



NMSB2

January 3, 2008

LICENSING ASSISTANT SECTION
NUCLEAR MATERIALS SAFETY BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD

KING OF PRUSSIA, PA 19406-1415

RE: Upstate Group, Inc. U.S. Nuclear Regulatory Commission
Material License No. 45-25402-01, Docket No. 030-34493

Dear Sir or Madam:

I am writing to you as a result of discussion with Mr. Stephen Courtemanche (610-337-5075) and with regards to the expiration of the U.S. NRC Material License No. 45-25402-01 for the Upstate Group, Inc. facility that had been located at 706 forest Street, Suite 1, Charlottesville, VA 22903. Please find attached NRC FORM 314 Certificate of Disposition of Material and a copy of the radiation survey result.

In March 2007, Millipore Corporation closed this facility and all associated radioactive sources have been disposed of via a waste contractor. Upstate Group, Inc, occupied approximately 12,000 sq. ft. and the site was located in a light industrial, commercial and residential area to the northwest of downtown Charlottesville. Radioactive sources were not used in conjunction with volatile organic compounds nor disposed of via the sanitary sewer. Before exiting the facility a Final Status Survey (FSS) was conducted by a 3rd party and found to be acceptable for unrestricted use.

If there are any questions regarding this letter or the attachments, please feel free to contact me at 978-715-1710 or at the address listed below.

Sincerely,


Mitch Fonda
Director, Environment Health Safety
978-715-1710

Attachments

Millipore Corporation
290 Concord Road
Billerica, MA 01821
U.S.A.
978-715-4321

2008 JAN -4 AM 9:40
RECEIVED
REGION I

NMSS/RGN1 MATERIALS-002

CERTIFICATE OF DISPOSITION OF MATERIALS

Estimated burden per response to comply with this mandatory collection request: 30 minutes. This submittal is used by NRC as part of the basis for its determination that the facility is released for unrestricted use. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0028), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE NAME AND ADDRESS

Upstate Group, Inc

706 Forest Street, Suite 1

CHARLOTTESVILLE, VA 22903

LICENSE NUMBER

45-25402-01

DOCKET NUMBER

030-34493

LICENSE EXPIRATION DATE

08/31/2007 *11/30/2007*

- ☒ This license has expired. ☐ This license has not yet expired; please terminate it.

A. LICENSE STATUS (Check the appropriate box)

B. DISPOSAL OF RADIOACTIVE MATERIAL

(Check the appropriate boxes and complete as necessary. If additional space is needed, provide attachments)

The licensee, or any individual executing this certificate on behalf of the licensee, certifies that:

- ☐ 1. No radioactive materials have ever been procured or possessed by the licensee under this license.
- ☒ 2. All activities authorized by this license have ceased, and all radioactive materials procured and/or possessed by the licensee under this license number cited above have been disposed of in the following manner:
- ☐ a. Transfer of radioactive materials to the licensee listed below:
- ☒ b. Disposal of radioactive materials:
- ☐ 1. Directly by the licensee:
- ☐ 2. By licensed disposal site:
- ☒ 3. By waste contractor:
- Contractor - Ecology Services, Inc., 10220 Old Comunbia Rd., Columbia, MD 21046,**
Phone: 410-381-2600
- ☐ c. All radioactive materials have been removed such that any remaining residual radioactivity is within the limits of 10 CFR Part 20, Subpart E, and is ALARA.

C. SURVEYS PERFORMED AND REPORTED

- ☒ 1. A radiation survey was conducted by the licensee. The survey confirms:
- ☒ a. the absence of licensed radioactive materials
- ☐ b. that any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA.
- ☒ 2. A copy of the radiation survey results:
- ☒ a. is attached; or ☐ b. is not attached (Provide explanation); or ☐ c. was forwarded to NRC on: _____ Date
- ☐ 3. A radiation survey is not required as only sealed sources were ever possessed under this license, and
- ☐ a. The results of the latest leak test are attached; and/or ☐ b. No leaking sources have ever been identified.

The person to be contacted regarding the information provided on this form:

NAME Mitch Fonda	TITLE Director, EHS	TELEPHONE (Include Area Code) (978) 715-1710	E-MAIL ADDRESS mitch.fonda@millipore.com
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Mail all future correspondence regarding this license to:
Millipore Corporation, 290 Concord Rd, Billerica, MA 01821

C. CERTIFYING OFFICIAL

I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE

Mitch Fonda

SIGNATURE

DATE

01/02/2008

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECT. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.



**ECOLOGY
SERVICES, INC.**

FINAL STATUS SURVEY (FSS)

for

Upstate Group, Inc. / Millipore

706 Forest Street

Charlottesville, VA 22903

Prepared by:

ECOLOGY SERVICES, INC.

10220 OLD COLUMBIA ROAD

COLUMBIA, MD 21046

**ECOLOGY
SERVICES, INC.**

FINAL STATUS SURVEY (FSS)
FOR
UPSTATE GROUP, INC. NOW PART OF MILLIPORE
706 FOREST STREET, CHARLOTTESVILLE, VA 22903

I. INTRODUCTION

A. Site Information:

1. Upstate Group/Millipore is closing the location in Charlottesville, VA and needs to terminate its radioactive materials license.
2. A final status survey was performed to determine whether this facility is acceptable for unrestricted release.

B. Site History

A review of their Radioactive Material License issued by The Nuclear Regulatory Commission (NRC) reveals that there are only four isotopes of concern (^3H , ^{35}S , ^{32}P , ^{33}P) and there is no provision for any alpha or positron emitters. Other isotopes used in the past were ^{14}C , ^{51}Cr , and ^{125}I . These were removed from the license in 2003. In addition a ^{137}Cs irradiator added in 1998, was removed in 2004. All license activity is itemized in part 17 of attachment 1. Furthermore the Radiation Safety Officer (RSO) informed Ecology Services, Inc. (ESI) that he was the last user of material and terminated use in 2002. ESI determined, due to the isotopes and authorized activities that a MARSSIM Appendix B Simplified survey should apply. Any remaining radioactive material was disposed through ESI to approved licensed processing facilities (Attachment 2). Preliminary surveys performed by the RSO revealed no contamination fixed or removable.

C. Release Criterion

1. The release criterion, against which the survey findings will be applied, will be those specified by the NRC (10 CFR §20 Subpart E) Specifically:

The site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a TEDE to an average member of the critical group that does not exceed 25 mrem per year, and that the residual radioactivity has been reduced to levels that are as low as reasonably achievable (ALARA).

2. For removable and surficial contamination, this release criterion will be translated into Derived Concentration Guideline Levels (DCGLs) for the identified potential contaminants using the DandD software program (version 2.1.0) and the Building Occupancy Scenario (using default parameters). As a conservative measure, DCGLs were calculated for a TEDE of 1 mrem rather than 25 mrem. It should be understood then, that the DCGLs could be exceeded by a factor of 25 and still remain in compliance with the NRC release criteria.

D. Study Boundaries

The final status survey is restricted to the interior of the facility, the laboratory and radioactive waste storage closet occupied by Upstate Group, Inc. at 706 Forest St., Charlottesville, VA.

E. Decision Rule

1. The parameters of interest in determining whether the survey results satisfy the release criteria will be the DCGLs for surficial contamination.

2. Survey Units will be evaluated using three methods, each being used to determine fixed or removable contamination levels which will be evaluated against the DCGLs.

TABLE 1 - EVALUATION METHODS	
EVALUATION METHOD	PARAMETER IDENTIFIED
Scanning Surveys.	Fixed and Removable Contamination
Static Measurements at selected points.	Fixed and Removable Contamination
Wipe sample measurements.	Removable Contamination

II. SURVEY PLANNING AND DESIGN

Survey planning and procedures were in accordance with the NRC NUREG 1575 "Multi-Agency Radiation Survey and Site Investigation Manual" (MARSSIM), Draft Regulatory Guide DG-4006, "Demonstrating Compliance with the Radiological Criteria for License Termination", U.S. NRC, August 1998., and NUREG - 1757, Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licensees, Vol. 1&2, September, 2002.

This FSS is designed for a Group 2 facility. This is a facility that may have residual radiological contamination present on building surfaces. However, the licensee is able to demonstrate that his facility meets the provisions of 10 CFR 20.1402 ("Radiological Criteria for Unrestricted Use") by applying the screening approach to dose analysis. (NUREG 1757, Chapter 6) Additionally, the licensee possesses historical records of material receipt, use, and disposal, such that quantifying past radiological material possession and use may be developed with a high degree of confidence. Furthermore, the licensee has radiological survey records that characterize the residual radiological contamination levels present within the facility and at their site. That is, he is able to demonstrate residual radiological contamination levels without more sophisticated survey procedures (greater than those used for operational surveys) or dose modeling. The licensee does not need to use site-specific parameters or establish site-specific DCGLs in order to demonstrate acceptability for release of the site.

The licensee has verified that all of the following site conditions exist:

A Building Surface Contamination

- The contamination on building surfaces (e.g., walls, floors, ceilings) is surficial and non-volumetric (e.g., < 10 mm (0.4 in)).
- Contamination on surfaces is mostly fixed (not loose), with the fraction of loose contamination not to exceed 10 percent of the total surface activity.
- The screening criteria will not be applied to surfaces such as buried structures (e.g., drainage or sewer pipes) or mobile equipment within the building; such structures and buried surfaces will be treated on a case-by-case basis.

