	17	11	6	93	6
Main door inside	16	11	5	93	5
Light switch	21	11	10	93	11
Fire extinguisher	15	11	4	93	4
Front office door	8	11	0	93	0
Blackboard and tray	23	11	12	93	13
Alcove door	16	11	5	93	5
Fume hood floor	19	11	8	93	9
Fume hood walls	20	11	9	93	10
Fume hood sash	19	11	8	93	9
Cabinets below hood, left	14	11	3	93	3
Cabinets below hood, right	15	11	4	93	4
Whiteboard and tray	18	11	7	93	8
Bulletin board left wall	16	11	5	93	5
Heating vents	21	11	10	93	11
Air conditioners	12	11	1	93	1
Window sill and frame	22	11	11	93	12
Back sink	14	11	3	93	3
Overhead projector	15	11	4	93	4
Projector cart	17	11	6	93	6
Back office door	20	11	9	93	10
Teaching podium	15	11	4	93	4
Gas/air outlets	24	11	13	93	14
Electrical outlets	18	11	7	93	8
Benchtop	16	11	5	93	5
Bench drawers	20	11	9	93	10
Bench cupboard doors	17	11	6	93	6
Bench cupboard shelves	14	11	3	93	3
Front sink	10	11	0	93	0
Bulletin board right wall	16	11	5	93	5
Chairs front and left	20	11	9	93	10
Chairs back and right	17	11	6	93	6
Tables front	10	11	0	93	0
Tables left	18	11	7	93	8
Tables back	20	11	9	93	10
Tables right	10	11	0	93	0
Walls front and left	16	11	5	93	5
Walls back and right	20	11	9	93	10
Floor front left	17	11	6	93	6
Floor front right	14	11	3	93	3
Floor center left	17	11	6	93	6
Floor center right	16	11	5	93	5
Floor back left	19	11	8	93	9
Floor back right	22	11	11	93	12
<b>C-14 standard</b>	<b>104,288</b>				
<b>END OF SURVEYS G220</b>					

Permissible limit < 220 dpm per 100 square cm.

**G220** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached.  
Background = 0.01 - 0.03 mRem per hour.  
Surveys of all room areas = 0.01 - 0.03 mRem per hour.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**MEDIA CENTER, ROOM 218, ROOM SIZE 14 square meters**

<b>Isotope: S-35</b>					
<b>Survey Date: July 7, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Door outside	15	19	0	93	0
Door inside	16	19	0	93	0
Light switch	19	19	0	93	0
Fume hood floor	20	19	1	93	1
Fume hood walls	19	19	0	93	0
Fume hood sash	15	19	0	93	0
Power switch to hood	24	19	5	93	5
Control knobs to hood	16	19	0	93	0
Cupboard below hood	21	19	2	93	2
Side benchtop	23	19	4	93	4
Side bench right drawers	29	19	10	93	11
Side bench center drawers	10	19	0	93	0
Side bench left drawers	14	19	0	93	0
Side bench cupboards	23	19	4	93	4
Wall shelves above bench	24	19	5	93	5
Sink	22	19	3	93	3
Cupboards below sink	14	19	0	93	0
Drying rack above sink	20	19	1	93	1
Back benchtop	19	19	0	93	0
Back bench drawers	16	19	0	93	0
Doors of wall cabinet 1	11	19	0	93	0
Shelves of wall cabinet 1	13	19	0	93	0
Doors of wall cabinet 2	19	19	0	93	0
Shelves of wall cabinet 2	20	19	1	93	1
Shelves of wall cabinet 3	17	19	0	93	0
Shelves of wall cabinet 4	14	19	0	93	0
Shelves of wall cabinet 5	19	19	0	93	0
Chairs	17	19	0	93	0
Thermostat	25	19	6	93	6
Power switch to AC	11	19	0	93	0
Floor front	12	19	0	93	0
Floor center	19	19	0	93	0
Floor back	16	19	0	93	0
Floor below benchtop	13	19	0	93	0
Electrical outlets	13	19	0	93	0
Data/voice outlet	18	19	0	93	0
Air vents	18	19	0	93	0
Gas vents	16	19	0	93	0
Window sill and frame	15	19	0	93	0
Blackboard and tray	18	19	0	93	0
Walls front and left	17	19	0	93	0
Walls back and right	20	19	1	93	1
C-14 standard	104,484				
<b>END OF SURVEYS M218</b>					

Permissible limit < 220 dpm per 100 square cm.

