VOID SHEET

TO: License Fee Management Branch

FROM: RIII - KEVIN G. NULL

SUBJECT: VOIDED APPLICATION

Control Number: 300230

Applicant: Wisconsin-Madison, University of

License Number: 48-09843-18

Docket Number: 030-03465

Date Voided: 7/7/97

Reason for Void: This action was voided because no hearing action was requested. The financial assurance instruments submitted were acceptable, hence no amendment was required.

Charles F. Gill for Kevin G. Null 7/7/97
Signature Date

Attachment:
Official Record Copy of
Voided Action

FOR LFMB USE ONLY

___ Refund Authorized and processed

___ No Refund Due

___ Fee Exempt or Fee Not Required

Comments: _____

Log completed ___

Processed by: _____

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

(FOR LFMS USE)
INFORMATION FROM LTS

Program Code: 02110
Status Code: 2
Fee Category: 7B EX 2C 2B 1D
Exp. Date: 19940331
Fee Comments: 170.11(A)(4)
Decom Fin Assur Reqd: Y

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED
   Applicant/Licensee: WISCONSIN-MADISON, UNIVERSITY OF
   Received Date: 970113
   Docket No: 3003465
   Control No.: 300230
   License No.: 48-09843-18
   Action Type: Amendment

2. FEE ATTACHED
   Amount: ---0---
   Check No.: ---/---

3. COMMENTS

Signed D. Hawley
Date 1-28-97

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered /__/)

1. Fee Category and Amount: _____

2. Correct Fee Paid. Application may be processed for:
   Amendment _____
   Renewal _____
   License _____

3. OTHER _____
   _____

Signed _____
Date _____

DFP - under separate C/V

+ TAR sent to HQ

1/97

UNIVERSITY OF WISCONSIN MADISON

September 18, 1996

U.S. Nuclear Regulatory Commission, Region III
ATTN: Kevin Null
Nuclear Materials Licensing Section
801 Warrenville Road
Lisle, Illinois 60532-4351

RE: Decommissioning Funding Plan and Statement of Intent - BML No. **48-09843-18**, Control No. **396520**

References

1. Reg Guide 3.65, Standard format and Content of Decommissioning Plans for Licensees under 10 CFR Parts 30, 40, and 70.
2. Reg Guide 3.66, Standard format and Content of Financial Assurance Mechanisms Required for Decommissioning under 10 CFR Parts 30, 40, 70 and 72.
3. Spreadsheets titled:
   a. Nuclides and Activity (mCi) Received under UW Broadscope License for the Year Indicated.
   b. Sealed Source Nuclides and Activity (mCi) Received under UW Broadscope License for the Year Indicated.
   c. Unsealed Nuclides and Act .ty (mCi) Received under UW Broadscope License for the Year Indicated.
   d. Unsealed Long-Lived (T > 120 days) NRC-Regulated Nuclides and Activity (mCi) Received under UW Broadscope License for the Year Indicated.
4. Spreadsheets titled:
   a. Activity (mCi) Incinerated at Herrick Drive Incinerator for the Year Indicated.
   b. Activity (mCi) Disposed of to the Sanitary Sewer for the Year Indicated.
5. Radiation Safety Composite Inventory Report, 07/02/96
6. University of Wisconsin Radiation Safety Regulations.

Background

The University of Wisconsin, Madison (UW) is a Category A Licensee of Broad Scope authorizing "any byproduct material between Atomic Nos. 3 through 83, inclusive" in individual activities not to exceed 3 Ci each and 30 Ci in aggregate. The UW also has a separately licensed (R-74) TRIGA research reactor. This reactor is capable of producing a broad spectrum of radionuclides, however the R-74 license specifies the licensee may "possess, but not to separate, such byproduct material as may be produced by operation of the reactor." Thus, the broad scope license serves to complement the reactor license enabling all researchers at the UW to obtain irradiated product.

Safety Department

University of Wisconsin–Madison 30 North Murray Street Madison, Wisconsin 5371[illegible]
608/262-8769 FAX: 608/262-6767

On 16 July, 1990, the UW submitted a Statement of Intent to obtain $750,000 for decommissioning when necessary. Reference 2 requires the UW to submit a Decommissioning Funding Plan (DFP) for the broad scope license "at the time of their next license renewal occurring after July 27, 1990." This document will review uses of radionuclides licensed under the broad scope license (BML 48-09843-18) at the UW, review regulations appropriate to decommissioning, analyze anticipated costs for such a decommissioning, and provide an appropriate financial assurance mechanism.

Radionuclide Use at the UW

References 3 and 4 are spreadsheets describing the use of radioactive materials under the broad scope license over at least a 10 year period. (Note that the activities listed for 1996 -- RECPT96 -- are for 8 months of receipts; to normalize for the entire year the activities of the more routinely used isotopes (e.g., ^{3}H, ^{14}C, ^{32}P, ^{35}S, ^{125}I) for the entire year, multiply entries by 1.5). While there may be spikes indicative of unique, one-time research or time sensitive events, references 3 and 4 demonstrate the scope of our use and disposal of authorized radionuclides. Reference 5 represents a snap-shot of user possessions at the beginning of July, 1996.

Reference 3a is a gross summary of all radionuclides received by the UW, including both sealed and unsealed radionuclides. Reference 3b focuses on the receipt of sealed sources. Entries in this table include the transfer of sealed sources between one activity on campus and another. An explanation of some of the higher activities includes:

a. Transfer of a ^{90}Sr eye applicator from the Medical Physics Radiation Calibration Lab to the Radiation Therapy Department at the hospital.

b. Receipt of 400 mCi of ^{85}Kr from a vendor in California to perform calibration measurements. The source was returned to the owner in 1991.

c. Receipt of the ^{192}Ir HDR and other brachytherapy sources/seeds which were used in cancer therapy and then returned to the vendor.

d. The UW had been conducting research requiring large quantities of gaseous ^{3}H. This research was concluded in 1994 and the facility converted to a tomographic-Linac facility, hence the dramatic drop of ^{3}H receipts.

e. Periodically ^{63}Ni gas chromatographic sources require replacement. This is usually effected by a direct exchange with the vendor.

Thus, receipt as reported in reference 3 does not necessarily represent the acquisition of new sources nor does it necessarily mean the source received is still in the possession of the UW.

Reference 3d is a summary of the UW's receipts of radionuclides of interest for decommissioning (reference 2, Appendix G, Conversion Table for Determining Amount of Financial Assurance Required as a Function of Radionuclide Activity Levels). A comparison of activities received (ref 3d) with Radionuclide Conversion Table activities in Appendix G shows that, based upon actual receipts, the UW would not be required to complete a Decommissioning Funding Plan and, further, that Financial Assurance would realistically be below the "$150,000 (unsealed) ($\geq 10^3$, $\leq 10^4$)" range.

Decommissioning Funding Considerations

In the event of decommissioning, the UW would perform its own radiation safety support with in-house assets. To determine an accurate estimate of decommissioning costs we have detailed our anticipated expenses for decommissioning the license.

a. Use of unsealed radioactive material in research is done according to the University Radiation Safety Regulations (reference 6). When a researcher has completed using radioactive materials in a laboratory, they are required to perform a final survey for "gross contamination and/or radiation exposure levels, ... and for removable contamination,..." (Section IX, Part C, Deletions and Final Surveys). The Safety Department maintains a listing of these surveys in a room decommissioning file. Thus, decommissioning of individual rooms is accomplished at no cost.

b. Sealed sources consist of some Am-Be soil probes, calibration sources (< 1 Ci), and some higher activity irradiator sources. Commercial gage sources may be returned to the vendor or some other source for approximately $5000 each. Irradiator sources may be transferred to some other licensee. Estimated cost to dispose of all sealed sources under this license is approximately $100,000.

c. At this time, we anticipate the incinerator to be the only contaminated facility. Based upon our experience demolishing radioactive waste incinerators, to dismantle and appropriately dispose of the contaminated debris would cost approximately $130,000 (i.e., $90,000 for refractory and other debris, $40,000 for demolishing).

d. Our policy on sewer disposal is to decay all liquids and centralize disposal of non-hazardous, aqueous liquid wastes at our Mills Street waste facility. Because of the type of waste so disposed, we do not anticipate any residue in the plumbing. Sampling of sewer lines at this point would verify that belief. The cost to sample and clean this disposal route would be low; not likely in excess of $50,000.

e. Volatile radionuclides may only be used in adequately vented fume hoods where the releases may be monitored. The Safety Department routinely surveys exhaust ducts prior to maintenance. We have never detected contamination in fume hood exhaust ducts in excess of 0.5 nCi/100 cm^2. Therefore, we do not believe exhaust ducting in any of our facilities will require decontamination and disposal as radioactive waste.

Thus, a good estimate of decommissioning costs for the UW's broad scope license is $280,000.

Paragraph 1.3, reference 2 (LICENSEES USING MORE THAN ONE TYPE OF NUCLEAR MATERIAL) notes that it "would be difficult to require separate decommissioning plans and financial responsibility requirements in circumstances where there is an interdependence of facilities, operations, or projected decommissioning activities." In our view, three (3) other byproduct material licenses should be consolidated with this plan.

a. BML 48-09843-28 licenses 5 closed-beam irradiators. We recently decommissioned an irradiator site at a cost of $5000. A good estimate of decommissioning this license would be $10,000 per source or $50,000.

b. BML 48-09843-32 licenses panoramic irradiators for use by our Medical Physics Department. In 1993 we disposed of a teletherapy unit, several lower activity irradiator and brachytherapy sources, an Am-Be source, and some smaller activity sources for $90,000. A good estimate to decommission this license is the $75,000 mandated.

c. BML 48-09843-34 licenses a ^{60}Co teletherapy unit for use in the School of Veterinary Medicine. We believe the $75,000 mandated to be a valid decommissioning estimate.

We do not intend including the UW's Research reactor in the plan because it is distinct with its own building and will require a DFP upon renewal in 2000. Therefore, we estimate that byproduct material licensure decommissioning would not be expected to exceed $500,000.

Summary

The UW has a Category A specific license of broad scope issued by the NRC to be used in education, to conduct basic research and to perform medical diagnosis and therapy using radioactive materials and several irradiator licenses. Because use of the radioactive materials is dictated by the needs of the researchers and to complement the UW's research reactor program, this license is necessarily one authorizing a broad spectrum of nuclides in relatively unspecified quantities. In reality, the isotopes used under the broad scope license are those commonly used in biological research (e.g., ^{3}H, ^{14}C, ^{32}P, ^{35}S, ^{51}Cr, ^{125}I) and use of rarer isotopes tends to be of extremely low activity for a short duration only. Thus, the cost to decommission the UW's broad scope and irradiator licenses would be similarly low. We estimate this cost not to exceed $500,000.

To that end, we have included a Statement of Intent by the UW Board of Regents to provide adequate funding for decommissioning activities when required.

If you have any questions pertaining to this request, please call me at (608) 262-9178 or FAX me at (608) 262-6767.

Sincerely,

Ronald R. Bresell
Radiation Safety Officer

The University of Wisconsin System

Office of General Counsel
1738 Van Hise Hall, 1220 Linden Drive
Madison, Wisconsin 53706
(608) 262-2995 FAX(608) 262-3985

Charles J. Stathas (608) 262-6166
John B. Tallman 262-0747
Patricia A. Brady 262-6497
Edward S. Alschuler 265-2960

September 17, 1996

United States Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

TO WHOM IT MAY CONCERN:

The Board of Regents of the University of Wisconsin System, an agency of the State of Wisconsin, doing business as the University of Wisconsin- Madison, hereby states its intent to obtain the funds for decommissioning when necessary for the following licenses:

48-09843-18	Broad Scope A License	$300,000
48-09843-28	Irradiator License	50,000
48-09843-32	Panoramic Irradiator License	75,000
48-09843-34	Panoramic Irradiator License	75,000

I hereby certify that I am authorized to act on behalf of the Board of Regents in signing this document.