B ALARA (As Low As Reasonably Achievable) Considerations

In order to terminate a license, a licensee must demonstrate that the release criteria have been met and must demonstrate whether it is feasible to further reduce the levels of residual radioactivity to levels below those necessary to meet the release criteria (i.e. to levels that are "as low as reasonably achievable" (ALARA). However, explicit analyses do not have to be done for areas where no residual radioactivity distinguishable from background has been found. If residual radioactivity cannot be detected, it may be assumed that it has been reduced to levels that are ALARA [NRC Draft Reg Guide 4006, Sec 3.]

Impacted Areas: Impacted areas are identified by using knowledge of past site operations together with site characterization surveys. In the Final Status Survey (FSS), radiation surveys do not need to be conducted in non-impacted areas.

- *Impacted areas* are areas that may have residual radioactivity from the licensed activities.
- *Non-impacted areas* are areas without residual radioactivity from licensed activities.

Area Classification: Impacted areas were classified into one of the three classes, listed below, based on levels of residual radioactivity. Impacted areas were classified into only one class, listed below, based on its levels of residual radioactivity.

- **Class 1 Areas** are impacted areas that, prior to remediation, are expected to have concentrations of residual radioactivity that exceed the DCGLw. (DCGLw is defined in Section 2.2 of MARSSIM);
- **Class 2 Areas** are impacted areas that, prior to remediation, are not likely to have concentrations of residual radioactivity that exceed the DCGLw;
- **Class 3 Areas** are impacted areas that have a low probability of containing residual radioactivity.

Surveys conducted during operations or during characterization at the start of decommissioning are the basis for classifying areas. If the available information was not sufficient to designate an area as a particular class, the area was classified as Class 1.

Area Classifications for the facility will be as shown in Table 2 below:

TABLE 2 – Area Classifications	
Location	Area Classification
Applied Cell Sciences Laboratory	Class 1
Hallways & adjacent rooms	Non-Impacted

Potential Radionuclides

The radionuclides authorized under the licensee's NRC license 45-25402-01 (attachment 1) are the following after taking into consideration decay from 2002 for shorter lived nuclides and the possibility of contamination from removed isotopes:

Potential Radionuclides		
Radionuclide	Half-life	Possession Limits
14C	5,730 y	Unknown
35S	87 d	50 millicuries
3H	12.28 y	150 millicuries

Reference Grids

Grids will be established for the purpose of referencing locations of samples and measurements, relative to site features. A scale drawing of the survey unit will be prepared, along with an overlying planar reference coordinate system. Due to the size of the survey unit, a triangular grid pattern will be used. The number of survey locations from MARSSIM Appendix B will be applied (30).

Selection of Reference (Background) Areas

Background reference areas are needed for the MARSSIM method if (a) the residual radioactivity contains a radionuclide that occurs in background, or (b) the sample measurements to be made are not radionuclide-specific.

Reference areas for wipe samples will not be selected since it is assumed that all removable radioactivity in the survey unit is caused by licensed operations and none is from background. Instrument background measurements for fixed contamination surveys and scans will be taken in other surrounding hallways of similar construction with no history of radioactive materials use.

Meter Scan Requirements

Scanning of surfaces to identify locations of residual surface and near surface activity will be performed according to the following schedule:

- Class 1 Area Surfaces – 100% of surface
- Non-impacted Areas Surfaces – judgemental of available surface

TABLE 3 - REQUIRED MDC _{SCAN}	
Radionuclide	DCGL (dpm/100cm ²) for 1mRem TEDE
¹⁴ C	150,000
³⁵ S	505,000

The method used for β emitting radionuclides was that identified in MARSSIM [MARSSIM Sec 6.7.2.1] using the following

TABLE 4 - MDCSCAN COMMON PARAMETERS		
PARAMETER	ASSIGNED VALUE	DESCRIPTION
d'	1.38	Detectability value (95% false negatives and 60% false positives)
s	2	Observation Interval (1/2 probe width per second)
p	0.5	Efficiency of Surveyor
e _s	0.8	Surface Efficiency

TABLE 5 - INSTRUMENT MDC _{SCAN} BETA/GAMMA EMITTERS							
INSTRUMENT MAKE/MODEL	DETECTOR	ACTIVE AREA	BACKGROUND (CPM)	MDCR (NET CPM)	RADIO-NUCLIDE	EFFICIENCY (4 π)	MDCSCAN dpm/100cm ²
Ludlum Model 2221	43-68	100	336	139	¹⁴ C	5.4%	4,536

This analysis shows that all instruments selected for scanning meet or exceed the required MDC scanning sensitivity requirements.

Calculation of MDC_{static}

- The actual MDC_{static} for the instrumentation selected has been calculated for the limiting radionuclides potentially present as shown below. The calculations were made with the RadCalcLE software program, version 1.0, 1999, using the MARSSIM method.

TABLE 6 - INSTRUMENT MDC _{STATIC}							
INSTRUMENT MAKE/MODEL	DETECTOR	ACTIVE AREA	BACKGROUND (CPM)	LD (NET CPM)	RADIO- NUCLIDE	EFFICIENCY (4 π)	MDC _{STATIC} dpm/100cm ²
Ludlum Model 2221	43-68	100	336	88	¹⁴ C	5.4%	1,635

- b. The results show that all instruments selected for static measurements meet or exceed the required MDC sensitivity requirements.

Scanning Coverage Fractions and Investigation Levels

- Scanning is performed to locate small areas of elevated concentrations of residual radioactivity to determine whether they meet the radiological criteria for license termination. Scanning will be performed in the survey unit to detect areas of elevated concentrations. Scanning coverage fractions and scanning investigation levels for buildings are shown in Table 7. (This table is based on MARSSIM Roadmap Tables 2 and 5.8.)

TABLE 7 - SCANNING COVERAGE FRACTIONS AND INVESTIGATION LEVELS		
Class	Scanning Coverage Fraction	Scanning Investigation Levels
1	100 percent	> DCGL _{EMC}
2	10 to 100 percent for soil and for floors and lower walls of buildings. 10 to 50 percent for upper walls and ceilings of buildings. Systematic and Judgemental	> DCGL _{EMC} or > MDC _{scan} if MDC _{scan} is greater than DCGL _w
3	Judgemental	> DCGL _{EMC} or > MDC _{scan} if MDC _{scan} is greater than DCGL _w

- Systematic scans are those conducted according to a preset pattern. Judgmental scans are those conducted to include areas with a greater potential for residual radioactivity. In Class 2 areas, a 10 percent scanning coverage would be appropriate when there is high confidence that all locations would be below the DCGL_w. A coverage of 25 percent to 50 percent would be appropriate when there may be locations with concentrations near the DCGL_w. A coverage of 100 percent would be appropriate if there is any concern that the area should have had a Class 1 classification rather than a Class 2 classification. In Class 3 areas, scanning coverage is usually less than 10 percent. If any location exceeds the scanning investigation level, scanning coverage in the vicinity of that location should be increased to delineate the elevated area.

III. CONDUCT OF THE SURVEYS

- Area Classifications. Established in Table 2
- Reference Areas. A Reference Area Survey was conducted in the hallway areas to establish background levels. (Using a Ludlum Model 43-68 detector) See Attachment 3.
- Calibration and background determinations were done as stated in the planning documents.
- Scan Surveys. All Class 1 areas were scanned using large area gas proportional detectors for β/γ emitting radionuclides. Coverage fractions by area class are shown in Table 8.

TABLE 8 - SCANNING COVERAGE			
Class	Survey Type	Detector	Scanning Coverage Fraction
1	β/γ Scan	Ludlum 43-68	100 percent including countertops
3	β/γ Scan	Ludlum 43-68	50 percent including countertops

E. Static Measurement Surveys.

1. Reference locations were applied to Class 1 area floor surfaces as stated in F. below. These were not applied to Class 3 areas. Static Survey measurements were taken at each coordinate location. See Table 3. Results of Static Survey measurements are shown in Attachment 3

TABLE 9 - STATIC SURVEY COVERAGE			
Class	Survey Type	Detector	Scanning Coverage Fraction
1	β/γ Static	43-68	Grid Intervals

2. Wipe Samples for removable contamination were taken at each coordinate location in the Class 1 Area. The wipe samples were evaluated at Ecology Services, Inc. using a liquid scintillation counter. Results of the wipe samples are shown in Attachment 3 & 4.

F. Measurement Locations.

1. A scale drawing of the survey unit was prepared, along with an overlying planar reference coordinate system. The number of survey locations was determined through default values in MARSSIM Appendix B during the survey planning and design. Due to the size of the survey unit, a triangular grid pattern was elected for 30 survey measurements.

IV. EVALUATION OF SURVEY RESULTS

- A. Reference Area Survey. Four measurements were taken using 1 meter grid intervals in the hallway area to be used as a background reference area survey for β/γ . Due to the distance of this area from the location of the storage area itself, it was considered likely that this area was free of contamination, which was subsequently verified.
- B. Scan Surveys. No areas of elevated activity were noted during any of the β/γ , scan surveys.
- C. Static Measurement Surveys.
 1. Wipe Samples. All wipe sample results were shown to be less than the DCGLs. (Attachment 4)
 2. Static Counts. All survey locations were less than MDC and do not exceed the DCGLs.

D. Comparison with Standards

1. **Surficial Contamination.**
 - a. All wipe sample data was shown to be below the DCGLs.
 - b. All scan data was determined to be less than the DCGL for 1 mrem/year.
 - c. All static measurement data, was shown to be below the DCGLs for 1 mrem/year.
2. **Volumetric Contamination.**
 - a. There is no evidence through the survey results or facility history that warrants the consideration for volumetric contamination.