**M218** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached. Background = 0.01 - 0.03 mRem per hour. Surveys of all room areas = 0.01 - 0.03 mRem per hour.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**MEDIA CENTER, ROOM 219, ROOM SIZE 23 square meters**

<b>Isotope: S-35</b>					
<b>Survey Date: July 7, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Door to 217 outside	21	19	2	93	2
Door to 217 inside	15	19	0	93	0
Light switch left wall	18	19	0	93	0
Light switch right wall	24	19	5	93	5
Thermostat	20	19	1	93	1
Data/voice outlet	17	19	0	93	0
Electrical outlets	19	19	0	93	0
Door to 220 outside	13	19	0	93	0
Door to 220 inside	14	19	0	93	0
Pencil sharpener	24	19	5	93	5
Drying rack above sink	14	19	0	93	0
Papertowel dispenser	20	19	1	93	1
Wooden table	16	19	0	93	0
Air vents	18	19	0	93	0
Gas vents	18	19	0	93	0
Shelves of wall cabinet 1	11	19	0	93	0
Shelves of wall cabinet 2	21	19	2	93	2
Shelves of wall cabinet 3	19	19	0	93	0
Ledge above lab bench	10	19	0	93	0
Benchtop	16	19	0	93	0
Bench cupboard doors	17	19	0	93	0
Bench cupboard shelves	10	19	0	93	0
Bench drawers outside	23	19	4	93	4
Bench drawers inside	18	19	0	93	0
Side panels beside sink	19	19	0	93	0
Sink cupboard left door	16	19	0	93	0
Sink cupboard left shelves	22	19	3	93	3
Sink cupboard right door	16	19	0	93	0
Sink cupboard right shelves	19	19	0	93	0
Water filtration and still	16	19	0	93	0
Wall shelves beside still	20	19	1	93	1
Centrifuge	18	19	0	93	0
Chairs	16	19	0	93	0
Fire extinguisher	14	19	0	93	0
Walls front and left	20	19	1	93	1
Walls back and right	17	19	0	93	0
Floor front	19	19	0	93	0
Floor center	19	19	0	93	0
Floor back	20	19	1	93	1
C-14 standard	104,484				
<b>END OF SURVEYS M219</b>					

Permissible limit < 220 dpm per 100 square cm.

**M219** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached.

Background = 0.01 - 0.03 mRem per hour.

Surveys of all room areas = 0.01 - 0.03 mRem per hour.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**MEDIA CENTER, ROOM 220, ROOM SIZE 29 square meters**

<b>Isotope: S-35</b>					
<b>Survey Date: July 7, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Door to hallway outside	14	19	0	93	0
Door to hallway inside	13	19	0	93	0
Light switch front	16	19	0	93	0
Light switch back	18	19	0	93	0
Thermostat	25	19	6	93	6
Cabinet 1 right side	22	19	3	93	3
Cabinet 2 right side	13	19	0	93	0
Glass cabinet doors	18	19	0	93	0
Glass cabinet shelves	23	19	4	93	4
Cabinet 3 left side	12	19	0	93	0
Freezer outside	19	19	0	93	0
Freezer inside	19	19	0	93	0
Refrigerator outside	18	19	0	93	0
Refrigerator inside door	16	19	0	93	0
Refrigerator inside shelves	15	19	0	93	0
Refrigerator inside drawers	15	19	0	93	0
Chair	10	19	0	93	0
Data/voice outlet	12	19	0	93	0
Electrical outlets	13	19	0	93	0
Air filter	15	19	0	93	0
Door to incubator	20	19	1	93	1
Walls	18	19	0	93	0
Floor by cabinets	16	19	0	93	0
Floor by EC	12	19	0	93	0
EC control panel	19	19	0	93	0
EC door outside	16	19	0	93	0
EC door inside	15	19	0	93	0
EC light switch	18	19	0	93	0
EC cupboards above sink	10	19	0	93	0
EC ledge above sink	17	19	0	93	0
EC sink	15	19	0	93	0
EC benchtop left	17	19	0	93	0
EC benchtop right	13	19	0	93	0
EC drawers left	22	19	3	93	3
EC drawers right	19	19	0	93	0
EC cupboard below sink	17	19	0	93	0
EC storage rack	16	19	0	93	0
EC walls	20	19	1	93	1
EC floor front	15	19	0	93	0
EC floor back	13	19	0	93	0
C-14 standard	104,484				
<b>END OF SURVEYS M220</b>					