Board of Regents of the
University of Wisconsin System

By: Charles J. Stathas
Charles J. Stathas
General Counsel and
Assistant Trust Officer

xc: John Torphy
Ronald Bresell
Kathleen Irwin

Nuclides and Activities (mCi) Received under UW Broadsco[redacted]ense for Year Indicated

NUCLID	FULL	RECPT86	RECPT87	RECPT88	RECPT89	RECPT90	RECPT91	RECPT92	RECPT93	RECPT94	RECPT95	RECPT96
AM-241	AMERICIUM-241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000
AM-241	AMERICIUM-241 *	50.0000	250.0005	0.0000	0.0000	0.0000	50.0000	0.0000	0.0100	0.0000	145.1800	0.0000
AU-198	GOLD-198	0.0000	805.3400	1057.6200	165.9000	210.9000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BA-133	BARIUM-133	0.0000	0.0000	0.0000	0.0001	0.0070	0.0000	0.0000	0.1000	0.0000	0.0000	0.0000
BR-82	BROMINE-82	0.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C-14	CARBON-14 *	272.4380	414.2142	273.9533	240.3372	146.5089	259.7868	203.7551	145.6480	162.4562	164.5978	122.8640
CA-41S	CALCIUM-41 SEAL	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0000	0.0000	0.0000	0.0000
CA-45	CALCIUM-45	18.0580	60.2000	48.0100	55.0000	77.0000	70.0000	43.0000	21.0030	33.0020	23.0000	7.0000
CD-109	CADMIUM-109 SEA	0.5010	1.0021	0.1021	0.5031	1.0021	1.0021	3.0021	2.0021	1.0021	1.5000	2.0000
CD-109S	CADMIUM 109 SS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	45.0000	19.5000	0.0000	36.5000	30.0000
CE-141	CERIUM-141	1.2500	0.0000	0.0000	5.0000	2.0000	4.0000	5.0000	2.5000	1.5000	1.5000	1.0000
CL-36	CHLORINE-36	0.1000	0.0500	5.0250	0.2020	0.1500	1.1000	0.7000	1.2750	4.1750	1.5500	0.0000
CL-38	CHLORINE-38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0170	0.0000	0.0000	0.0300
CM-244	CURIUM 244*	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CM-244	CURIUM-244	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000	2.0000	0.0000	0.0000	0.0000	0.0000
CO-56	COBALT-56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO-57	COBALT-57	0.0736	54.1142	6.0701	15.1485	103.0280	30.1000	11.0100	27.2100	61.5000	18.7000	10.0000
CO-57S	COBALT-57	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
CO-60	COBALT-60 *	0.0509	0.0010	0.0000	102.0004	0.0000	0.0000	0.0000	0.0020	0.0000	0.0056	0.0000
CR-51	CHROMIUM-51	648.0000	1364.0000	1147.0100	1094.0128	760.0000	764.0000	749.2260	627.5000	588.0000	443.0000	304.0000
CS-137	CESIUM-137 *	0.0000	0.0015	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
CS-137S	CESIUM-137S	0.0000	0.0000	0.0000	55.0000	0.0000	1177.2000	47.0000	0.0000	30.8000	50.0000	199.9500
CU-64	COPPER-64	0.0500	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CU-67	COPPER-67	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EU-152	EUROPIUM-152	0.0000	0.0000	0.0100	0.0001	0.0000	0.0000	0.0000	0.0000	1.8600	0.0000	0.0000
EU-152	EUROPIUM-152M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.0000	0.0000	0.0000
EU-154	EUROPIUM-154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0890	0.0000	0.0000
EU-155	EUROPIUM-155	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
F-18	FLUORINE-18	0.0000	80.0000	0.0000	12.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FE-55	IRON-55	0.0760	0.0000	0.1000	0.1001	0.0000	0.0000	0.0000	1.1007	8.0060	5.0030	0.0130
FE-55S	IRON-55 SS	0.0000	0.0000	10.0000	0.0000	10.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FE-59	IRON-59	0.2535	0.2500	0.0000	0.5000	0.5000	0.0000	0.0000	0.5040	0.0020	0.0010	0.0070
GA-67	GALLIUM-67	0.0000	0.0000	0.0000	6.0000	7.0000	18.0000	12.0000	18.0000	0.0000	0.0000	0.0000
GD-153	GADOLINIUM-153	712.0002	1795.0000	1.0001	1.0002	1.0000	0.0000	0.1000	0.0000	0.0000	0.0000	0.0000
GD-153	GADOLINIUM-153	0.0000	3750.0000	3665.9000	1000.0000	280.0000	510.0000	2366.9591	0.0000	0.0000	65.8000	0.0000
GE-68	GERMANIUM-68	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.2000	0.0000	0.0000	0.0000
GE-68S	GERMANIUM-68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000
GE-68S	GERMANIUM 68 SS	0.0000	0.0000	0.0000	0.0000	2.5000	0.0000	7.0000	0.0000	0.0000	0.0000	0.0000
H-3	TRITIUM *	3367.1121	14314.7156	4061.2099	2955.6868	11406.0569	1185.6586	2395.3914	2939.8904	801.6350	911.4390	394.8440
I-123	IODINE-123 *	0.0000	22.0300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-125	IODINE-125	917.3188	1741.1115	1504.8233	1232.8107	1064.6298	1287.1398	850.9060	701.5889	825.5197	714.7322	327.4237
I-125B	I-125 Bone min	2047.8898	1412.0188	1446.0000	1400.0000	650.0000	148.5353	0.0000	0.0000	0.0000	0.0000	0.0000
I-125S	IODINE-125S	0.0000	0.0000	0.0000	0.0000	0.0000	77.9400	292.8300	533.5900	338.7600	243.1400	211.3800
I-129	IODINE-129	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-131	IODINE-131	364.0023	451.3120	1004.4091	623.5036	226.0000	106.0030	32.0089	3.5022	0.5010	1.5011	4.0009
IN-111	INDIUM-111	35.0000	53.0000	42.0000	36.0000	22.0000	42.0000	52.2440	49.4660	6.0000	7.0000	0.0000
IR-192	IRIDIUM-192	3259.9880	5746.7830	4962.1489	34189.2810	1791.4395	12315.3425	0.0000	0.0000	0.0000	0.0000	0.0000
IR-192A	IRIDIUM-192A	0.0000	0.0000	0.0000	0.0000	39397.0000	37497.0000	39398.9999	39996.0000	29997.0000	40976.0000	18999.0000
IR-192S	IRIDIUM-192S	0.0000	0.0000	0.0000	0.0000	0.0000	78.2300	1219.7195	515.3261	442.7920	257.1233	405.3728
K-42	POTASSIUM-42	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2020	0.1900	0.0820
KR-85	KRYPTON-85	0.0000	0.0000	0.0000	400.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
LU-176	LUTETIUM 176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
MN-54	MANGANESE-54	0.5000	0.5010	0.7000	0.5000	1.0000	0.0000	0.2000	1.7000	1.5000	1.5000	0.0000
MN-56	MANGANESE-56 RE	0.4100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3400	5.0000	6.2000	0.0030
MO-99	MOLYBDENUM-99 *	0.0000	500.5000	200.0000	205.9600	0.0000	0.0000	0.0000	0.0000	0.0000	200.0000	0.0000
NA-22	SODIUM-22	0.7000	1.2010	6.4000	2.2000	4.6000	3.8000	5.7000	1.9000	2.4000	0.7000	1.3000
NA-24	SODIUM-24	0.5100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.9800	2.8000	1.5470
NB-95	NIOBIUM-95	0.0000	6.0000	4.0000	3.0000	3.0000	2.0000	2.0000	2.0000	1.0000	2.0000	0.0000
NI-63	NICKEL-63	12.0000	2.0000	2.0000	2.0050	0.0000	0.0000	1.0000	7.0000	9.0000	0.0000	0.0000
NI-63GC	NICKEL-63 GAS C	75.0000	60.0000	38.0000	100.0000	85.0000	15.0000	0.0000	60.0000	30.0000	15.0000	23.0000
P-32	PHOSPHORUS-32 *	1949.7500	3645.7020	3279.9849	3596.5510	3755.7500	3941.3851	3859.7186	3186.0089	2947.7436	2990.4748	1705.3980
P-33	PHOSPHORUS-33	6.0000	0.0000	24.0000	6.0000	4.0000	0.0000	3.0000	7.2500	15.5000	27.4400	18.0495
PM-147	PROMETHIUM-147	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1000.0000	0.0000	0.0000	0.0000
PO-210	POLONIUM-210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6.0000
PU-239	PLUTONIUM-239	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RA-226	RADIUM-226S	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RA-228	RADIUM 228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RB-86	RUBIDIUM-86	1.0000	5.0000	5.0000	9.0000	4.0000	7.0000	6.0000	1.0000	0.0000	0.0000	1.0000
RU-103	RUTHENIUM-103	0.0000	0.0000	0.0000	2.0000	2.0000	3.0000	3.5000	1.0000	0.5000	1.0000	0.5000
RU-106	RUTHENIUM-106	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000
S-35	SULFUR-35	887.2000	1359.7869	1573.0500	1874.2650	2134.6700	2193.1000	2663.4000	2768.4240	2155.3500	1772.2500	1129.4400
SC-46	SCANDIUM-46	1.2500	7.0000	4.0000	2.0000	5.0000	1.0000	4.0000	1.5000	2.0000	2.5000	1.0000
SE-75	SELENIUM-75	0.0000	2.5000	2.0000	4.0000	2.0000	0.0000	0.0000	0.0000	3.0000	10.0340	0.0000
SI-31	SILICON-REACTOR	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0000	2.5000	0.0000
SN-113	TIN-113	0.0000	4.0000	6.0000	3.0000	3.0000	3.0000	5.0000	3.0000	2.0000	2.5000	0.5000
SN-119	TIN-119-SEALED	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SN-121	TIN-121M	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SR-82	STRONTIUM-82, D	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000	0.0000	0.0000	0.0000	0.0000
SR-85	STRONTIUM-85	2.7500	6.0000	4.0000	4.5000	3.0000	2.0000	2.0000	1.0000	1.0000	1.0000	1.0000
SR-89	STRONTIUM-89	0.0000	0.0006	0.0000	0.0000	0.0001	0.0000	0.0004	0.0001	8.0002	0.0000	0.0003
SR-90S	STRONTIUM-90SS	27.0000	55.0000	25.0000	0.0000	0.0000	6.8500	0.0000	0.1000	0.0000	0.0000	50.0000
TB-158	TERBIUM-158	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
TC-94M	TECHNETIUM	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
TC-99	TECHNETIUM-99	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TC-99M	TECHNETIUM-99M	0.0000	0.0000	91.0000	0.0000	153.1000	759.1000	3324.8287	3139.0000	1271.0000	275.0000	1840.0000
TH-230	THORIUM 230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
TL-201	THALLIUM-201	0.0000	0.0000	29.9822	25.1802	18.7383	4.4116	0.1420	1.7500	0.0000	0.3000	0.0000
TL-204	THALLIUM-204 SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U-235	URANIUM-235 *	0.0000	0.0000	0.0000	0.0520	0.0208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U-238	URANIUM-238 *	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
XE-133	XENON-133	0.0000	172.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Y-88	YTTRIUM-88 SEAL	0.0000	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Y-90	YTTRIUM-90	0.0000	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ZN-62	ZINC-62	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	170.0000	480.0000	240.0000	230.0000	150.0000
ZN-65	ZINC-65	0.1500	0.5000	0.1000	0.5000	1.0000	0.5000	0.0000	3.0000	0.0000	0.0000	2.5000
ZN-69	ZINC -69	1.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Sealed Source Nuclides and Activities (mCi) Received under UW Broadscope License for Year Indicated