V. DETERMINATION OF COMPLIANCE WITH STATE AND/OR FEDERAL STANDARDS

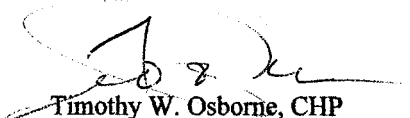
- A. Determination of compliance is conducted in two steps. The first is to review the measurement data to confirm that the survey units were properly classified. Since no Grids demonstrated contamination above the DCGL's, and volumetric constituents were not considered, the areas were properly classified.
- B. The second step is to determine whether the measurement results demonstrate that the survey units meet the radiological criteria for unrestricted release. The above analysis indicates that all areas are below the DCGL's, or that measured radiation levels are below the required standards. Therefore the null hypothesis is rejected and the survey units are acceptable.

VI. CONCLUSION

The laboratory occupied by Upstate Group, Inc. is acceptable for unrestricted release.

References:

- a. NUREG 1575, *Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)*, December 1997.
- b. Draft Regulatory Guide DG-4006, *Demonstrating Compliance with the Radiological Criteria for License Termination*, U.S. NRC, August 1998.
- c. NUREG - 1757, *Consolidated NMSS Decommissioning Guidance, Decommissioning Process for Materials Licensees*, Vol. 1&2, U.S. NRC, September, 2002.
- d. Decontamination and Decommissioning (DandD) software, U.S. NRC, Version 2.1.0
- e. Resrad-Build software, U.S. DOE, Version 3.21, September 2002.
- f. RadCalcLE, Ludlum Measurements Edition, Version 1.0, ©1999, RSA Publications.



Timothy W. Osborne, CHP
Project Manager

Attachments:

- 1 - Radioactive Material License
- 2 - Radioactive Material Shipment Record, NRC forms 540 & 541
- 3 - Facility Map w/instrument data
- 4 - Wipe Survey Results

ATTACHMENT 1

RADIOACTIVE MATERIAL LICENSE

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

Licensee		In accordance with the letter dated March 30, 2004, 3. License No. 45-25402-01 is amended in its entirety to read as follows:	
1. Upstate Group, Inc.		4. Expiration Date: November 30, 2007	
2. 706 Forest Street Suite 1 Charlottesville, Virginia 22903		5. Docket No. 030-34493	
6. Byproduct, source, and/or special nuclear material	7. Chemical and/or physical form	8. Maximum amount that licensee may possess at any one time under this license	
A. Hydrogen 3	A. Any	A. 150 millicuries	
B. Phosphorus 32	B. Any	B. 50 millicuries	
C. Sulfur 35	C. Any	C. 50 millicuries	
D. Phosphorus 33	D. Any	D. 25 millicuries	
9. Authorized use:			
A. through D. Research and development as defined in 10 CFR 30.4.			

CONDITIONS

10. Licensed material may be used or stored only at the licensee's facilities located at 706 Forest Street, Suite 1, Charlottesville, Virginia.
11. The Radiation Safety Officer for this license is Brad Hamilton, M.S.
12. Licensed material shall be used by, or under the supervision of, Max Qian, Ph.D., or Ron Herzig, Ph.D.
13. The licensee shall not use licensed material in or on human beings.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License No.

45-25402-01

Docket No.

030-34493

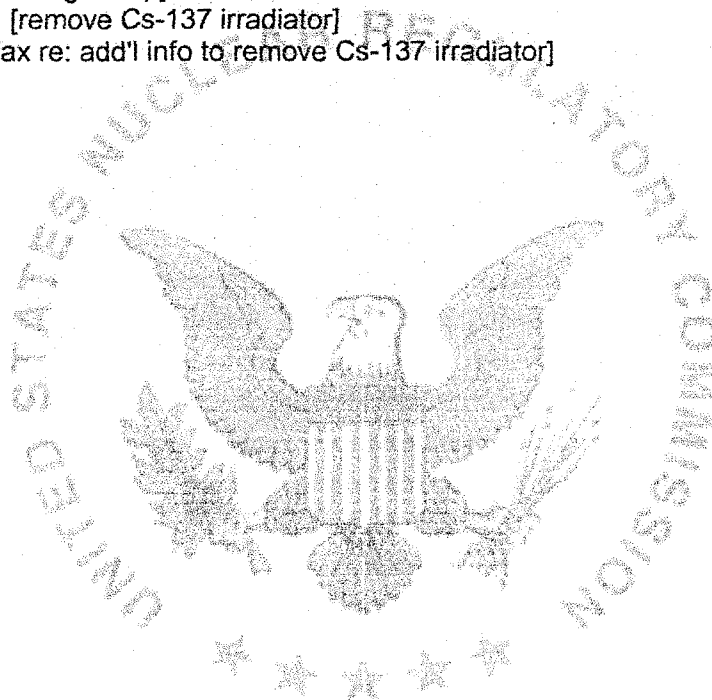
Amendment No. 10

14. The licensee shall not use licensed material in field applications where it is released except as provided otherwise by specific condition of this license.
15. The licensee is authorized to hold radioactive material with a physical half-life of less than or equal to 120 days for decay-in-storage before disposal in ordinary trash, provided:
- A. Waste to be disposed of in this manner shall be held for decay a minimum of 10 half-lives.
 - B. Before disposal as ordinary trash, the waste shall be surveyed at the container surface with the appropriate survey instrument set on its most sensitive scale and with no interposed shielding to determine that its radioactivity cannot be distinguished from background. All radiation labels shall be removed or obliterated.
 - C. A record of each such disposal permitted under this license condition shall be retained for three years. The record must include the date of disposal, the date on which the byproduct material was placed in storage, the radionuclides disposed, the survey instrument used, the background dose rate, the dose rate measured at the surface of each waste container, and the name of the individual who performed the disposal.
16. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."
17. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U. S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Application dated June 17, 1997
 - B. Letter dated September 30, 1997 [supplemental info about the licensee's Radiation Safety Program]
 - C. Letter dated October 30, 1997 [licensee's analysis of its effluent release procedures]
 - D. Letter dated March 23, 1998 [add self shielded irradiator (Cs-137) and supporting information]
 - E. Letter dated July 15, 1998 [additional information in support of the use of an irradiator]
 - F. Letter dated July 22, 1999 [name change; add C-14 use; change RSO (J. Fredrick); isotope lab use]
 - G. Letter dated October 28, 1999 [reduce possession limit for Cr-51 and add P-33]
 - H. Letter dated March 29, 2000 [remove/add authorized users]
 - I. Letter dated December 5, 2000 [change RSO, add/remove AUs]
 - J. Letter dated June 15, 2001 [add new RSO/user (Dr. Ramakrishna); delete RSO/user (D. Flyer)]
 - K. Letter dated July 20, 2001 [appointment letter for Dr. Ramakrishna]
 - L. Letter dated July 25, 2001 [add'l info re: RSO's training and experience; add Alt. RSO]
 - M. Letter dated March 7, 2002 [name change to Upstate Group, Inc.]

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License No.
45-25402-01Docket No.
030-34493

Amendment No. 10

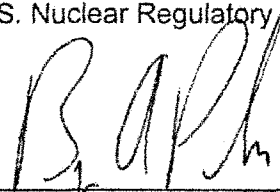
17. N. Letter dated May 13, 2002 [add R. Mangione as RSO; delete Dr. Ramakrishna as RSO/user]
O. Letter dated May 31, 2002 [add'l info re: new RSO's training and experience]
P. Letter dated September 5, 2003 [change RSO (B. Hamilton); delete user (Dr. Karns); add user (Dr. Qian); remove isotopes (C-14, Cr-51 & I-125)]
Q. Letter dated December 8, 2003 [fax re: updated letter dated 9/5/03 with add'l info for Mr. Hamilton's and Dr. Qian's training & exp]
R. March 30, 2004 [remove Cs-137 irradiator]
S. May 28, 2004 [fax re: add'l info to remove Cs-137 irradiator]



For the U. S. Nuclear Regulatory Commission

Date JUN - 8 2004

By


Bryan A. Parker
Nuclear Materials Safety Branch 3
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