Permissible limit < 220 dpm per 100 square cm.

EC = temperature-regulated environmental chamber

**M220** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached.

Background = 0.01 - 0.03 mRem per hour.

Surveys of all room areas = 0.01 - 0.03 mRem per hour.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**MEDIA CENTER, ROOM 220A, ROOM SIZE 7.5 square meters**

<b>Isotope: S-35</b>					
<b>Survey Date: July 13, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Door outer surface	24	13	11	93	12
Door outer knob	19	13	6	93	6
Door inner surface	19	13	6	93	6
Door inner knob	10	13	0	93	0
Light switch	12	13	0	93	0
Phone outlet	12	13	0	93	0
Data outlet	19	13	6	93	6
Electrical outlet 1	19	13	6	93	6
Electrical outlet 2	17	13	4	93	4
Electrical outlet 3	17	13	4	93	4
Electrical outlet 4	11	13	0	93	0
Electrical outlet 5	15	13	2	93	2
Blackboard surface	23	13	10	93	11
Blackboard tray	20	13	7	93	8
Chair 1	19	13	6	93	6
Chair 2	19	13	6	93	6
Chair 3	19	13	6	93	6
Desk 1 top surface	12	13	0	93	0
Desk 1 drawer 1 outside	16	13	3	93	3
Desk 1 drawer 1 inside	21	13	8	93	9
Desk 1 drawer 2 outside	15	13	2	93	2
Desk 1 drawer 2 inside	22	13	9	93	10
Desk 1 open shelf	10	13	0	93	0
Desk 2 top surface	24	13	11	93	12
Desk 2 left drawers outside	16	13	3	93	3
Desk 2 left drawers inside	16	13	3	93	3
Desk 2 right drawers outside	15	13	2	93	2
Desk 2 right drawers inside	22	13	9	93	10
Desk 2 tray	18	13	5	93	5
Walls front and left	14	13	1	93	1
Walls back and right	16	13	3	93	3
Floor front	13	13	0	93	0
Floor center	20	13	7	93	8
Floor back	17	13	4	93	4
C-14 standard	104,338				
<b>END OF SURVEYS M220A</b>					

Permissible limit < 220 dpm per 100 square cm.

**M220A** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached.

Background = 0.01 - 0.03 mRem per hour.

Surveys of all room areas = 0.01 - 0.03 mRem per hour.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**MEDIA CENTER, ROOM 220B, ROOM SIZE 7.5 square meters**