NUCLIDE	FULL	RECPT86	RECPT87	RECPT88	RECPT89	RECPT90	RECPT91	RECPT92	RECPT93	RECPT94	RECPT95	RECPT96
AM-241S	AMERICIUM-241 *	50.0000	250.0005	0.0000	0.0000	0.0000	50.0000	0.0000	0.0100	0.0000	145.1800	0.0000
AU-198	GOLD-198	0.0000	805.3400	1057.6200	165.9000	210.9000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CA-41S	CALCIUM-41 SEAL	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0000	0.0000	0.0000	0.0000
CD-109	CADMIUM-109 SEA	0.5010	1.0021	0.1021	0.5031	1.0021	1.0021	3.0021	2.0021	1.0021	1.5000	2.0000
CD-109S	CADMIUM 109 SS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	45.0000	19.5000	0.0000	36.5000	30.0000
CM-244S	CURIUM-244	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000	2.0000	0.0000	0.0000	0.0000	0.0000
CO-57S	COBALT-57	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
CO-60	COBALT-60 *	0.0509	0.0010	0.0000	102.0004	0.0000	0.0000	0.0000	0.0020	0.0000	0.0058	0.0000
CS-137	CESIUM-137 *	0.0000	0.0015	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
CS-137S	CESIUM-137S	0.0000	0.0000	0.0000	55.0000	0.0000	1177.2000	47.0000	0.0000	30.8000	50.0000	199.9500
FE-55S	IRON-55 SS	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
GD-153	GADOLINIUM-153	712.0002	1795.0000	1.0001	1.0002	1.0000	0.0000	0.1000	0.0000	0.0000	0.0000	0.0000
GD-153S	GADOLINIUM-153	0.0000	3750.0000	3665.9000	1000.0000	280.0000	510.0000	2366.9591	0.0000	0.0000	65.8000	0.0000
GE-68S	GERMANIUM-68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000
GE-68SS	GERMANIUM 68 SS	0.0000	0.0000	0.0000	0.0000	2.5000	0.0000	7.0000	0.0000	0.0000	0.0000	0.0000
I-125B	I-125 Bone min	2047.8898	1412.0188	1446.0000	1400.0000	650.0000	148.5353	0.0000	0.0000	0.0000	0.0000	0.0000
I-125S	IODINE-125S	0.0000	0.0000	0.0000	0.0000	0.0000	77.9400	292.8300	533.5900	338.7600	243.1400	211.3800
I-129	IODINE-129	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
IR-192	IRIDIUM-192	3259.9880	5746.7830	4962.1489	34189.2810	1791.4395	12315.3425	0.0000	0.0000	0.0000	0.0000	0.0000
IR-192A	IRIDIUM-192A	0.0000	0.0000	0.0000	0.0000	39397.0000	37497.0000	39398.9999	39996.0000	2999.7000	40976.0000	18999.0000
IR-192S	IRIDIUM-192S	0.0000	0.0000	0.0000	0.0000	0.0000	78.2300	1219.7195	515.3261	44.7920	257.1233	405.3728
KR-85	KRYPTON-85	0.0000	0.0000	0.0000	400.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NI-63GC	NICKEL-63 GAS C	75.0000	60.0000	38.0000	100.0000	85.0000	15.0000	0.0000	60.0000	30.0000	15.0000	23.0000
PM-147	PROMETHIUM-147	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1000.0000	0.0000	0.0000	0.0000
PO-210	POLONIUM-210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6.0000
PU-239	PLUTONIUM-239	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RA-226	RADIUM-226S	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SN-119	TIN-119-SEALED	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SR-90S	STRONTIUM-90SS	27.0000	55.0000	25.0000	0.0000	0.0000	6.8500	0.0000	0.1000	0.0000	0.0000	50.0000
TC-99	TECHNETIUM-99	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TL-204	THALLIUM-204 SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Y-88	YTTRIUM-88 SEAL	0.0000	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unsealed Nuclides and Activities (mCi) Received under UW Broadscope License for Year Indicated

NUCLIDE	FULL	RECPT86	RECPT87	RECPT88	RECPT89	RECPT90	RECPT91	RECPT92	RECPT93	RECPT94	RECPT95	RECPT96
AM-241	AMERICIUM-241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000
BA-133	BARIUM-133	0.0000	0.0000	0.0000	0.0001	0.0070	0.0000	0.0000	0.1000	0.0000	0.0000	0.0000
BR-82	BROMINE-82	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C-14	CARBON-14 *	272.4380	414.2142	273.9533	240.3372	146.5089	259.7868	203.7551	145.6480	162.4562	164.5978	122.8640
CA-45	CALCIUM-45	18.0580	60.2000	48.0100	55.0000	77.0000	70.0000	43.0000	21.0030	33.0020	23.0000	7.0000
CE-141	CERIUM-141	1.2500	0.0000	0.0000	5.0000	2.0000	4.0000	5.0000	2.5000	1.5000	1.5000	1.0000
CL-36	CHLORINE-36	0.1000	0.0500	5.0250	0.2020	0.1500	1.1000	0.7000	1.2750	4.1750	1.5500	0.0000
CL-38	CHLORINE-38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0170	0.0000	0.0000	0.0300
CM-244	CURIUM 244*	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO-56	COBALT-56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO-57	COBALT-57	0.0736	54.1142	6.0701	15.1485	103.0280	30.1000	11.0100	27.2100	61.5000	18.7000	10.0000
CO-60	COBALT-60 *	0.0509	0.0010	0.0000	2.0004	0.0000	0.0000	0.0000	0.0020	0.0000	0.0056	0.0000
CR-51	CHROMIUM-51	648.0000	1364.0000	1147.0100	1094.0128	760.0000	764.0000	749.2260	627.5000	588.0000	443.0000	304.0000
CS-137	CESIUM-137 *	0.0000	0.0015	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
CU-64	COPPER-64	0.0500	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CU-67	COPPER-67	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EU-152	EUROPIUM-152	0.0000	0.0000	0.0100	0.0001	0.0000	0.0000	0.0000	0.0000	1.8600	0.0000	0.0000
EU-152M	EUROPIUM-152M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.0000	0.0000	0.0000
EU-154	EUROPIUM-154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0890	0.0000	0.0000
EU-155	EUROPIUM-155	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
F-18	FLUORINE-18	0.0000	80.0000	0.0000	12.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FE-55	IRON-55	0.0760	0.0000	10.1000	0.1001	0.0000	0.0000	0.0000	1.1007	8.0060	5.0030	0.0130
FE-59	IRON-59	0.2535	0.2500	0.0000	0.5000	0.5000	0.0000	0.0000	0.5040	0.0020	0.0010	0.0070
GA-67	GALLIUM-67	0.0000	0.0000	0.0000	6.0000	7.0000	18.0000	12.0000	18.0000	0.0000	0.0000	0.0000
GE-68	GERMANIUM-68	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.2000	0.0000	0.0000	0.0000
H-3	TRITIUM *	3367.1121	14314.7156	4061.2099	2955.6888	11406.0569	1185.6586	2395.3914	2939.8904	801.6350	911.4390	394.8440
I-123	IODINE-123 *	0.0000	22.0300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-125	IODINE-125	917.3188	1741.1115	1504.8233	1232.8107	1064.6298	1287.1398	850.9060	701.5889	825.5197	714.7322	327.4237
I-129	IODINE-129	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-131	IODINE-131	364.0023	451.3120	1004.4091	623.5036	226.0006	106.0030	32.0089	3.5022	0.5010	1.5011	4.0009
IN-111	INDIUM-111	35.0000	53.0000	42.0000	36.0000	22.0000	42.0000	52.2440	49.4660	6.0000	7.0000	0.0000
K-42	POTASSIUM-42	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2020	0.1900	0.0820
LU-176	LUTETIUM 176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
MN-54	MANGANESE-54	0.5000	0.5010	0.7000	0.5000	1.0000	0.0000	0.2000	1.7000	1.5000	1.5000	0.0000
MN-56	MANGANESE-56 RE	0.4100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3400	5.0000	6.2000	0.0030
MO-99	MOLYBDENUM-99 *	0.0000	500.5000	200.0000	205.9600	0.0000	0.0000	0.0000	0.0000	0.0000	200.0000	0.0000
NA-22	SODIUM-22	0.7000	1.2010	6.4000	2.2000	4.6000	3.8000	5.7000	1.9000	2.4000	0.7000	1.3000
NA-24	SODIUM-24	0.5100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.9800	2.8000	1.5470
NB-95	NIOBIUM-95	0.0000	6.0000	4.0000	3.0000	3.0000	2.0000	2.0000	2.0000	1.0000	2.0000	0.0000
NI-63	NICKEL-63	12.0000	2.0000	2.0000	2.0050	0.0000	0.0000	1.0000	7.0000	9.0000	0.0000	0.0000
P-32	PHOSPHORUS-32 *	1949.7500	3645.7020	3279.9849	3596.5510	3755.7500	3941.3851	3859.7186	3186.0089	2947.7436	2990.4748	1705.3980
P-33	PHOSPHORUS-33	6.0000	0.0000	24.0000	6.0000	4.0000	0.0000	3.0000	7.2500	15.5000	27.4400	18.0495
RA-228	RADIUM 228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RB-86	RUBIDIUM-86	1.0000	5.0000	5.0000	9.0000	4.0000	7.0000	6.0000	1.0000	0.0000	0.0000	1.0000
RU-103	RUTHENIUM-103	0.0000	0.0000	0.0000	2.0000	2.0000	3.0000	3.5000	1.0000	0.5000	1.0000	0.5000
RU-106	RUTHENIUM-106	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000
S-35	SULFUR-35	887.2000	1359.7869	1573.0500	1874.2650	2134.6700	2193.1000	2663.4000	2768.4240	2155.3500	1772.2500	1129.4400
SC-46	SCANDIUM-46	1.2500	7.0000	4.0000	2.0000	5.0000	1.0000	4.0000	1.5000	2.0000	2.5000	1.0000
SE-75	SELENIUM-75	0.0000	2.5000	2.0000	4.0000	2.0000	0.0000	0.0000	0.0000	3.0000	10.0340	0.0000
SI-31	SILICON-REACTOR	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0000	2.5000	0.0000
SN-113	TIN-113	0.0000	4.0000	6.0000	3.0000	3.0000	3.0000	5.0000	3.0000	2.0000	2.5000	0.5000
SN-121M	TIN-121M	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SR-82	STRONTIUM-82, D	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000	0.0000	0.0000	0.0000	0.0000
SR-85	STRONTIUM-85	2.7500	6.0000	4.0000	4.5000	3.0000	2.0000	2.0000	1.0000	1.0000	1.0000	1.0000
SR-89	STRONTIUM-89	0.0000	0.0006	0.0000	0.0000	0.0001	0.0000	0.0004	0.0001	8.0002	0.0000	0.0003
TB-158	TERBIUM-158	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
TC-94M	TECHNETIUM-94M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
TC-99	TECHNETIUM-99	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TC-99M	TECHNETIUM-99M	0.0000	0.0000	91.0000	0.0000	153.1000	759.1000	3324.8287	3139.0000	1271.0000	275.0000	1640.0000
TH-230	THORIUM 230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
TL-201	THALLIUM-201	0.0000	0.0000	29.9822	25.1802	18.7383	4.4116	0.1420	1.7500	0.0000	0.3000	0.0000
U-235	URANIUM-235 *	0.0000	0.0000	0.0000	0.0520	0.0208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U-238	URANIUM-238 *	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
XE-133	XENON-133	0.0000	172.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ZN-62	ZINC-62	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	170.0000	480.0000	240.0000	230.0000	150.0000
ZN-65	ZINC-65	0.1500	0.5000	0.1000	0.5000	1.0000	0.5000	0.0000	3.0000	0.0000	0.0000	2.5000
ZN-69	ZINC -69	1.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unsealed Long-Lived (T > 120 days) NRC-Regulated Nuclides and Activities (mCi) Received under UW Broadscope License for Year Indicated