ATTACHMENT 2

RADIOACTIVE MATERIAL SHIPMENT RECORD

FORM 540		Duratek, Inc. - Commercial Processing		5. SHIPPER - NAME AND FACILITY		SHIPPER I.D. NUMBER		7. FORM 540 AND 540A		PAGE 1 OF 1		8. MANIFEST NUMBER	
UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER				Upstate Group, Inc. Division of Millipore 704 Forest Street Charlottesville, VA 22903		NA		FORM 541 AND 541A		1 PAGE(S)		(Use this number on all continuation pages)	
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) 410-377-3742				USER PERMIT NUMBER NA		SHIPMENT NUMBER		COLLECTOR		2 PAGE(S)			
ORGANIZATION ECOLOGY SERVICES, INC				CONTACT Brad Hamilton		TELEPHONE NUMBER (Include Area Code) 434-220-8178		PROCESSOR		None PAGE(S)		UGI 61220-01	
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?				3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST		6. CARRIER - Name and Address		EPA I.D. NUMBER		9. CONSIGNEE - Name and Facility		CONTACT	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO				5		ECOLOGY SERVICES, INC. 10220 OLD COLUMBIA RD. COLUMBIA, MD 21046		Truck #: Trailer #:		RADIATION SERVICE ORGANIZATION, INC 5204 Minnick Road Laurel, MD 20707		David Wellner	
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT?				EPA MANIFEST NUMBER		CONTACT		SHIPPING DATE		SIGNATURE - Authorized consignee acknowledging waste receipt		TELEPHONE (Include Area Code)	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO						BRETT DANIELS		12/20/2006		[Signature]		410-792-7444	
11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)				12. DOT LABEL "RADIOACTIVE"		13. TRANSPORT INDEX		14. PHYSICAL AND CHEMICAL FORM		15. INDIVIDUAL RADIONUCLIDES		16. TOTAL PACKAGE ACTIVITY MBq	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910				NA		NA		SOLID : Salts and Proteins		H-3		4.5066E+01	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910				NA		NA		SOLID : Salts and Proteins		H-3		8.1400E+00	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910				NA		NA		LIQUID : Salts and Proteins		H-3		1.7316E+00	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910				NA		NA		SOLID : Salts and Proteins		Ba-133 Cs-137 H-3		1.8540E+02	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910				NA		NA		SOLID : Salts and Proteins		H-3		1.1100E-01	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910				NA		NA		SOLID : Salts and Proteins		H-3		3.7000E+00	
17. LSA/SCO CLASS				18. TOTAL WEIGHT OR VOLUME (Use appropriate units)		19. IDENTIFICATION NUMBER OF PACKAGE		20. GENERATOR CERTIFICATION STATEMENT		21. DATE		22. SIGNATURE	
NA				20 LBS; 2 FT3		UGI 02H186		A) Radioactive Materials. Certification is hereby made to Duratek, Inc. that this shipment of low-level radioactive material/waste has been prepared in accordance with radioactive waste management program which has been approved by the Nuclear Regulatory Commission or an Agreement State regulatory agency and with the current revision of the Duratek Material Acceptance Criteria.		12/20/06		[Signature]	
NA				21 LBS; 2 FT3		UGI 02H189		B) Hazardous Materials. Generator hereby certifies that this material does not contain a hazardous waste as defined in 40 CFR 261.					
NA				20 LBS; 0.68 FT3		UGI 02H190		C) Data. Generator hereby represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Duratek, Inc. State of Tennessee Radioactive Material Licenses.					
NA				14 LBS; 2 FT3		UGI 02H195							
NA				18 LBS; 2 FT3		UGI 98H007							
NA				14 LBS; 2 FT3		UGI 99H071							

UNIFORM LOW-LEVEL RADIOACTIVE
WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and
Disposal of Radioactive Waste

NUMBER OF PACKAGES/ DISPOSAL CONTAINERS		NET WASTE VOLUME		NET WASTE WEIGHT		1. MANIFEST TOTALS				2. MANIFEST NUMBER UGI 61220-01	
						SPECIAL NUCLEAR MATERIAL (grams)					
						U-233	U-235	Pu	Total		
6	m3	0.3023	kg	48.5343	NP	NP	NP	NP	3. PAGE 1 OF 2 PAGE(S)	4. SHIPPER NAME Upstate Group, Inc.	SHIPMENT ID NUMBER NA
	ft3	10.8800	lb	107.0000							
		ALL NUCLIDES		TRITIUM		ACTIVITY		SOURCE (kg)			
						C-14	Tc-99	I-129	(kg)		
MBq	2.4415E+02	2.4375E+02	NP	NP	NP	(kg)	NA				
mCi	6.5986E+00	6.5878E+00	NP	NP	NP	(lbs)	NA				

DISPOSAL CONTAINER DESCRIPTION						WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER						16. WASTE CLASSIFI- CATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C					
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER	6. CONTAINER DESCRIPTION (See Note 1) PROCESS REQUESTED (See Note 1A) BURIAL/DISPOSITION (See Note 2A)	7. VOLUME (m3) (R3)	8. WASTE AND CONTAINER WEIGHT (kg) (lb)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (MBq/100 cm2) (dpm/100cm2)		11. PHYSICAL DESCRIPTION (See Note 2)		12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)		13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)		14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT		15. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT		
					ALPHA	BETA- GAMMA											
UGI 02H186/UGI	19 CORRUGATED BOX	0.0566	9.0718		<3.6740E-06	<3.6740E-06	39		0.0566	100		Salts and Proteins/NP	NP	H-3 Subtotal Total	4.5066E+01 4.5066E+01 4.5066E+01	1.2180E+00 1.2180E+00 1.2180E+00	AU
UGI 02H189/UGI	19 CORRUGATED BOX	0.0588	9.5284		<3.6740E-06	<3.6740E-06	39		0.0566	100		Salts and Proteins/NP	NP	H-3 Subtotal Total	8.1400E+00 8.1400E+00 8.1400E+00	2.2000E-01 2.2000E-01 2.2000E-01	AU
UGI 02H190/UGI	19 CORRUGATED BOX <i>plastic pail</i>	0.0193	9.0718		<3.6740E-06	<3.6740E-06	25		0.0193	89 - VERMICULITE		Salts and Proteins/NP	NP	H-3 Subtotal Total	1.7316E+00 1.7316E+00 1.7316E+00	4.6800E-02 4.6800E-02 4.6800E-02	AU
UGI 02H195/UGI	19 CORRUGATED BOX	0.0566	8.3603		<3.6740E-06	<3.6740E-06	39		0.0566	100		Salts and Proteins/NP	NP	Ba-133 Cs-137 H-3 Subtotal Total	5.1060E-03 3.9590E-01 1.8500E+02 1.8540E+02	1.3800E-04 1.0700E-02 5.0000E+00 5.0108E+00	AU
UGI 98H007/UGI	19 CORRUGATED BOX	0.0566	8.1647		<3.6740E-06	<3.6740E-06	39		0.0566	100		Salts and Proteins/NP	NP	H-3 Subtotal Total	1.1100E-01 1.1100E-01 1.1100E-01	3.0000E-03 3.0000E-03 3.0000E-03	AU

Note 1: Container Description Codes. For containers/
waste requiring disposal in approved structural over-
packs the numerical code must be followed by "-OP."

- | | |
|-------------------------------|--|
| 1. Wooden Box or Crate | 9. Demineralizer |
| 2. Metal Box | 10. Gas Cylinder |
| 3. Plastic Drum or Pail | 11. Bulk, Unpackaged Waste |
| 4. Metal Drum or Pail | 12. Unpackaged Components |
| 5. Metal Tank or Liner | 13. High Integrity Container |
| 6. Concrete Tank or Liner | 19. Other. Describe in Item 6,
or additional page |
| 7. Polyethylene Tank or Liner | |
| 8. Fiberglass Tank or Liner | |

Note 1A: Process Requested

- | | |
|----|-------------------------|
| C | Compaction |
| SR | Steam Reforming |
| DI | Direct Incineration |
| SI | Sort & Incinerate |
| D | Decon |
| G | Green is Clean |
| M | Metal Melt |
| T | Trans-Ship |
| LI | Liquid for Incineration |
| OI | Oil for Incineration |
| O | Other (describe) |

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

- | | | |
|-------------------------------|---|---|
| 20. Charcoal | 29. Demolition Rubble | 38. Evaporator Bottoms/Sludges/
Concentrates |
| 21. Incinerator Ash | 30. Cation Ion-exchange Media | |
| 22. Soil | 31. Anion Ion-exchange Media | |
| 23. Gas | 32. Mixed Bed Ion-exchange Media | |
| 24. Oil | 33. Contaminated Equipment | |
| 25. Aqueous Liquid | 34. Organic Liquid (except oil) | |
| 26. Filter Media | 35. Glassware or Labware | |
| 27. Mechanical Filter | 36. Sealed Source/Device | |
| 28. EPA or State
Hazardous | 37. Paint or Plating | |
| | 42. Biological Material (except
animal carcasses) | |
| | 43. Activated Material | |
| | 59. Other. Describe in Item 11,
or additional page | |

NOTE 2A: Burial/Disposition Site

- | | |
|----|---------------------------|
| B | Barnwell Waste Management |
| E | Envirocare |
| R | Richland, WA |
| PR | Process and Return |
| D | Other |

Note3: Solidification and Stabilization Media Codes. (Choose up
to three which predominate by volume. For media meeting
disposal site structural stability requirements, the numerical code
must be followed by "-S." and the media vendor and brand name
must also be identified in Item 13. Code 100=NONE REQUIRED

- | | |
|--------------------|--|
| 90. Cement | 94. Vinyl Ester Styrene |
| 91. Concrete | 99. Other. Describe
in Item 13, or
additional page |
| 92. Bitumen | |
| 93. Vinyl Chloride | 100. None Required. |

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

[illegible]