<b>Isotope: S-35</b>					
<b>Survey Date: July 13, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Door outer surface	10	13	0	93	0
Door outer knob	17	13	4	93	4
Door inner surface	11	13	0	93	0
Door inner knob	15	13	2	93	2
Light switch	19	13	6	93	6
Light table	18	13	5	93	5
Light meter case 1	14	13	1	93	1
Light meter 1	11	13	0	93	0
Light meter case 2	12	13	0	93	0
Light meter 2	13	13	0	93	0
Camera case (empty)	22	13	9	93	10
Speedlight case	11	13	0	93	0
Speedlight	18	13	5	93	5
Photoflash case	11	13	0	93	0
Photoflash	19	13	6	93	6
Chair 1	15	13	2	93	2
Chair 2	14	13	1	93	1
Chair 3	19	13	6	93	6
Data/voice outlets	12	13	0	93	0
Electrical outlets	19	13	6	93	6
Power switch back wall	17	13	4	93	4
Gas outlet	20	13	7	93	8
Countertop	12	13	0	93	0
Heating vents	16	13	3	93	3
Wooden table 1	20	13	7	93	8
Wooden table 2	16	13	3	93	3
Walls front and left	18	13	5	93	5
Walls back and right	19	13	6	93	6
Storage rack top shelves	13	13	0	93	0
Storage rack btm shelves	14	13	1	93	1
Floor front	18	13	5	93	5
Floor center	18	13	5	93	5
Floor back	20	13	7	93	8
C-14 standard	104,338				
<b>END OF SURVEYS M220B</b>					

Permissible limit < 220 dpm per 100 square cm.

**M220B** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached. Background = 0.01 - 0.03 mRem per hour. Surveys of all room areas = 0.01 - 0.03 mRem per hour.

**EASTERN CONNECTICUT STATE UNIVERSITY  
SAFETY SURVEYS OF LABORATORY FACILITIES**

**MEDIA CENTER, ROOM 222, ROOM SIZE 55 square meters**

<b>Isotope: S-35</b>					
<b>Survey Date: July 13, 2009 Additional surveys required for decommissioning.</b>					
<b>ITEM</b>	<b>CPM</b>	<b>BKG</b>	<b>CPM&gt;BKG</b>	<b>%EFF</b>	<b>DPM</b>
Door outside	19	13	6	93	6
Door inside	20	13	7	93	8
Light switch	17	13	4	93	4
Thermostat	20	13	7	93	8
Pencil sharpener	17	13	4	93	4
Intercom phone	20	13	7	93	8
Wash station	18	13	5	93	5
First aid kit	18	13	5	93	5
Fire blanket case	16	13	3	93	3
Wooden shelves near sink	15	13	2	93	2
Sink	16	13	3	93	3
Paper towel dispensers	14	13	1	93	1
Drying rack above sink	12	13	0	93	0
Counter left of sink	13	13	0	93	0
Counter right of sink	12	13	0	93	0
Sink cupboard doors	17	13	4	93	4
Sink cupboard shelves	19	13	6	93	6
Fire extinguisher	14	13	1	93	1
Desk	22	13	9	93	10
Data/voice outlets	18	13	5	93	5
Electrical outlets	11	13	0	93	0
Doors of wall cabinet 1	14	13	1	93	1
Shelves of wall cabinet 1	15	13	2	93	2
Doors of wall cabinet 2	19	13	6	93	6
Shelves of wall cabinet 2	11	13	0	93	0
Gas outlets	18	13	5	93	5
Ledge along back wall	16	13	3	93	3
Benchtop back	21	13	8	93	9
Benchtop side	17	13	4	93	4
Walls front and left	20	13	7	93	8
Walls back and right	19	13	6	93	6
Chairs front	14	13	1	93	1
Chairs back	19	13	6	93	6
Wooden table side	14	13	1	93	1
Wooden table front	20	13	7	93	8
Blackboard and tray	15	13	2	93	2
Bulletin boards	15	13	2	93	2
Floor front left	19	13	6	93	6
Floor front right	16	13	3	93	3
Floor center left	20	13	7	93	8
Floor center right	19	13	6	93	6
Floor back left	22	13	9	93	10
Floor back right	17	13	4	93	4
C-14 standard	104,338				
<b>END OF SURVEYS M222</b>					

Permissible limit < 220 dpm per 100 square cm.

**M222** was completely scanned, including the specific areas listed above, with our Geiger-Mueller survey instrument, calibrated on May 26, 2009. Calibration certificate is attached.  
Background = 0.01 - 0.03 mRem per hour.  
Surveys of all room areas = 0.01 - 0.03 mRem per hour.