NUCLIDE	FULL	RECPT86	RECPT87	RECPT88	RECPT89	RECPT90	RECPT91	RECPT92	RECPT93	RECPT94	RECPT95	RECPT96
AM-241	AMERICIUM-241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000
BA-133	BARIUM-133	0.0000	0.0000	0.0000	0.0001	0.0070	0.0000	0.0000	0.1000	0.0000	0.0000	0.0000
C-14	CARBON-14 *	272.4380	414.2142	273.9533	240.3372	146.5089	259.7868	203.7551	145.6480	162.4562	164.5978	122.8640
CA-45	CALCIUM-45	18.0580	60.2000	48.0100	55.0000	77.0000	70.0000	43.0000	21.0030	33.0020	23.0000	7.0000
CL-36	CHLORINE-36	0.1000	0.0500	5.0250	0.2020	0.1500	1.1000	0.7000	1.2750	4.1750	1.5500	0.0000
CM-244	CURIUM 244*	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO-60	COBALT-60 *	0.0509	0.0010	0.0000	2.0004	0.0000	0.0000	0.0000	0.0020	0.0000	0.0056	0.0000
CS-137	CESIUM-137 *	0.0000	0.0015	0.0000	0.0000	0.0000	0.2000	0.0001	0.0000	0.0000	0.0000	0.0000
EU-152	EUROPIUM-152	0.0000	0.0000	0.0100	0.0001	0.0000	0.0000	0.0000	0.0000	1.8600	0.0000	0.0000
EU-154	EUROPIUM-154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0890	0.0000	0.0000
EU-155	EUROPIUM-155	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FE-55	IRON-55	0.0760	0.0000	10.1000	0.1001	0.0000	0.0000	0.0000	1.1007	8.0060	5.0030	0.0130
H-3	TRITIUM *	3367.1121	14314.7156	4061.2099	2955.6888	11406.0569	1185.6586	2395.3914	2939.8904	801.6350	911.4390	394.8440
I-129	IODINE-129	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
LU-176	LUTETIUM 176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
MN-54	MANGANESE-54	0.5000	0.5010	0.7000	0.5000	1.0000	0.0000	0.2000	1.7000	1.5000	1.5000	0.0000
NI-63	NICKEL-63	12.0000	2.0000	2.0000	2.0050	0.0000	0.0000	1.0000	7.0000	9.0000	0.0000	0.0000
RU-106	RUTHENIUM-106	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000
SN-121M	TIN-121M	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TB-158	TERBIUM	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
TC-99	TECHNETIUM-99	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TH-230	THORIUM 230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
U-235	URANIUM-235 *	0.0000	0.0000	0.0000	0.0520	0.0208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U-238	URANIUM-238 *	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
ZN-65	ZINC-65	0.1500	0.5000	0.1000	0.5000	1.0000	0.5000	0.0000	3.0000	0.0000	0.0000	2.5000

Activity (mCi) Incinerated at Herrick Drive Incinerator for Year Indicated

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Totals
H-3	1422.22	1432.64	2249.91	10354.1	48816.9	1300	1625	1042.15	352.006	2275.011	552.976	426.7051	796.8306	241.5642	475.031	73363.05
C-14	87	20.4645	119.245	246.395	668.852	126	117	56.23	79.032	138.721	68.628	85.3515	109.1228	80.9645	147.229	2150.235
Na-22	0.13	0.05	1.288	0	5.5099	0.82	0.132	0.44	1.695	2.453	1.844	1.29292	1.9013	0.557	0.26	18.37312
P-32	1.5	0.99	5.109	7.128	9.3547	7.3	123	46.85	46.693	42.22	21.223	13.99898	16.103	23.89269	13.573	378.9354
P-33	0	0	0	0	0	0	0.0365	0	0	0	0	0	0	0	0.249	0.2855
S-35	13.36	27.444	58.16	488.544	335.431	267	338	287.09	384.588	136.545	333.43	392.0034	220.655	205.5203	181.499	3669.27
Cl-36	0	0	0.001	0	0.448	0.001	0.43	0	0.981	0.681	0.003	0.08579	0.1604	0.172	1.547	4.51019
Ca-45	0.48	0	0.071	21.3645	13.0299	8	9.65	7.64	20.005	3.311	6.987	4.1365	4.60971	2.851623	3.063	105.1992
Sr-46	5.1	1.6718	2.065	2.479	2.7278	1.8	3.34	1.07	1.439	7.23	0.831	2.6047	0.9532	0.929	1.217	35.4575
Cr-51	23.9	21.713	21.024	18.92	17.961	51	7.97	0.006	1.688	265.102	18.109	39.5	32.455	17.684	24.311	561.343
Mn-54	0	0	0.2	0	0.0819	0.15	0.158	0.108	0.285	1.044	0.051	0.07715	0.2896	0.00007	0.326	2.77072
Fe-55	0	0	0	0.002	0.0262	0	0	0	0	0	0	0	0	0	0	0.0282
Co-57	2.3	0.67	0	0	1.4141	1.3	3.03	1.43	1.6	5.914	0.92	1.670744	0.7195	1.34025	1.817	24.12559
Fe-59	0.19	0.004	0	0	0	0.2	0.332	0.002	0.302	0.307	0.2	0	0	0	0	1.537
Co-60	0	0	0.26	0	0	0.082	0	0	0	0.002	0.1	0	0	0	0	0.444
Ni-63	0	0	0	0	19.9584	0.22	15.7	0.001	0	0.042	0.068	0.0001	0.053	0	0.027	36.0695
Zn-65	0	0.36	0.67	0	0.0173	0.1	0.0505	0	0.051	0.008	0	0	0.0024	0.032	0	1.2912
Ga-68	0	0	0	0	0.0136	0.01	0	0	0	0	0	0	0	0	0	0.0236
Se-75	0.94	0.387	0.7122	1.589	0.9939	0.62	0.118	0.0354	0.068	0	10.402	0.0002	0	0	0	15.8657
Sr-85	3.1	1.5173	2.011	2.557	2.7408	1.6	2.51	0.67	1.84	1.355	0.43	1.93	0.44	0.43102	0.[illegible]2	23.87412
Rb-86	0	0	0	0	0.012	0.048	0.03	0.001	0	0.277	0	0.01077	0	0	0	0.37877
Y-88	0	0	0	0	0	0	0	0	0	0.102	0	0	0.00001	0	0	0.10201
Sr-90	0	0	0	0	0.004	0.0001	0	0	0	0	0	0	0	0	0	0.0041
Y-90	0	0	0	0	0.004	0.0001	0.12	0	0	0.001	0	0	0	0	0	0.1251
Nb-95	0	0	0	0	0.493	1.2	2.36	0.68	1.25	0.98	0.431	2.07472	0.85734	0.328	0.626	11.26006
Mo-99	0	0	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0.12
Tc-99	0	0	0	0	0	0.05	0	0	0	0	0	0	0	0	0	0.05
Ru-103	0.17	0.04	0	0	0.013	0	0	0	0.275	3.523	0.816	1.66939	0.4919	0.1704	0.415	7.58369
Cd-109	0.2	0	0	0	0.0346	0.13	0.438	0.095	0.017	0.757	0.16	1.93	0.1379	0.3431	0.549	5.0916
In-111	0	2.636	0	0	0	3.1	2.18	1.996	2.35	4.195	5.507	0.9149	0.04992	0	0.229	23.15782
Sn-113	0	0	0	0	0.9471	1.3	2.74	1.24	1.167	1.865	1.2	3.9895	2.0471	1.0798	1.311	18.8865
I-123	0	0	0	0	0	0	0.56	0	0	0	0	0	0	0	0	0.56
I-125	18.8	25.84	38.002	22.519	25.7177	46	33.7	24.66	32.657	20.424	17.493	13.8349	8.1433	9.346596	15.574	352.7115
I-131	0	0	0	0	0	0	0.92	0.207	0.853	0.244	0.006	0	0	0.013	0.118	2.361
Ba-133	0	0	0	0	0.0967	0	0	0	0	0	0	0	0	0	0	0.0967
Cs-137	0	0	0.002	0	4.6226	2	0	0	0	0.066	0.009	0	0	0.0019	0	6.7015
Ce-141	0	0.7039	2.614	2.168	1.722	0.28	0.131	0	2.008	0.633	1.33	2.75091	0.96511	0.3694	0.399	16.07432
Eu-152	0	0	0	0	0	0.25	0	0	0	0	0	0	0	0	0	0.25
Gd-153	0	0	0	0	0.1	0.031	0	0	0.317	0.289	0	0	0	0	0.008	0.745
Eu-154	0	0	0	0	0	0.064	0	0	0	0	0	0	0	0	0	0.064
Tl-201	0	0	0	0	0	0	0	7.865	0.943	0.176	0.001	0	0	0	0	8.985
Pb-210	0	0	0.012	0	0	0	0	0	0	0	0	0	0	0	0	0.012
Po-210	0	0	0	0	0	0	0	0	0	0.005	0	0	0	0	0	0.005
Totals:	1579.39	1537.132	2501.476	11167.77	49929.23	1820.656	2289.636	1480.466	934.11	2913.483	1043.155	996.5322	1196.994	587.8908	870.12	80848.03
Labware (ft3)			1845.5	9732	1516	2312	4517	4901	6902	5769	3816.25	6565.85	5916.45	5008	5252.85	64053.9
Animals (lb)			23731	15354	16555	14427	12948	10732	12357	15747	7907	17000	11985	6760	8540	174043