FORM 540						Duratek, Inc. - Commercial Processing					
UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER						SHIPPER - Name and Facility ESI c/o Upstate Group, Inc. Division of Millipore 6204 Minnick Road Laurel, MD 20707					
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) 410-377-3742						USER PERMIT NUMBER NA		SHIPMENT NUMBER 70219		SHIPPER I.D. NUMBER NA <input type="checkbox"/> COLLECTOR <input type="checkbox"/> PROCESSOR <input checked="" type="checkbox"/> GENERATOR TYPE (Specify) M,O	
ORGANIZATION ECOLOGY SERVICES, INC.						CONTACT Brad Hamilton / Greg Keck		TELEPHONE NUMBER (Include Area Code) 443-466-6752		6. FORM 540 AND 540A PAGE 1 OF 1 FORM 541 AND 541A 2 PAGE(S) FORM 542 AND 542A None PAGE(S) ADDITIONAL INFORMATION None PAGE(S)	
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST 6		EPA MANIFEST NUMBER		4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number ===== <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		5. CARRIER - Name and Address 1. ESI, Columbia, MD (410) 381-2600 2. Bedrock, dba, Tri-State Motor Transit P.O. Box 113 Joplin, MO 644802 Truck #: ESI 449927 Trailer #: CONTACT Cassie Gardner SIGNATURE - _____ Authorized carrier acknowledging waste receipt		EPA I.D. NUMBER MOD09 503 8998 SHIPPING DATE 02/21/2007 TELEPHONE (Include Area Code) 800-234-8765 DATE 2-23-07	
11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)						12. DOT LABEL "RADIOACTIVE"		13. TRANSPORT INDEX		14. PHYSICAL AND CHEMICAL FORM	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910						NA		NA		SOLID : Salts and Proteins H-3	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910						NA		NA		SOLID : Salts and Proteins H-3	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910						NA		NA		LIQUID : Salts and Proteins H-3	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910						NA		NA		SOLID : Salts and Proteins Ba-133 Cs-137 H-3	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910						NA		NA		SOLID : Salts and Proteins H-3	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910						NA		NA		SOLID : Salts and Proteins H-3	
										TOTAL PACKAGE ACTIVITY MBq mCi	
										4.5066E+01 1.2180E+00 NA	
										8.1400E+00 2.2000E-01 NA	
										1.7316E+00 4.6800E-02 NA	
										1.8540E+02 5.0108E+00 NA	
										1.1100E-01 3.0000E-03 NA	
										3.7000E+00 1.0000E-01 NA	
										20 LBS; 2 FT3 UGI 02H186	
										21 LBS; 2 FT3 UGI 02H189	
										20 LBS; 0.68 FT3 UGI 02H190	
										14 LBS; 2 FT3 UGI 02H195	
										18 LBS; 2 FT3 UGI 98H007	
										14 LBS; 2 FT3 UGI 99H071	
FOR CONSIGNEE USE ONLY						20. GENERATOR CERTIFICATION STATEMENT					
TENNESSEE LICENSE FOR DELIVERY NO _____						A) Radioactive Materials. Certification is hereby made to Duratek, Inc. that this shipment of low-level radioactive material/waste has been prepared in accordance with radioactive waste management program which has been approved by the Nuclear Regulatory Commission or an Agreement State regulatory agency and with the current revision of the Duratek Material Acceptance Criteria.					
SOUTH CAROLINA TRANSPORT PERMIT NO _____						B) Hazardous Materials. Generator hereby certifies that this material does not contain a hazardous waste as defined in 40 CFR 261.					
US ECOLOGY GENERATOR NO _____						C) Data. Generator hereby represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with applicable governmental laws, rules, regulations and Duratek, Inc. State of Tennessee Radioactive Material Licenses.					
US ECOLOGY PERMIT NO _____						Print Name _____ Signature _____ Date 2/21/07					

FORM 541		Duratek, Inc. - Commercial Processing		1. MANIFEST TOTALS										2. MANIFEST NUMBER UGI 70219-14											
UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST CONTAINER AND WASTE DESCRIPTION Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste				NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET WASTE VOLUME		NET WASTE WEIGHT		SPECIAL NUCLEAR MATERIAL (grams)				3. PAGE 1 OF 2 PAGE(S)												
									U-233		U-235				Pu		Total								
				6	m3	0.3023	kg	48.5343	NP		NP		NP		NP		4. SHIPPER NAME Upstate Group, Inc.								
					ft3	10.6800	lb	107.0000	NP		NP		NP		NP										
				ACTIVITY										SOURCE (kg)		SHIPMENT ID NUMBER NA									
				ALL NUCLIDES		TRITIUM		C-14		Tc-99		I-129													
				MBq	2.4415E+02	2.4375E+02	NP	NP	NP	(kg)	NA														
				mCi	6.5986E+00	6.5878E+00	NP	NP	NP	(lbs)	NA														
DISPOSAL CONTAINER DESCRIPTION														WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER										16. WASTE CLASSIFI- CATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C	
5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR ID NUMBER	6. CONTAINER DESCRIPTION (See Note 1) PROCESS REQUESTED (See Note 1A) BURIAL/DISPOSITION (See Note 2A)	7. VOLUME (m3) (ft3)	8. WASTE AND CONTAINER WEIGHT (kg) (lb)	9. SURFACE RADIATION LEVEL (mSv/hr) (mrem/hr)	10. SURFACE CONTAMINATION (dpm/100 cm2)		11. WASTE DESCRIPTOR (See Note 2)		12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3) (FT3)		13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION											
					ALPHA	BETA- GAMMA								INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT											
														RADIONUCLIDES			MBq	mCi							
UGI 02H186/UGI	18 CORRUGATED BOX	0.0566	9.0718		<3.6740E-06	<3.6740E-06	39		0.0566	100	Salts and Proteins/NP	NP	H-3	4.5066E+01	1.2180E+00	AU									
														Subtotal			4.5066E+01	1.2180E+00							
														Total			4.5066E+01	1.2180E+00							
UGI 02H189/UGI	18 CORRUGATED BOX	0.0566	9.5254		<3.6740E-06	<3.6740E-06	39		0.0566	100	Salts and Proteins/NP	NP	H-3	8.1400E+00	2.2000E-01	AU									
														Subtotal			8.1400E+00	2.2000E-01							
														Total			8.1400E+00	2.2000E-01							
UGI 02H190/UGI	3	0.0193	9.0718		<3.6740E-06	<3.6740E-06	25		0.0193	89 - VERMICULITE	Salts and Proteins/NP	NP	H-3	1.7316E+00	4.6800E-02	AU									
														Subtotal			1.7316E+00	4.6800E-02							
														Total			1.7316E+00	4.6800E-02							
UGI 02H195/UGI	18 CORRUGATED BOX	0.0566	6.3503		<3.6740E-06	<3.6740E-06	39		0.0566	100	Salts and Proteins/NP	NP	Ba-133	5.1060E-03	1.38E-04	AU									
														Cs-137			3.9590E-01	1.0700E-02							
														H-3			1.8500E+02	5.0000E+00							
														Subtotal			1.8540E+02	5.01E+00							
														Total			1.8540E+02	5.01E+00							
UGI 98H007/UGI	18 CORRUGATED BOX	0.0566	8.1447		<3.6740E-06	<3.6740E-06	39		0.0566	100	Salts and Proteins/NP	NP	H-3	1.1100E-01	3.0000E-03	AU									
														Subtotal			1.1100E-01	3.0000E-03							
														Total			1.1100E-01	3.00E-03							
Note 1: Container Description Codes. For containers/ waste requiring disposal in approved structural over- packs the numerical code must be followed by "-OP."																									
Note 1A: Process Requested																									
Note 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)																									
Note 2A: Burial/Disposition Site																									
Note 3: Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume. For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S," and the media vendor and brand name must also be identified in Item 13. Code 100=NONE REQUIRED																									

UNIFORM LOW-LEVEL RADIOACTIVE
WASTE MANIFEST

Duratek, Inc. - Commercial Processing

2. MANIFEST NUMBER	UGI 70219-14
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3. PAGE 2 OF 2 PAGE(S)

CONTAINER AND WASTE DESCRIPTION (CONTINUATION)

[illegible]



Wednesday, February 28, 2007

Timothy Osborne
Ecology Services, Inc./Columbia, MD
10220 Old Columbia Road Suite I
Columbia, MD 21046

Dear Mr. Osborne:

The attached signed shipping manifest copies are your notice of receipt of the radioactive waste materials shipment specified on the manifest number below.

Manifest Number

1282-70219

Date Received

02/28/2007

Thank you for your business.

Sincerely,

A handwritten signature in cursive script that reads "Pam Thompson".