Activity (mCi) Disposed of to the Sanitary Sewer for Year Indicated

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Totals
H-3	0.24	197.991	1586.84	2947.985	1702.3	688	566.4606	395.8572	298.8591	657.498	345.814	430.6453	303.9904	309.673	763.844	11196
C-14	0.79	8.59	320.64	37.5088	34.7	28.6	17.6369	31.3014	10.995	17.4094	12.6446	13.1187	9.7477	8.614	5.312	557.6085
Na-22	0.55	0.105	0.04	1.048	0.42	0.074	0.393	0.54	1.005	1.385	0.5089	2.2647	1.2837	1.037	1.77	12.4243
P-32	0.18	0.01	0.56	9.105	3.71	5.1	11.8829	12.2515	16.9604	15.0229	7.422	8.1804	5.5727	5.395	4.068	105.4208
P-33	0	0	0	0	0	0	0	0	0	0.0139	0	0.0001	0	0	0	0.014
S-35	1.12	27.34	9	39.127	44.85	48.2	57.2915	34.3217	64.7508	95.673	72.7558	103.0183	87.5166	67.816	83.625	836.4057
Cl-36	0	0	0	0.01	0	0	0.0381	0	0.002	0.476	0.0469	0.321	2.142	2.469	5.503	11.008
Ca-45	0.1	0.363	101.9	11.674	13.13	4.82	3.334	1.719	2.5591	6.1471	7.989	7.974	6.5865	3.153	6.602	178.0507
Sc-46	0	0	0	0.0102	0.016	0.0056	0.003	0	0.1204	0.0744	0.0035	0	0.002	0	0	0.2351
Cr-51	0	0	0.2	0.293	0.49	0	21.02	5.937	25.235	10.067	8.852	5.092	2.834	2.447	7.817	90.284
Mn-54	0	0	0	0.029	0.0411	0.013	0	0	0	0	0	0.007	0.052	0	0.99	1.1321
Fe-55	0	0	0	0	0	0	0	0	0.01	0.008	0	0	0	0	2.18	2.198
Co-57	0	0	0	0.116	0.0072	0.105	0.0145	0.0063	0.053	0.029	0.032	0.07	1.401	0.715	0.01	2.559
Fe-59	0	0.0056	0	0.151	0	0.105	0	0	0	0	0	0.00039	0	0	0	0.26199
Co-60	0	0	0	0	0.0007	0.0004	0	0	0	0	0	0	0	0	0	0.0011
Ni-63	0	0	0	0.334	0.03	0.9	0	0	0.015	4.25	0.0271	0.415	0	1.5	2.06	9.5311
Zn-65	0	0.0105	0.05	0.045	0	0	0	0	0	0	0	0	0.245	0.0009	0	0.3514
Ga-67	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0.1
As-73	0	0.0009	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0009
Se-75	0	0	0.3	0	0.0028	0	0.5	0.147	0	0	0	0.8797	0	0	0	1.8295
Sr-85	0	0	0	0.0102	0.0153	0.0004	0.0042	0	0	0.002	0	0	0	0	0	0.0321
Rb-86	0	0	0	0	0.007	0	0	0	0	0.002	0.025	0.026	0	0	0	0.06
Y-88	0	0	0	0	0.0014	0.0008	0	0	0	0	0	0	0	0	0	0.0022
Sr-89	0	0	0	0	0	0.0004	0	0	0	0	0	0	0	0	0	0.0004
Sr-90	0	0	0	0	0	0.004	0	0	0	0	0	0	0	0	0	0.004
Zr-95	0	0	0	0	0	0.0001	0	0	0	0	0	0	0	0	0	0.0001
Tc-99m	0	0	0	0	0	0	0	0	0	4.1	10.52	20.1	20	0	0	54.72
Ru-103	0	0	0	0	0	0	0	0	0.2258	0.006	0.0074	0	0	0	0	0.2392
Ru-106	0	0.0001	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0001
Cd-109	0	0	0.004	0	0.0033	0.0021	0.003	0	0	0	0	0	0	0	0	0.0124
Sn-113	0	0	0	0	0.0006	0.0003	0	0	0.0226	0.0035	0	0	0	0	0	0.027
Sb-125	0	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001
I-125	2.86	3.49	19.83	180.2753	95.3	45.2	28.7926	26.3179	126.6762	25.6563	18.6114	13.9491	13.2255	13.29	16.089	629.5633
I-131	0	0	0	0	0	0.9905	0.0908	1.1811	3.1042	2.995	3.56	0.03	0.03	0	0	11.9816
Ba-133	0	0	0	0	0.1227	0.002	0	0.0003	0	0	0	0	0	0	0	0.125
Cs-134	0	0	0	0	0	0.0001	0	0	0	0	0	0	0	0	0	0.0001
Cs-137	0	0	0.001	0	0.0008	0.0066	0	0	0	0.0002	0	0	0	0	0	0.0086
Ce-139	0	0	0	0	0.0001	0.0001	0	0	0	0	0	0	0	0	0	0.0002
Ce-141	0	0	0	0.0102	0.013	0	0	0	0.3935	0.015	0.0085	0	0	0	0	0.4402
Eu-152	0	0	0	0	0	0.0013	0	0	0	0	0	0	0	0	0	0.0013
Gd-153	0	0	0	0	0	0	0.0235	0	0	0	0	0	0	0	0.04	0.0635
Tl-201	0	0	0	0	0	0	0	0	0	1.8962	0	0	0	0	0	1.8962
Hg-203	0	0	0.03	0	0.0004	0.0002	0	0	0	0	0	0	0	0	0	0.0306
Tl-204	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0.01
Bi-207	0	0	0	0	0	0.0001	0	0	0	0	0	0	0	0	0	0.0001
Pb-210	0	0	0	0.318	0	0	0	0	0	0	0	0	0	0	0	0.318
Ra-226	0	0	0	0	0.0001	0	0	0	0	0	0	0	0	0	0	0.0001
Am-241	0	0	0	0	0.0003	0.0001	0	0	0	0.0001	0	0	0	0	0	0.0005
																0
Totals:	5.84	237.9071	2039.395	3228.049	1895.162	822.142	707.4886	509.5804	550.9871	842.7299	488.9281	606.0917	454.6291	416.1099	899.91	13704.95
User Sewer (mCi)														19.93		19.93
Volume (l)							10224	9376	22807.77	12914.35	11568	10166.9	9964.11	11,022.43	9,001.38	107044.9

Daily Volume -- 6 E 11 ml

RN
7/9/96

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
AR-41	0	50	0	0	3000
AS-76	0	200	0	0	3000
AU-198	0	202	0	0	3000
AU-198S	0	2000	107	107	3000
BA-133	0	28	1	1	3000
BA-140	0	0	0	0	3000
BR-80	0	1	0	0	3000
BR-82	0	221	0	0	3000
CA-45	0	563	42	42	3000
CA-47	0	12	0	0	3000
CD-109	0	156	7	7	3000
CD-109S	0	95	0	0	3000
CD-115	0	2	0	0	3000
CE-139	0	110	0	0	3000
CE-141	0	39	0	0	3000
CE-144	0	0	0	0	3000
CL-36	0	22	1	1	3000
CL-38	0	11	0	0	3000
CR-51	0	895	127	127	3000
CS-134	0	1	0	0	3000
CU-64	0	364	0	0	3000
CU-67	0	54	0	0	3000
DY-159	0	0	0	0	3000
EU-152	0	25	2	2	3000
EU-152M	0	10	0	0	3000
EU-154	0	15	0	0	3000
F-18	0	3000	0	0	3000
FE-55	0	81	7	7	3000
FE-59	0	48	0	0	3000
GD-153	0	24	0	0	3000
HG-203	0	19	0	0	3000
I-125	0	2098	814	814	3000
I-125S	0	1300	62	62	3000
I-129	0	0	0	0	1000
I-131	0	736	1	1	3000
IN-111M	0	10	0	0	3000
IN-113M	0	100	0	0	3000
IN-114M	0	200	0	0	3000
IR-192	0	100	0	0	3000
IR-192S	0	2500	144	144	3000
K-42	0	26	0	0	3000
KR-79	0	0	0	0	3000
KR-81	0	30	0	0	3000
KR-85	0	400	0	0	3000
LA-140	0	0	0	0	3000
LU-176	0	0	0	0	3000

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
MN-56	0	10	6	6	3000
NB-95	0	127	1	1	3000
NI-63	0	213	55	55	3000
NI-63GC	0	849	397	397	3000
O-15	0	2700	0	0	3000
O-19	0	5	0	0	3000
P-33	0	948	20	20	3000
PB-210	0	10	0	0	3000
PB-210S	0	0	0	0	1
PM-147	0	1000	0	0	3000
PO-210	0	20	6	6	80
PR-144	0	0	0	0	3000
PT-197	0	0	0	0	3000
PU-238	0	0	0	0	0
RB-86	0	165	2	2	3000
RH-106	0	0	0	0	3000
RU-103	0	102	0	0	3000
RU-106	0	0	0	0	3000
RU-106S	0	10	4	4	3000
S-35	0	7208	2107	2107	3000
SB-124	0	101	0	0	3000
SB-125	0	0	0	0	3000
SC-46	0	28	1	1	3000
SE-75	0	58	3	3	3000
SM-151	0	50	50	50	3000
SN-113	0	35	1	1	3000
SN-119M	0	50	10	10	3000
SN-121M	0	0	0	0	3000
SR-85	0	4041	1	1	3000
SR-87M	0	400	0	0	3000
SR-89	0	65	0	0	3000
SR-90	0	92	1	1	3000
TB-158	0	0	0	0	3000
TC-99	0	10	0	0	3000
TE-123	0	0	0	0	3000
TL-201	0	203	1	1	3000
TL-204	0	1	0	0	3000
TM-170	0	0	0	0	3000
XE-127	0	300	0	0	3000
XE-133	0	2011	0	0	3000
Y-90	0	1	0	0	3000
YB-169	0	4700	0	0	3000
ZN-65	0	433	5	5	3000
ZN-69	0	10	0	0	3000
ZR-95	0	0	0	0	3000

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
*** Total ***		41704	3985	3985	

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
AM-241	1	1	0	0	250
AM-241S	1	3421	2414	2414	5000
AM-BE	1	100	50	50	100
AS-73	1	200	0	0	3000
C-14	1	5892	500	500	5000
CM-244	1	0	0	0	1
CM-244S	1	20	4	4	40
CO-60	1	612	1	1	5000
CO-60S	1	102	101	101	5000
CS-137	1	8239	674	674	20000
CS-137S	1	2022201	6289	6289	20000
FE-55S	1	120	28	28	3000
GD-153S	1	12001	2058	2058	12000
H-3	1	1642884	369142	369142	2000000
H-3GC	1	600	0	0	500000
I-125B	1	2050	0	0	3000
MO-99	1	8801	0	0	10000
P-32	1	9483	1439	1439	5000
PU-239	1	0	0	0	0
SI-31	1	10	4	4	3000
TC-94M	1	300	1	1	10
TC-99M	1	8562	160	160	10000
U-238	1	864	0	0	166
*** Total ***		3726463	382867	382867	

nuclide	nuk->license	poss_lim	balance	nuk->balance	nuk->nrcli
CM-244	1	0.0150	0.0031	0.0031	1.000
CM-244S	1	20.0000	4.0000	4.0000	40.000
PU-239	1	0.1010	0.0005	0.0005	0.035
PU-239S	2	5000.0000	3000.0000	3000.0000	3000.000

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
PU-239S	2	5000	3000	3000	3000
SR-90S	2	1677	222	222	3000
TH-230	2	0	0	0	0
U-235	2	0	0	0	0
*** Total ***		6677	3223	3223	