Shipping and Receiving

cc: Manifest File
Shipping and Receiving file

FORM 540		Duratek, Inc. - Commercial Processing		SHIPPER - NAME AND FACILITY <i>ESI 90</i>		SHIPMENT ID. NUMBER		7. FORM 540 AND 540A		8. MANIFEST NUMBER	
UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER				Updater Group, Inc. Division of Millipore 6304 Milvick Road Laurel, MD 20707		NA		PAGE 1 OF 1 PAGE(S) PAGE 2 OF 1 PAGE(S) None PAGE(S) None PAGE(S)		(Use this number on all continuation pages) UGI 70219-14	
1. EMERGENCY TELEPHONE NUMBER 410-377-5718		2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST 6		4. DOES EPA REGULATED WASTE REQUIRE A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes," provide Manifest Number <i>885-481-0222</i>		5. CARRIER - Name and Address 1. ESI, Columbia, MD (410) 381-8800 2. Bedrock, c/o, Tri-State Motor Transit P.O. Box 118 Poplar, MO 644803		6. CONTACT Cecile Gardner	
ORGANIZATION ECOLOGY SERVICES, INC		USER PERMIT NUMBER NA		SHIPMENT NUMBER 70219		GENERATOR TYPE <input checked="" type="checkbox"/> GENERATOR (Specify) MCO		TELEPHONE NUMBER (Include Area Code) 443-468-8782		9. CONSIGNEE - Name and Facility Duratek, Inc. - Commercial Processing Bear Creek Operations 1580 Bear Creek Road Oak Ridge, TN 37830	
						EPA I.D. NUMBER MOD00 503 8998		SHIPPING DATE 02/21/2007		10. CERTIFICATION This is to certify that the herein-named materials are properly classified, described, packaged, marked, and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and are in proper condition for transportation and disposal as described in accordance with the requirements of 40 CFR Parts 263 and 261, or equivalent.	
						DATE 2-23-07		AUTHORIZED SIGNATURE <i>Rich Beck</i>		DATE 2/21/07	
11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)		12. DOT LABEL "RADIOACTIVE"		13. TRANSPORT INDEX		14. PHYSICAL AND CHEMICAL FORM		15. INDIVIDUAL RADIOISOTOPES		16. TOTAL PACKAGE ACTIVITY MBq mCi	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910		NA		NA		SOLID : Salts and Proteins		H-3		4.508E+01 1.218E+00	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910		NA		NA		SOLID : Salts and Proteins		H-3		8.140E+00 2.200E-01	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910		NA		NA		LIQUID : Salts and Proteins		H-3		1.731E+00 4.880E-02	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910		NA		NA		SOLID : Salts and Proteins		Ba-133 Cs-137 H-3		1.854E+02 5.010E+00	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910		NA		NA		SOLID : Salts and Proteins		H-3		1.110E-01 3.000E-03	
Radioactive material, excepted package-limited quantity of material, 7, UN 2910		NA		NA		SOLID : Salts and Proteins		H-3		3.700E+00 1.000E-01	
										17. LBS/SGO CLASS	
										20 LBS; 2 FT3	
										21 LBS; 2 FT3	
										20 LBS; 0.68 FT3	
										14 LBS; 2 FT3	
										16 LBS; 2 FT3	
										14 LBS; 2 FT3	
										UGI 02H188	
										UGI 02H189	
										UGI 02H190	
										UGI 02H195	
										UGI 98H007	
										UGI 98H071	
FOR CONSIGNEE USE ONLY		TENNESSEE "LICENSE FOR DELIVERY" NO		SOUTH CAROLINA TRANSPORT PERMIT NO		US ECOLOGY GENERATOR NO		US ECOLOGY PERMIT NO		20. GENERATOR CERTIFICATION STATEMENT	
										A) Radioactive Materials. Certification is hereby made to Duratek, Inc. that this shipment of low-level radioactive material/waste has been prepared in accordance with radioactive waste management program which has been approved by the Nuclear Regulatory Commission or an Agreement State regulatory agency and with the current revision of the Duratek Material Acceptance Criteria.	
										B) Hazardous Materials. Generator hereby certifies that this material does not contain a hazardous waste as defined in 40 CFR 261.	
										C) Data. Generator hereby represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and Duratek, Inc. State of Tennessee Radioactive Material License.	
										Signature <i>Rich Beck</i> Date 2/21/07	

ATTACHMENT 3

FACILITY MAPS w/INSTRUMENT DATA

Ecology Services, Inc.
10220 Old Columbia Road
Columbia, MD 21046

RADIATION SAFETY SURVEY

COMPANY NAME: Upstate Group, Inc. / Millipore

RADIATION SAFETY OFFICER: Brad Hamilton

SURVEYOR: Greg Keck

DATE: 12/20/2006

INSTRUMENT(S): Ludlum Model 2221	SERIAL No. 97831	D.O.C. 12/19/06
PROBE: 43-68	SERIAL No. PR094816	

Summary of Results:

Please refer to all wipe sample results for MDA. Any samples exceeding MARSSIM guidelines will be noted below

Wipe Location	DPM / 100cm2
Hot Lab locations #1 - #30	≤ MDA
Radioactive Wast Storage locations #1 - #30	≤ MDA

Static Measurements with 43-68 probe

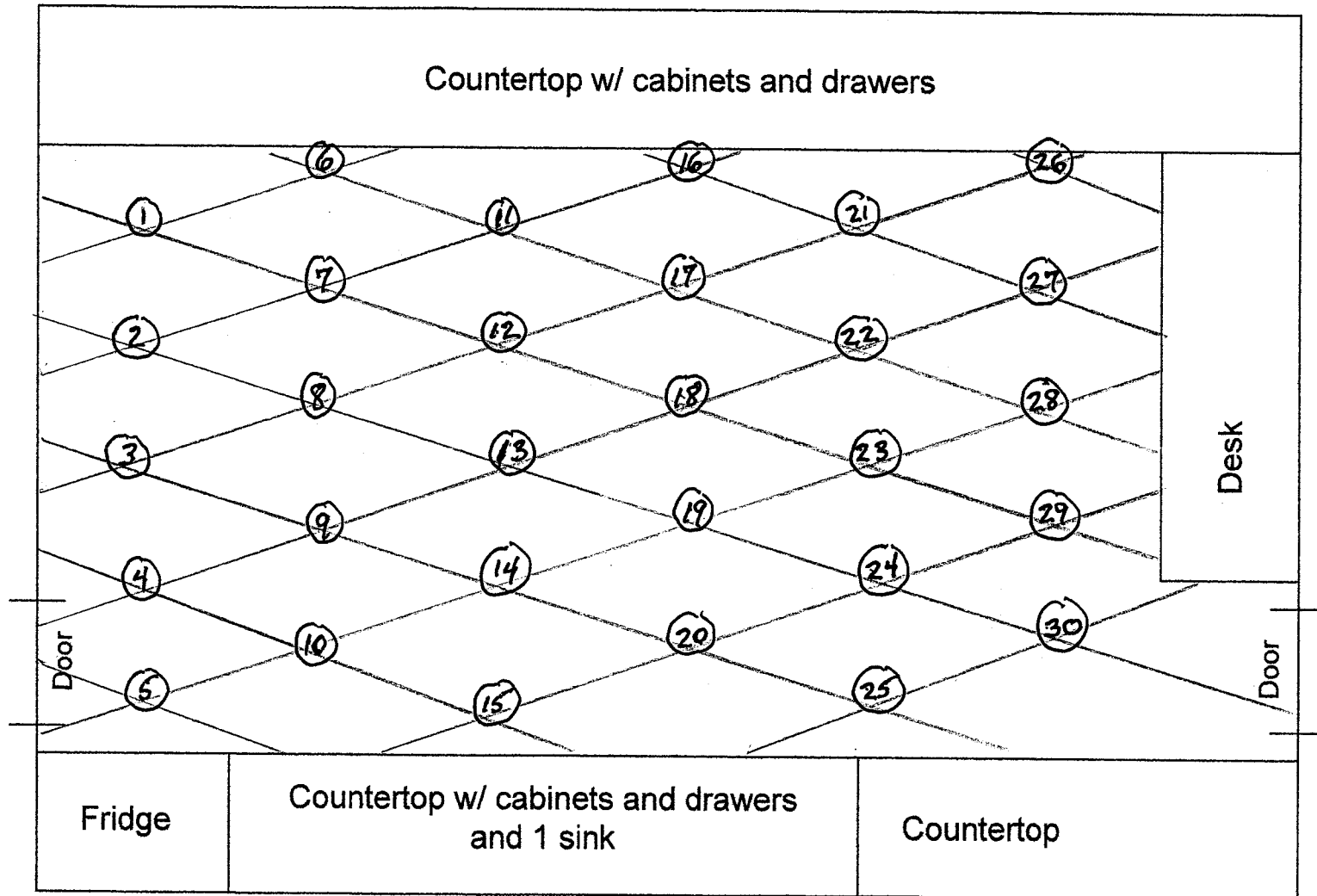
All calculations performed using RadCalcLE Software Program Version 1.0, 1999 using the MARSSIM Method. See attached diagrams for area locations.

MDA STATIC

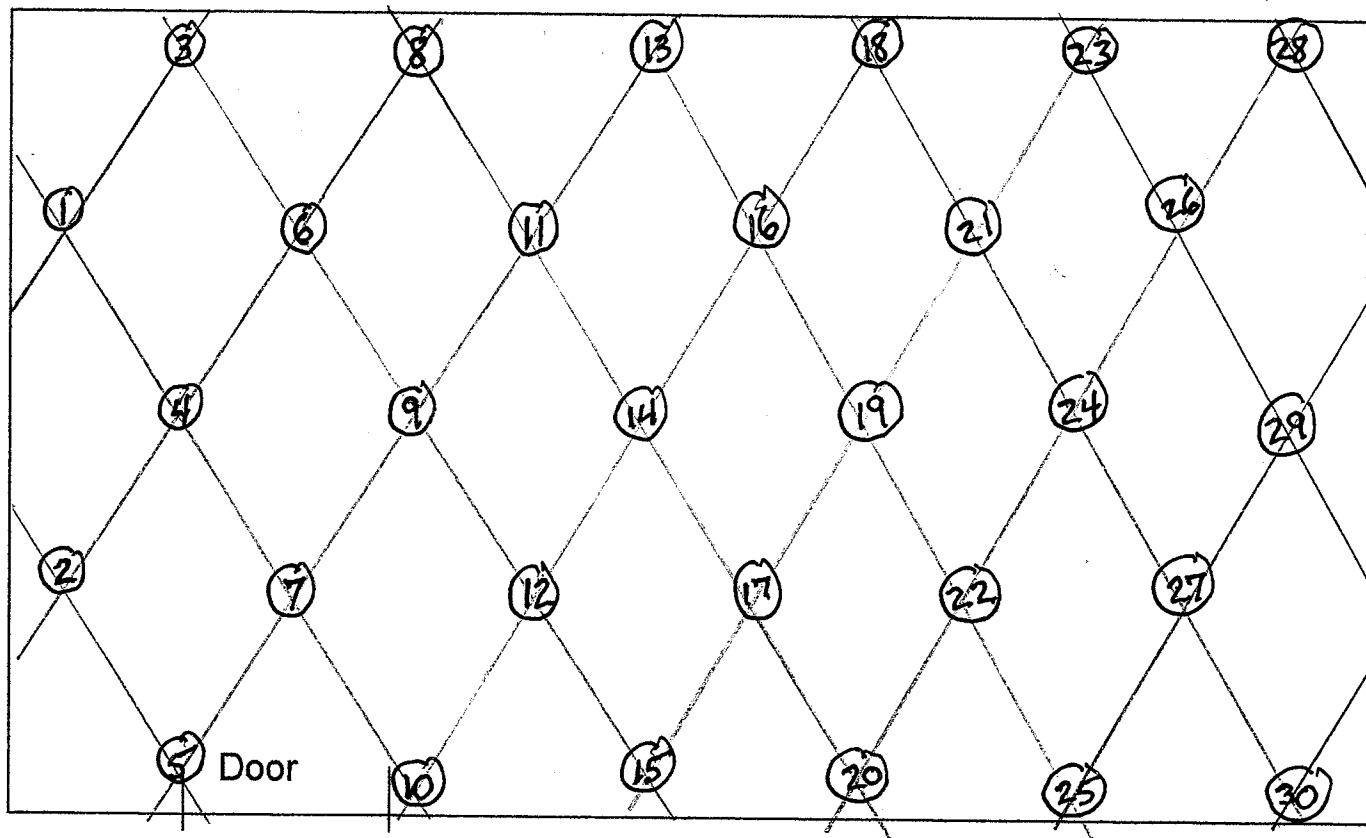
1635 dpm/100cm2

Area	Hot Lab		RAW Storage	
	GCPM	DPM/100cm2	GCPM	DPM/100cm2
1	342	≤MDA	319	≤MDA
2	328	≤MDA	354	≤MDA
3	335	≤MDA	322	≤MDA
4	333	≤MDA	338	≤MDA
5	371	≤MDA	342	≤MDA
6	354	≤MDA	321	≤MDA
7	360	≤MDA	346	≤MDA
8	389	≤MDA	342	≤MDA
9	372	≤MDA	326	≤MDA
10	344	≤MDA	333	≤MDA
11	338	≤MDA	325	≤MDA
12	343	≤MDA	360	≤MDA
13	377	≤MDA	341	≤MDA
14	371	≤MDA	327	≤MDA
15	329	≤MDA	339	≤MDA
16	336	≤MDA	351	≤MDA
17	386	≤MDA	323	≤MDA
18	342	≤MDA	340	≤MDA
19	371	≤MDA	362	≤MDA
20	386	≤MDA	359	≤MDA
21	364	≤MDA	348	≤MDA
22	361	≤MDA	321	≤MDA
23	355	≤MDA	327	≤MDA
24	387	≤MDA	330	≤MDA
25	322	≤MDA	319	≤MDA
26	342	≤MDA	325	≤MDA
27	329	≤MDA	342	≤MDA
28	355	≤MDA	346	≤MDA
29	320	≤MDA	333	≤MDA
30	367	≤MDA	339	≤MDA

Hot Lab



Radioactive Waste Storage – Rm.110A



ATTACHMENT 4

WIPE SURVEY RESULTS



LS Counter Data Reduction Program - ESI

Report Date: 29-Dec-06
Sample Date: 21-Dec-06

Instrument Data: Beckman LS 6500

Window: Tritium

Background Data:

Bkg CPM	Count Time (min)	% Error (95% C.L.)
2.67	1	119.95%

MDA Data:

MDA (CPM): 11

MDA (DPM): 31

Sample Data:

Seq No.	Sample ID	Count Time (min)	H No.	CPM	Efficiency	DPM	Error (95% C.L.)
1	Upstate Laboratory #1	1	117.30	11.00	34.0%	< MDA	N/A
2	2	1	117.90	6.00	33.8%	< MDA	N/A
3	3	1	115.00	6.00	34.5%	< MDA	N/A
4	4	1	116.60	3.00	34.1%	< MDA	N/A
5	5	1	115.50	2.00	34.4%	< MDA	N/A
6	6	1	119.20	6.00	33.5%	< MDA	N/A
7	7	1	120.00	7.00	33.3%	< MDA	N/A
8	8	1	114.40	2.00	34.7%	< MDA	N/A
9	9	1	117.70	4.00	33.9%	< MDA	N/A
10	10	1	119.60	4.00	33.4%	< MDA	N/A
11	11	1	117.00	5.00	34.0%	< MDA	N/A
12	12	1	122.90	3.00	32.6%	< MDA	N/A
13	13	1	118.60	9.00	33.6%	< MDA	N/A
14	14	1	119.50	8.00	33.4%	< MDA	N/A
15	15	1	119.00	9.00	33.5%	< MDA	N/A
16	16	1	118.90	8.00	33.6%	< MDA	N/A
17	17	1	118.20	4.00	33.7%	< MDA	N/A
18	18	1	118.00	4.00	33.8%	< MDA	N/A
19	19	1	118.20	9.00	33.7%	< MDA	N/A
20	20	1	117.50	7.00	33.9%	< MDA	N/A
21	21	1	117.00	4.00	34.0%	< MDA	N/A
22	22	1	118.70	5.00	33.6%	< MDA	N/A
23	23	1	118.10	4.00	33.8%	< MDA	N/A
24	24	1	119.90	4.00	33.3%	< MDA	N/A
25	25	1	119.70	7.00	33.4%	< MDA	N/A
26	26	1	119.30	5.00	33.5%	< MDA	N/A
27	27	1	117.30	8.00	34.0%	< MDA	N/A
28	28	1	119.30	4.00	33.5%	< MDA	N/A
29	29	1	113.60	3.00	34.9%	< MDA	N/A
30	30	1	120.70	1.00	33.1%	< MDA	N/A



LS Counter Data Reduction Program - ESI

Report Date:	29-Dec-06
Sample Date:	21-Dec-06

Instrument Data: Beckman LS 6500

Window: Carbon-14

Background Data:

Bkg CPM	Count Time (min)	% Error (95% C.L.)
10.67	1	60.00%

MDA Data:

MDA (CPM):	18
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MDA (DPM):	25
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Sample Data:

Seq No.	Sample ID	Count Time (min)	H No.	CPM	Efficiency	DPM	Error (95% C.L.)
1	Upstate Laboratory #1	1	117.30	13.00	72.6%	< MDA	N/A
2	2	1	117.90	17.00	72.5%	< MDA	N/A
3	3	1	115.00	10.00	72.7%	< MDA	N/A
4	4	1	116.60	12.00	72.6%	< MDA	N/A
5	5	1	115.50	12.00	72.7%	< MDA	N/A
6	6	1	119.20	10.00	72.4%	< MDA	N/A
7	7	1	120.00	9.00	72.4%	< MDA	N/A
8	8	1	114.40	6.00	72.8%	< MDA	N/A
9	9	1	117.70	8.00	72.5%	< MDA	N/A
10	10	1	119.60	10.00	72.4%	< MDA	N/A
11	11	1	117.00	10.00	72.6%	< MDA	N/A
12	12	1	122.90	19.00	72.2%	< MDA	N/A
13	13	1	118.60	9.00	72.5%	< MDA	N/A
14	14	1	119.50	9.00	72.4%	< MDA	N/A
15	15	1	119.00	12.00	72.5%	< MDA	N/A
16	16	1	118.90	11.00	72.5%	< MDA	N/A
17	17	1	118.20	16.00	72.5%	< MDA	N/A
18	18	1	118.00	8.00	72.5%	< MDA	N/A
19	19	1	118.20	11.00	72.5%	< MDA	N/A
20	20	1	117.50	12.00	72.6%	< MDA	N/A
21	21	1	117.00	9.00	72.6%	< MDA	N/A
22	22	1	118.70	8.00	72.5%	< MDA	N/A
23	23	1	118.10	12.00	72.5%	< MDA	N/A
24	24	1	119.90	10.00	72.4%	< MDA	N/A
25	25	1	119.70	12.00	72.4%	< MDA	N/A
26	26	1	119.30	5.00	72.4%	< MDA	N/A
27	27	1	117.30	14.00	72.6%	< MDA	N/A
28	28	1	119.30	10.00	72.4%	< MDA	N/A
29	29	1	113.60	12.00	72.8%	< MDA	N/A
30	30	1	120.70	7.00	72.3%	< MDA	N/A



LS Counter Data Reduction Program - ESI

Report Date: 29-Dec-06

Sample Date: 21-Dec-06

Instrument Data: Beckman LS 6500

Window: Phosphorus-32

Background Data:

Bkg CPM	Count Time (min)	% Error (95% C.L.)
7.33	1	72.39%

MDA Data:

MDA (CPM): 16

MDA (DPM): 19

Sample Data:

Seq No.	Sample ID	Count Time (min)	H No.	CPM	Efficiency	DPM	Error (95% C.L.)
1	Upstate Laboratory #1	1	117.30	6.00	81.5%	< MDA	N/A
2	2	1	117.90	10.00	81.6%	< MDA	N/A
3	3	1	115.00	6.00	81.5%	< MDA	N/A
4	4	1	116.60	7.00	81.5%	< MDA	N/A
5	5	1	115.50	13.00	81.5%	< MDA	N/A
6	6	1	119.20	9.00	81.6%	< MDA	N/A
7	7	1	120.00	8.00	81.6%	< MDA	N/A
8	8	1	114.40	4.00	81.5%	< MDA	N/A
9	9	1	117.70	4.00	81.6%	< MDA	N/A
10	10	1	119.60	10.00	81.6%	< MDA	N/A
11	11	1	117.00	7.00	81.5%	< MDA	N/A
12	12	1	122.90	8.00	81.6%	< MDA	N/A
13	13	1	118.60	8.00	81.6%	< MDA	N/A
14	14	1	119.50	6.00	81.6%	< MDA	N/A
15	15	1	119.00	9.00	81.6%	< MDA	N/A
16	16	1	118.90	7.00	81.6%	< MDA	N/A
17	17	1	118.20	6.00	81.6%	< MDA	N/A
18	18	1	118.00	11.00	81.6%	< MDA	N/A
19	19	1	118.20	10.00	81.6%	< MDA	N/A
20	20	1	117.50	10.00	81.5%	< MDA	N/A
21	21	1	117.00	6.00	81.5%	< MDA	N/A
22	22	1	118.70	7.00	81.6%	< MDA	N/A
23	23	1	118.10	11.00	81.6%	< MDA	N/A
24	24	1	119.90	6.00	81.6%	< MDA	N/A
25	25	1	119.70	5.00	81.6%	< MDA	N/A
26	26	1	119.30	10.00	81.6%	< MDA	N/A
27	27	1	117.30	7.00	81.5%	< MDA	N/A
28	28	1	119.30	9.00	81.6%	< MDA	N/A
29	29	1	113.60	8.00	81.5%	< MDA	N/A
30	30	1	120.70	3.00	81.6%	< MDA	N/A



LS Counter Data Reduction Program - ESI

Report Date:	29-Dec-06
Sample Date:	21-Dec-06

Instrument Data: Beckman LS 6500

Window: Tritium

Background Data:

Bkg CPM	Count Time (min)	% Error (95% C.L.)
7.00	1	74.08%

MDA Data:

MDA (CPM):	15
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MDA (DPM):	46
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Sample Data:

Seq No.	Sample ID	Count Time (min)	H No.	CPM	Efficiency	DPM	Error (95% C.L.)
1	Upstate RAD Storage #1	1	118.60	8.00	33.6%	< MDA	N/A
2	2	1	118.90	5.00	33.6%	< MDA	N/A
3	3	1	116.30	4.00	34.2%	< MDA	N/A
4	4	1	116.10	8.00	34.3%	< MDA	N/A
5	5	1	117.40	8.00	33.9%	< MDA	N/A
6	6	1	119.90	8.00	33.3%	< MDA	N/A
7	7	1	118.90	6.00	33.6%	< MDA	N/A
8	8	1	112.70	7.00	35.1%	< MDA	N/A
9	9	1	118.10	5.00	33.8%	< MDA	N/A
10	10	1	119.80	8.00	33.3%	< MDA	N/A
11	11	1	117.20	8.00	34.0%	< MDA	N/A
12	12	1	121.80	8.00	32.9%	< MDA	N/A
13	13	1	119.70	3.00	33.4%	< MDA	N/A
14	14	1	119.00	6.00	33.5%	< MDA	N/A
15	15	1	120.20	6.00	33.2%	< MDA	N/A
16	16	1	118.20	9.00	33.7%	< MDA	N/A
17	17	1	117.50	4.00	33.9%	< MDA	N/A
18	18	1	118.40	10.00	33.7%	< MDA	N/A
19	19	1	118.10	2.00	33.8%	< MDA	N/A
20	20	1	119.80	7.00	33.3%	< MDA	N/A
21	21	1	115.30	5.00	34.5%	< MDA	N/A
22	22	1	119.20	1.00	33.5%	< MDA	N/A
23	23	1	118.90	5.00	33.6%	< MDA	N/A
24	24	1	119.50	4.00	33.4%	< MDA	N/A
25	25	1	121.00	4.00	33.0%	< MDA	N/A
26	26	1	118.70	4.00	33.6%	< MDA	N/A
27	27	1	119.50	8.00	33.4%	< MDA	N/A
28	28	1	119.30	6.00	33.5%	< MDA	N/A
29	29	1	115.40	3.00	34.4%	< MDA	N/A
30	30	1	120.10	9.00	33.3%	< MDA	N/A



LS Counter Data Reduction Program - ESI

Report Date:	29-Dec-06
Sample Date:	21-Dec-06

Instrument Data: Beckman LS 6500

Window: Carbon-14

Background Data:

Bkg CPM	Count Time (min)	% Error (95% C.L.)
12.67	1	55.06%

MDA Data:

MDA (CPM):	20
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MDA (DPM):	27
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Sample Data:

Seq No.	Sample ID	Count Time (min)	H No.	CPM	Efficiency	DPM	Error (95% C.L.)
1	Upstate RAD Storage #1	1	118.60	10.00	72.5%	< MDA	N/A
2	2	1	118.90	14.00	72.5%	< MDA	N/A
3	3	1	116.30	15.00	72.6%	< MDA	N/A
4	4	1	116.10	13.00	72.7%	< MDA	N/A
5	5	1	117.40	9.00	72.6%	< MDA	N/A
6	6	1	119.90	7.00	72.4%	< MDA	N/A
7	7	1	118.90	4.00	72.5%	< MDA	N/A
8	8	1	112.70	4.00	72.9%	< MDA	N/A
9	9	1	118.10	12.00	72.5%	< MDA	N/A
10	10	1	119.80	7.00	72.4%	< MDA	N/A
11	11	1	117.20	7.00	72.6%	< MDA	N/A
12	12	1	121.80	10.00	72.3%	< MDA	N/A
13	13	1	119.70	9.00	72.4%	< MDA	N/A
14	14	1	119.00	12.00	72.5%	< MDA	N/A
15	15	1	120.20	7.00	72.4%	< MDA	N/A
16	16	1	118.20	10.00	72.5%	< MDA	N/A
17	17	1	117.50	15.00	72.6%	< MDA	N/A
18	18	1	118.40	12.00	72.5%	< MDA	N/A
19	19	1	118.10	12.00	72.5%	< MDA	N/A
20	20	1	119.80	10.00	72.4%	< MDA	N/A
21	21	1	115.30	6.00	72.7%	< MDA	N/A
22	22	1	119.20	9.00	72.4%	< MDA	N/A
23	23	1	118.90	12.00	72.5%	< MDA	N/A
24	24	1	119.50	7.00	72.4%	< MDA	N/A
25	25	1	121.00	10.00	72.3%	< MDA	N/A
26	26	1	118.70	14.00	72.5%	< MDA	N/A
27	27	1	119.50	9.00	72.4%	< MDA	N/A
28	28	1	119.30	10.00	72.4%	< MDA	N/A
29	29	1	115.40	8.00	72.7%	< MDA	N/A
30	30	1	120.10	10.00	72.4%	< MDA	N/A



LS Counter Data Reduction Program - ESI

Report Date: 29-Dec-06

Sample Date: 21-Dec-06

Instrument Data: Beckman LS 6500

Window: Phosphorus-32

Background Data:

Bkg CPM	Count Time (min)	% Error (95% C.L.)
6.00	1	80.02%

MDA Data:

MDA (CPM): 14

MDA (DPM): 18

Sample Data:

Seq No.	Sample ID	Count Time (min)	H No.	CPM	Efficiency	DPM	Error (95% C.L.)
1	Upstate RAD Storage #1	1	118.60	6.00	81.6%	< MDA	N/A
2	2	1	118.90	9.00	81.6%	< MDA	N/A
3	3	1	116.30	10.00	81.5%	< MDA	N/A
4	4	1	116.10	6.00	81.5%	< MDA	N/A
5	5	1	117.40	6.00	81.5%	< MDA	N/A
6	6	1	119.90	6.00	81.6%	< MDA	N/A
7	7	1	118.90	4.00	81.6%	< MDA	N/A
8	8	1	112.70	4.00	81.5%	< MDA	N/A
9	9	1	118.10	5.00	81.6%	< MDA	N/A
10	10	1	119.80	8.00	81.6%	< MDA	N/A
11	11	1	117.20	7.00	81.5%	< MDA	N/A
12	12	1	121.80	4.00	81.6%	< MDA	N/A
13	13	1	119.70	11.00	81.6%	< MDA	N/A
14	14	1	119.00	8.00	81.6%	< MDA	N/A
15	15	1	120.20	7.00	81.6%	< MDA	N/A
16	16	1	118.20	5.00	81.6%	< MDA	N/A
17	17	1	117.50	6.00	81.5%	< MDA	N/A
18	18	1	118.40	9.00	81.6%	< MDA	N/A
19	19	1	118.10	6.00	81.6%	< MDA	N/A
20	20	1	119.80	4.00	81.6%	< MDA	N/A
21	21	1	115.30	13.00	81.5%	< MDA	N/A
22	22	1	119.20	5.00	81.6%	< MDA	N/A
23	23	1	118.90	5.00	81.6%	< MDA	N/A
24	24	1	119.50	6.00	81.6%	< MDA	N/A
25	25	1	121.00	3.00	81.6%	< MDA	N/A
26	26	1	118.70	9.00	81.6%	< MDA	N/A
27	27	1	119.50	6.00	81.6%	< MDA	N/A
28	28	1	119.30	4.00	81.6%	< MDA	N/A
29	29	1	115.40	9.00	81.5%	< MDA	N/A
30	30	1	120.10	11.00	81.6%	< MDA	N/A