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
AS-72	3	200	0	0	3000
AS-74	3	204	0	0	3000
AU-195	3	150	0	0	3000
BE-7	3	2	0	0	3000
BI-207	3	0	0	0	3000
BR-76	3	550	0	0	3000
BR-77	3	220	0	0	3000
C-10	3	101	0	0	3000
C-11	3	1700	0	0	3000
CO-55	3	20	0	0	3000
CO-56	3	100	0	0	3000
CO-57	3	409	147	147	3000
CO-57S	3	1	0	0	1000
CO-58	3	200	0	0	3000
CS-129	3	0	0	0	3000
CU-61	3	220	0	0	3000
CU-62	3	400	0	0	3000
F-17	3	200	0	0	3000
FE-52	3	110	0	0	3000
GA-67	3	313	0	0	3000
GA-68	3	650	0	0	3000
GE-68	3	220	0	0	3000
GE-68S	3	50	12	12	50
GE-68SS	3	7	0	0	3000
HG-195	3	150	0	0	3000
HG-197	3	6	0	0	3000
I-123	3	230	0	0	3000
I-124	3	100	0	0	3000
IN-111	3	391	0	0	3000
IR-192A	3	22000	9697	9697	2
K-38	3	20	0	0	3000
K-40	3	1	0	0	3000
KR-77	3	1	0	0	3000
MG-28	3	0	0	0	3000
MN-51	3	100	0	0	3000
MN-52	3	101	0	0	3000
MN-52M	3	100	0	0	3000
MN-54	3	25	1	1	3000
N-13	3	1260	0	0	3000
NA-22	3	52	5	5	1500
NA-24	3	21	4	4	3000
O-14	3	250	0	0	3000
RA-226	3	213	101	101	1000000
RA-226S	3	25	0	0	1000000
RA-228	3	0	0	0	3000
RB-81	3	60	0	0	3000

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
RB-82	3	750	0	0	3000
SR-82	3	750	0	0	3000
TE-123M	3	100	0	0	3000
TH-228	3	0	0	0	3000
TH-232	3	10	0	0	3000
TI-44	3	0	0	0	3000
V-48	3	120	0	0	3000
V-50	3	1	0	0	3000
XE-123	3	1	0	0	3000
Y-87	3	600	0	0	3000
Y-88	3	111	0	0	3000
ZN-62	3	400	0	0	3000
*** Total ***		33977	9966	9966	

 Summary of nuclides where Total Poss Limits > NRC Limit

07/02/96

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
AM-BE	1	100	50	50	100
AS-70		100	0	0	0
BA-137M		0	0	0	0
BR-74M		100	0	0	0
BR-75		150	0	0	0
BR-80M		520	0	0	0
C-14	1	5892	500	500	5000
CO-57		10	0	0	0
CA-41S	O	0	0	0	0
CD-107		100	0	0	0
CL-34M		150	0	0	0
CO-54M		100	0	0	0
CS-137I		1450000	0	0	0
CS-137S	1	2022201	6289	6289	20000
CU-60		520	0	0	0
EU-155		0	0	0	0
F-18	0	3000	0	0	3000
GA-64		100	0	0	0
GA-66		200	0	0	0
GD-153S	1	12001	2058	2058	12000
GE-68S	3	50	12	12	50
GE-71S		0	0	0	0
GE-75S		0	0	0	0
GE-77S		0	0	0	0
I-126		100	0	0	0
I-130		100	0	0	0
IN-110		100	0	0	0
IN-112		100	0	0	0
IN-115M		100	0	0	0
IR-192A	3	22000	9697	9697	2
KR-81M		50	0	0	0
MO-93M		100	0	0	0
NB-90		200	0	0	0
NB-92M		100	0	0	0
NB-96		100	0	0	0
NI-63S		15	0	0	0
P-210SS		20	0	0	0
P-30		100	0	0	0
P-32	1	9483	1439	1439	5000
PB-205		0	0	0	0
PD-103		4500	0	0	0
PD-103S		300	0	0	0
PN-13		0	0	0	0
PU-238	0	0	0	0	0
PU-239	1	0	0	0	0

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
PU-239S	2	5000	3000	3000	3000
PU-240		0	0	0	0
RB-82GE		3000	0	0	0
RB-82M		200	0	0	0
RB-83		100	0	0	0
RB-84		100	0	0	0
RB-84M		500	0	0	0
RB-87		0	0	0	0
RH-100		100	0	0	0
RH-102M		100	0	0	0
RH-96		100	0	0	0
RH-98		100	0	0	0
RH-99		100	0	0	0
RH-99M		100	0	0	0
S-35	0	7208	2107	2107	3000
SB-116		100	0	0	0
SB-116M		100	0	0	0
SB-117		100	0	0	0
SB-118M		100	0	0	0
SB-120		100	0	0	0
SB-122		100	0	0	0
SC-43		200	0	0	0
SC-44		100	0	0	0
SC-44M		100	0	0	0
SC-48		100	0	0	0
SN-113M		100	0	0	0
SR-82GE		3000	0	0	0
SR-85	0	4041	1	1	3000
TC-92		100	0	0	0
TC-94		100	0	0	0
TC-94M	1	300	1	1	10
TC-95		200	0	0	0
TC-95M		300	0	0	0
TC-96		300	0	0	0
TE-121		100	0	0	0
TE-121M		100	0	0	0
TI-45		100	0	0	0
TL-45		500	0	0	0
TN-113		0	0	0	0
U-234		0	0	0	0
U-236		0	0	0	0
U-238	1	864	0	0	166
V-47		200	0	0	0
XE-127M		500	0	0	0
Y-84		200	0	0	0

JUL 10 1997

Ronald R. Bresell
Radiation Safety Officer
The University of Wisconsin
Safety Department
30 North Murray Street
Madison, WI 53715

Dear Mr. Bresell:

We have reviewed your decommissioning financial assurance submittal dated September 18, 1996, with Statement of Intent dated September 17, 1996, and subsequent submittal dated June 3, 1997.

Within the scope of our review, no further deficiencies were identified. If additional information is required, we will contact you.

If you have any questions, please feel free to contact me at (630) 829-9854.

Sincerely,

Original Signed By
Kevin G. Null, Acting Chief
Nuclear Materials Licensing Branch

License No. 48-09843-18
Docket No. 030-03465

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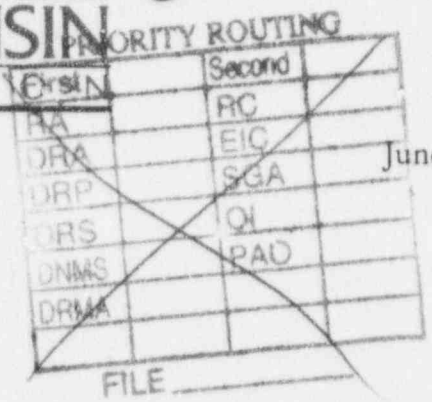
UNIVERSITY OF WISCONSIN
MADISON



June 3, 1997

U.S. Nuclear Regulatory Commission, Region III
ATTN: Kevin Null
Nuclear Materials Licensing Section
801 Warrenville Road
Lisle, Illinois 60532-4351

Re: Decommissioning Funding Plan and Statement of Intent - BML No. 48-09843-18, Docket No. 030-03465

Dear Mr. Null:

We believe that the 18 September 1996 DFP we submitted was substantially complete. Per Reg Guide 3.66, "...licensees initiate decommissioning activities when they decide to terminate licensed activity at a facility ... remov[ing] ... safely from service and reduc[ing] residual radioactivity to a level that permits release of the property for unrestricted use...." Thus, our decommissioning is initiated if the UW terminates its use of radioactivity at all authorized locations (probability ~ 10^{-6}) while continuing to perform its primary (education) mission. We assume that the UW will not cease to exist since that event is extremely unlikely (probability ~ $\aleph_0^{-1}$). Even if the UW terminated licensed activity, that action would not occur instantaneously. Because of contractual obligations with such Federal agencies as the NIH, DOE, etc., termination would be a gradual (at least 2 years) process. These assumptions mean that personnel with technical expertise in biophysics, radiation and chemical safety will continue to be on the staff of the UW. Given that, we shall address some of your requested information items.

1. Additional detail for cost estimates:

- Since this DFP was submitted with the renewal, our assumption was that you had a facility description. To expand, the UW performs routine biochemical research using very small quantities of radioactivity. Most of the laboratories we have are (what we have defined in our license renewal as) Type I, common laboratories. The activities used are appropriate for Type I work places. In our original letter, we described (para a, pg. 3) our survey procedure to insure that contamination is not an acceptable outcome for radiation work. Our regulations call for removable contamination limits of 2200 dpm/100 cm^2 for low energy ß emitters and 660 dpm/100 cm^2 for all other radionuclides. For an authorized user to remove a room from his authorized listing, these levels (and preferably levels closer to background) must be demonstrated by meter and wipe surveys. These limits are also maintained for the use of radioactive materials in these labs, so most rooms are under decommissioning levels at all times.

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Pm 6-3-97

Safety Department

University of Wisconsin–Madison 30 North Murray Street Madison, Wisconsin 53715-2609
608/262-8769 FAX: 608/262-6767

- While we do not believe that the planning and preparation activities will be needed (i.e., the UW will not terminate its nuclide related research), we are prepared to perform them. First, the UW has the expertise to perform the complex planning and preparation for decommissioning tasks in-house. That is because the UW has both NRC licenses and EPA (chemical) permits, both of which require planning and preparation activities to operate. We envision using this same in-house expertise to prepare detailed decommissioning plans and any other documentation/planning/training required to effect a decommissioning. Second, we have sent Health Physicists to ORAU to attend formal decommissioning training classes, enabling us to understand and comply with changing requirements. Third, with only very few exceptions, over 99.% of routine decommissioning is the deleting rooms from authorized users' listings after the performance of surveys demonstrating an essentially contamination free lab. Therefore, consultative planning and preparation activities for decommissioning are not budgeted because they are a part of everyday operations and those costs (e.g., Table 1, Appendix F, RegGuide 3.66) we assumed to be zero.

- In our original letter (para. c, pg. 3) we stated, "At this time, we anticipate the incinerator to be the only contaminated facility." This statement takes into account both the UW's internal requirement for each authorized researcher to decontaminate authorized space prior to deleting them from radioactive material work and our long history of performing surveys on ductwork for contamination prior to maintenance or upgrade (these surveys have routinely demonstrated negligible contamination in these facilities). Although the UW is authorized to perform research of a broad scope, the type of work performed is routine laboratory work. A review of protocols indicates that the only airborne effluents generated are gaseous (e.g., CO_2, I_2, IO_x, etc.). Most of the liquid work performed involves aqueous liquids. Our general policy is to collect all liquid (and solid) wastes for centralized processing and disposal. Thus, residual contamination in laboratories and buildings is nonexistent.

- Worker costs (Tables 2 and 3, Appendix F, RegGuide 3.66) are not a consideration. As noted above, we envision time to perform these activities in-house. Even if the termination of licensed activities resulted in the reduction or ultimate elimination of the Radiation Safety Office, decommissioning would be accomplished without personnel costs. Approximately half of our authorized users are tenured faculty. Tenured faculty salaries are budgeted (and essentially guaranteed) by the state legislature. Regardless of the economic circumstances, never has a tenured faculty member been furloughed. Facilities Planning and Management (FP&M), the parent organization of the Safety Department, is responsible for the upkeep of facilities. These personnel could be adequately trained to conduct minor decontamination in the

event that the radiation safety staff is reduced to a skeleton staff. Thus, we did not calculate worker costs because, (1) there is no contamination anticipated and (2) the faculty and staff assigned would decontaminate if any were detected.

- On page 3 we provided an estimate of $280,000 for decommissioning, primarily disposal costs. This estimate was based on sealed source and incinerator waste disposal. This value was derived from a cost estimate provided by EnviroCare to accept low activity contaminated debris and the costs we have experienced in routinely disposing of routine radioactive material (both sealed sources and waste). This cost estimate included decommissioning generated waste.

- The UW generates approximately 14 cubic feet of low level radioactive waste annually which would require disposal under decommissioning. This waste stream is primarily incinerator ash which does not meet the activity levels for disposal without regard to radioactivity and is stored in DOT type 17H 55 gallon drums (already on-hand). Including the incinerator debris (above), we believe volume can be disposed within the $90,000.

- The final radiation survey would be accomplished by the staff of the Safety Department and is thus without cost. Legally, a NRC license can not be unilaterally terminated. That license mandates staffing to accomplish the tasks. The performance and analysis of surveys is a function that the Safety Department performs on a daily basis. There is no reason to employ outside consultation.

- There are no contaminated grounds nor areas at the UW. There is no need to perform any extra-license tasks to return the property to public use.

2. We believe that attempting to salvage contaminated material for resale is contrary to ALARA. Although we do not foresee encountering contaminated equipment, if items cannot be decontaminated, they will be disposed of as radioactive waste.

3. We built in sufficient margin in our estimates to account for contingencies. For example, we know an irradiator source can be disposed of for $5000 - $7000 (for a total of $42,000 - $50,000), but allocated $200,000 for this. We believe our commitment of $500,000 to overestimate the real expenses of decommissioning by a factor of at least 50%. We did that to incorporate a contingency factor.

4. Adjusting estimates will be accomplished as an integral component of "license renewal or when the amounts/types of material" at the UW changes. This revision will include an updated estimates based upon "current prices for goods and services at the time."

If you have any questions pertaining to this information, please call me at (608) 262-9178 or FAX me at (608) 262-6767.

Sincerely,

Ronald R. Bresell
Radiation Safety Officer

MAY 0 8 1997

Ronald R. Bresell
Radiation Safety Officer
University of Wisconsin - Madison
30 North Murray Street
Madison, WI 53715-2609

Dear Mr. Bresell:

We have reviewed your Decommissioning Funding Plan and Statement of Intent attached to letter dated September 18, 1996, and find that you will need to modify the submission in the following ways:

1. **Submit Additional Detail to Support the Cost Estimate (*Regulatory Guide 3.66*, Appendix F)**

   The submission includes a four-page decommissioning funding plan that describes radionuclide usage at the University's facilities and provides a cost estimate for decommissioning the facilities operating under your four byproduct material licenses. The DFP, however, does not identify cost subtotals for planning and preparation, decontamination and dismantling of facility components, and packaging, shipping, and disposal of radioactive wastes. Moreover, the DFP does not include sufficient detail to allow an adequate evaluation of the total cost estimate. In particular, the submission does not include the following information:

   - Descriptions of the facilities, the activities that occur at the facilities, and the levels of contamination that may be present;
   - A description of all planning and preparation activities such as preparing a detailed decommissioning plan, preparing other state and/or local documentation, developing work plans, performing staff training, or procuring special equipment;
   - The number and dimensions of the laboratories and facility components (e.g., fume hoods, glove boxes, laboratory benches, ductwork) that need to be decontaminated;
   - A worker unit cost schedule and a table of worker hours for each task;
   - Unit cost data for containers, transportation, and disposal;
   - A detailed list of the types and amounts of radioactive waste that will need to be disposed, including any waste generated by decommissioning such as contaminated paper towels or personal protective equipment;

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- The cost of performing a final radiation survey of the facility; and
- A description of any planned activities to restore contaminated areas on facility grounds, stabilize the site, or perform long-term surveillance to properly decommission the facility.

In order to allow an adequate evaluation of the estimated decommissioning costs, please revise your cost estimate to include the information listed above and to increase the level of detail, especially for decontamination and dismantling activities, to be consistent with the cost estimating tables in Appendix F of NRC's *Regulatory Guide 3.66* "Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70, and 72," June 1990. Please use the tables found in Appendices A and E of NUREG/CR-1754, Addendum 1, to help estimate your decommissioning costs. The tables estimate the number of person-days required, the cost of equipment and supplies, and the quantity of waste generated in decontaminating individual facility components (e.g., individual time, cost, and waste generation estimates for decontaminating floors, ceilings, walls, fume hoods, glove boxes, and ductwork).

2. **Clarify that No Credit Was Taken for Salvage Value (*Regulatory Guide 3.66*, page 1-10)**

The cost estimate does not state whether credit has been taken for any salvage value that may be realized with the sale of potential assets during decommissioning. If estimated credits are taken for salvage value but are not fully realized at the time of decommissioning, the cost estimate may be significantly low. To ensure the adequacy of the cost estimate, *Regulatory Guide 3.66*, page 1-10, states that cost estimates should not incorporate any credit for salvage value. Please clarify that you have not included in your cost estimate credit for any salvage value that may be realized with the sale of potential assets at the time of decommissioning.

3. **Incorporate a Contingency Factor into the Total Decommissioning Cost Estimate (*Regulatory Guide 3.66*, page 1-10, and NUREG/CR-1754, Addendum 1)**

The cost estimate submitted by the University does not explicitly allow for contingencies. *Regulatory Guide 3.66*, page 1-10, recommends that a contingency factor be included in the decommissioning cost estimate. A contingency factor helps ensure coverage for unexpected circumstances that could increase decommissioning costs. NUREG/CR-1754 uses a contingency factor of 25 percent in its cost estimates for each of six reference laboratories. Please incorporate a contingency factor of at least 25 percent into your decommissioning cost estimate.

4. **Describe the Means to be Used for Adjusting Cost Estimates and Associated Funding Levels Over the Life of the Facility (10 CFR 30.35(e))**

10 CFR 30.35(e) requires licensees to describe the means they will use to adjust decommissioning cost estimates and associated funding levels over the lives of their facilities. The University does not provide such a description in its decommissioning funding plan. Please use the method described in *Regulatory Guide 3.66* for adjusting cost estimates. *Regulatory Guide 3.66* suggests that cost estimates be updated with current prices for goods and services at the time of license renewal or when the amounts/types of material at the facility change. Adjustments should be made to account for inflation, for other changes in prices of goods and services, for changes in facility conditions, and for changes in expected decommissioning procedures.

Sincerely,

Original Signed By
Kevin G. Null
Nuclear Materials Licensing Branch

License No. 48-09843-18
Docket No. 030-03465

Enclosures: 1. Regulatory Guide 3.66
2. NUREG 1754, Addendum 1

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University of Wisconsin

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001
April 28, 1997

97-B

MEMORANDUM TO: Cassandra Frazier
Materials Licensing Section
Division of Radiation Safety
and Safeguards, Region III

FROM: Louis M. Bykoski
Facilities Decommissioning Section
Low-Level Waste and Decommissioning
Projects Branch
Division of Waste Management, NMSS

SUBJECT: THE OFFICE OF THE GENERAL COUNSEL AND CONTRACTOR COMMENTS ON NON-STANDARD FINANCIAL ASSURANCE SUBMITTALS

Our contractor, ICF Incorporated, and the Office of the General Counsel (OGC) have reviewed and provided comments on the ~~CSM Industries~~ and University of Wisconsin nonstandard financial assurance submittals sent to us for review.

The ICF comments are presented in two parts. The first part deals with specific recommendations to current deficiencies. The second part (Other Issues) provides a discussion of changes to the standard wording that are acceptable and are not considered to be deficiencies. The OGC comments may include additional deficiencies that need to be corrected by the licensee and comments for our internal use.

You should carefully review all the comments before preparing the deficiency letter. We have attached both the ICF and OGC comments to assist you in your review.

Attachments: As stated

CONTACT: Louis M. Bykoski, NMSS/DWM
415-6754
Stephen Lewis, OGC
415-1684

LIST OF INSTRUCTIONS

University of Wisconsin - Madison

In reviewing the comments the reviewer will note that there will be some overlap between ICF and OGC comments. The following comments should be included in the basis for the deficiency letter:

1. ICF comments 1 through 6 plus last paragraph.

2. All OGC comments.

All other comments and discussions are for reviewer information.

MEMO TO: Louis M. Bykoski, NMSS

FROM: OGC

RE: REVIEW OF NONSTANDARD SUBMITTALS

University of Wisconsin - Madison: ICF recommendations 5 and 6 relate to the adequacy of the Statement of Intent, dated September 17, 1996, submitted by the General Counsel/ Assistant Trust Officer on behalf of the Licensee. OGC notes that the wording of the Statement of Intent meets the requirements of 10 CFR § 30.35 (f) (4). The commitment in question is that "funds for decommissioning will be obtained when necessary." Since the Licensee has provided a Statement of Intent that makes this precise commitment, OGC does not believe the NRC has a basis to require the Licensee to submit a revised Statement of Intent. We have also considered ICF's comment that, apart from the representation in the Statement of Intent, there is no evidence that the General Counsel/ Assistant Trust Officer is authorized to execute the document on behalf of the Licensee. While such evidence might provide additional assurance that the Statement of Intent has been properly executed, OGC does not believe that the Statement of Intent needs to be resubmitted on this account. We note that 10 CFR § 30.9 (a) requires that information provided to the NRC by a licensee shall be complete and accurate on all material respects. We consider that the statement by the Licensee is a material statement covered by section 30.9 (a). Thus, if the statement were to be inaccurate and the Licensee were to repudiate the Statement of Intent on that basis, strong enforcement action could be taken. On this basis, OGC does not believe that resubmittal of the Statement of Intent with further evidence of authorization is required.

ICF
CONSULTING GROUP

ICF Incorporated
9300 Lee Highway
Fairfax, VA 22031-1207
703/934-3000 Fax 703/934-9740

March 11, 1997

To: Dr. Lou Bykoski, NMSS/NRC

From: Larry Huffman, Matt Borick, and John Collier, ICF Incorporated

Subject: Review of Decommissioning Funding Plan and Statement of Intent Submitted by the University of Wisconsin-Madison

---

The University of Wisconsin-Madison in Madison, Wisconsin, submitted a decommissioning funding plan (DFP), using a statement of intent (dated September 17, 1996) in the amount of $500,000. The submission addresses decommissioning costs of $480,000 for licenses 48-09843-18, 48-09843-28, 48-09843-32, and 48-09843-34 issued under 10 CFR Part 30. Upon review of the submission, ICF recommends that NRC require the licensee to modify the submission in the following ways:

(1) Submit additional detail to support the cost estimate (*Regulatory Guide 3.66*, Appendix F);

(2) Clarify that no credit was taken for salvage value (*Regulatory Guide 3.66*, page 1-10);

(3) Incorporate a contingency factor into the total decommissioning cost estimate (*Regulatory Guide 3.66*, page 1-10, and NUREG/CR-1754, Addendum 1);

(4) Describe the means to be used for adjusting cost estimates and associated funding levels over the life of the facility (10 CFR 30.35(e));

(5) Revise the statement of intent to state that funds will be requested and obtained from the appropriate funding body sufficiently in advance of decommissioning (*Regulatory Guide 3.66*, page 3-25); and

(6) Submit evidence that the person signing the statement of intent is authorized to represent the licensee and to request funds from the appropriate funding body (*Regulatory Guide 3.66*, page 3-25).

These recommendations and other issues are discussed below.

(1) Submit Additional Detail to Support the Cost Estimate (*Regulatory Guide 3.66*, Appendix F)

The submission includes a four-page decommissioning funding plan that describes radionuclide usage at the licensee's facilities and provides a cost estimate for decommissioning the facilities operating under the licensee's four byproduct material licenses. The DFP, however, does not identify cost subtotals for planning and preparation, decontamination and dismantling of facility components, and packaging, shipping, and disposal of radioactive wastes. Moreover, the DFP does not include sufficient detail to allow an adequate evaluation of the total cost estimate. In particular, the submission does not include the following information:

- Descriptions of the facilities, the activities that occur at the facilities, and the levels of contamination that may be present;
- A description of all planning and preparation activities such as preparing a detailed decommissioning plan, preparing other state and/or local documentation, developing work plans, performing staff training, or procuring special equipment;
- The number and dimensions of the laboratories and facility components (e.g., fume hoods, glove boxes, laboratory benches, ductwork) that need to be decontaminated;
- A worker unit cost schedule and a table of worker hours for each task;
- Unit cost data for containers, transportation, and disposal;
- A detailed list of the types and amounts of radioactive waste that will need to be disposed, including any waste generated by decommissioning such as contaminated paper towels or personal protective equipment;
- The cost of performing a final radiation survey of the facility; and
- A description of any planned activities to restore contaminated areas on facility grounds, stabilize the site, or perform long-term surveillance to properly decommission the facility.

In order to allow an adequate evaluation of the estimated decommissioning costs, ICF recommends that NRC require the licensee to revise its cost estimate to include the information listed above and to increase the level of detail, especially for decontamination and dismantling activities, to be consistent with the cost estimating tables in Appendix F of NRC's *Regulatory Guide 3.66* "Standard Format and Content of Financial Assurance

Mechanisms Required for Decommissioning Under 10 CFR Parts 30, 40, 70, and 72," June 1990. ICF also recommends that the licensee use the tables found in Appendices A and E of NUREG/CR-1754, Addendum 1, to help estimate its decommissioning costs.[1] The tables estimate the number of person-days required, the cost of equipment and supplies, and the quantity of waste generated in decontaminating individual facility components (e.g., individual time, cost, and waste generation estimates for decontaminating floors, ceilings, walls, fume hoods, glove boxes, and ductwork).

(2) Clarify that No Credit Was Taken for Salvage Value (*Regulatory Guide 3.66*, page 1-10)

The cost estimate does not state whether credit has been taken for any salvage value that may be realized with the sale of potential assets during decommissioning. If estimated credits are taken for salvage value but are not fully realized at the time of decommissioning, the cost estimate may be significantly low. To ensure the adequacy of the cost estimate, *Regulatory Guide 3.66*, page 1-10, states that cost estimates should not incorporate any credit for salvage value. ICF recommends that NRC require the licensee to clarify that it has not included in its cost estimate credit for any salvage value that may be realized with the sale of potential assets at the time of decommissioning.

(3) Incorporate a Contingency Factor into the Total Decommissioning Cost Estimate (*Regulatory Guide 3.66*, page 1-10, and NUREG/CR-1754, Addendum 1)

The cost estimate submitted by the licensee does not explicitly allow for contingencies. *Regulatory Guide 3.66*, page 1-10, recommends that a contingency factor be included in the decommissioning cost estimate. A contingency factor helps ensure coverage for unexpected circumstances that could increase decommissioning costs. NUREG/CR-1754 uses a contingency factor of 25 percent in its cost estimates for each of six reference laboratories.[2] ICF recommends that the licensee incorporate a contingency factor of at least 25 percent into its decommissioning cost estimate.

(4) Describe the Means to be Used for Adjusting Cost Estimates and Associated Funding Levels Over the Life of the Facility (10 CFR 30.35(e))

10 CFR 30.35(e) requires licensees to describe the means they will use to adjust decommissioning cost estimates and associated funding levels over the lives of their facilities. The licensee does not provide such a

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[1] NUREG/CR-1754, Addendum 1, Technology, Safety and Costs of Decommissioning Reference Non-Fuel-Cycle Nuclear Facilities: Compendium of Current Information, Pacific Northwest Laboratory, October 1989.

[2] Ibid.

description in its decommissioning funding plan. ICF recommends that the licensee use the method described in *Regulatory Guide 3.66* for adjusting cost estimates. *Regulatory Guide 3.66* suggests that cost estimates be updated with current prices for goods and services at the time of license renewal or when the amounts/types of material at the facility change. Adjustments should be made to account for inflation, for other changes in prices of goods and services, for changes in facility conditions, and for changes in expected decommissioning procedures.

(5) Revise the Statement of Intent to State that Funds Will Be Requested and Obtained from the Appropriate Funding Body Sufficiently in Advance of Decommissioning (*Regulatory Guide 3.66*, page 3-25)

According to *Regulatory Guide 3.66*, page 3-25, the purpose of a statement of intent is to ensure that, early in the life of the licensed facility, government entities make their funding bodies aware of decommissioning requirements and costs and the eventual need for funding. To prevent delay of required decommissioning activities, statements of intent must indicate that funds will be requested and obtained from the appropriate funding body sufficiently in advance of decommissioning.

The statement of intent submitted by the licensee contains two problems. First, it does not state that the licensee intends to request and obtain decommissioning funds from the appropriate funding body. Consequently, the licensee may intend to use internal resources to pay for decommissioning. In that case the statement of intent could be interpreted as a self-guarantee. The licensee, however, has not demonstrated its ability to pass the financial test for self-guarantees. Second, the statement of intent states that the licensee intends "to obtain the funds for decommissioning *when necessary*" (emphasis added). This could mean that funding will not be requested sufficiently in advance, and that required decommissioning activities may be delayed while funding is being obtained. ICF recommends that NRC require the licensee to obtain a revised statement of intent indicating that funds will be requested and obtained from the appropriate funding body sufficiently in advance of decommissioning to prevent delay of required activities.

(6) Submit Evidence that the Person Signing the Statement of Intent is Authorized to Represent the Licensee and to Request Funds from the Appropriate Funding Body (*Regulatory Guide 3.66*, page 3-25)

The submitted statement of intent is signed by Charles J. Stathas, the licensee's General Counsel and Assistant Trust Officer. However, apart from a sentence in the statement of intent itself ("I hereby certify that I am authorized to act on behalf of the Board of Regents in signing this document."), the submission does not provide any evidence of the authority of this individual to represent the licensee, as recommended by *Regulatory Guide 3.66*, page 3-25, or to request funds when necessary from the State of Wisconsin. To help ensure that the licensee will request and obtain funds when needed, ICF recommends that NRC require the licensee to submit evidence that the person signing the statement of intent is authorized to represent the licensee in requesting funds from the State of Wisconsin.

Other Issues

The submission indicates that on July 16, 1990, the licensee submitted a statement of intent to NRC in the amount of $750,000. ICF has not reviewed this statement of intent.

Finally, NRC should verify that the documents submitted by the licensee are originally signed duplicates, as recommended by *Regulatory Guide 3.66*. Unless the documents have been properly signed, NRC cannot be certain that the financial assurance mechanism is enforceable. Because ICF does not possess the original submission, we cannot verify compliance with these requirements.

attachments

REVIEW OF DECOMMISSIONING FUNDING PLAN (DFP)

Name of company or institution: University of Wisconsin - Madison

Number of licenses and applicable regulations:

4	10 CFR Part 30
____	10 CFR Part 40
____	10 CFR Part 70
____	10 CFR Part 72

Isotopes handled and possession limits (specify units):

____	____
____	____
____	____
____	____
____	____
____	____
____	____

Total cost estimate for licenses listed above: $ $480,000

General comments on DFP:

License Number	Type	Amount	
48-09843-18	Broad scope A	$280,000	
48-09843-28	Closed-beam irradiators	$50,000	
48-09843-32	Panoramic irradiators	$75,000	("mandated" amount)
48-09843-34	Teletherapy unit	$75,000	("mandated" amount)
		$480,000	

* For licenses 48-09843-32 and 48-09843-34, licensee appears to be using the certification amount as the cost estimate

CHECKLIST FOR REVIEWING DECOMMISSIONING FUNDING PLANS (DFP's)

QUESTIONS	COMMENTS
(1) Does the licensee provide supporting documentation for its cost estimates? ___ Yes ✓ No	
(2) Does the licensee use the Appendix F "Cost Estimating Tables?" ___ Yes X No	
(3) Does the cost estimate include the following major cost elements?	
(i) Planning and Preparation? ___ Yes X No	
(ii) Decontamination and/or Dismantling of Radioactive Facility Components? ___ Yes X No	
(iii) Packaging, Shipping, and Disposal of Radioactive Wastes? ___ Yes X No	
(iv) Restoration of Contaminated Areas on Facility Grounds? ___ Yes ✓ No ___ NA	
(v) Final Radiation Survey? ___ Yes X No	
(vi) Site Stabilization, Long-Term Surveillance? ___ Yes ✓ No ___ NA	

CHECKLIST FOR REVIEWING DFP's (continued)

QUESTIONS	COMMENTS
(4) Is the total cost estimate reasonable for the type(s) and size(s) of facility licensed? ____ Yes ____ No __✓__ Not Sure	No detail provided
(5) Are the cost estimates for individual facility activities and/or components reasonable? ____ Yes ____ No __✓__ Not Sure	No detail provided.

CHECKLIST FOR REVIEWING DFP's (continued)

QUESTIONS	COMMENTS
(6) Do the computations seem correct? ____ Yes ____ No	None provided.
(7) Does the licensee take credit for the potential salvage value of recovered materials or decontaminated equipment? ____ Yes ____ No	No mention.
(8) Does the licensee include a contingency factor in the cost estimate? ____ Yes ___✓ No	
(9) Does the licensee provide a description of the methods that will be used to adjust the decommissioning cost estimate periodically over the life of the facility? ____ Yes ___✓ No	

APPENDIX A
CHECKLIST FOR DECOMMISSIONING FINANCIAL ASSURANCE

NAME OF LICENSEE OR APPLICANT

MAILING ADDRESS University of Wisconsin - Madison
30 North Murray Street
Madison, WI 53715

A. Licensee Part (check one of the following):

__X__ Part 30 Licensee or Applicant _____ Part 70 Licensee or Applicant

_____ Part 40 Licensee or Applicant _____ Part 72 Licensee or Applicant

B. Check appropriate item in each category (if applicable)

1. Received by NRC on Sept 23, 1996 Date of Financial Assurance Submission

2. __X__ Public Entity State University

_____ Private Entity

3. _____ Certification of Financial Assurance

__X__ Decommissioning Funding Plan $480,000 cost estimate included

4. (a) _____ Prepayment Option (See Appendix B)
   - ____ Trust Fund
   - ____ Escrow Account
   - ____ Certificate of Deposit
   - ____ Government Fund
   - ____ Deposit of Government Securities

   (b) _____ Surety/Insurance/Other Guarantee (See Appendix C)
   - ____ Surety bond
   - ____ Letter of Credit
   - ____ Line of Credit
   - ____ Parent Company Guarantee/Financial Test*

   (c) _____ External Sinking Fund, Sinking Account and Surety/Insurance (See Appendix D)
   - ____ Trust Fund
   - ____ Escrow Account
   - ____ Certificate of Deposit
   - ____ Government Fund
   - ____ Deposit of Government Securities
   - ____ Surety Bond
   - ____ Letter of Credit
   - ____ Line of Credit

   (d) __X__ Statement of Intent (public entities only) $500,000

*May not be used in combination with any other instrument.

APPENDIX E

CHECKLIST FOR STATEMENT OF INTENT

A. Type of Licensee (check one):

_____ Federal Government Licensee

__X__ State Government Licensee State University

_____ Local Government Licensee

B. Check Documents Submitted for Statement of Intent

__X__ Statement Guaranteeing Decommissioning (States that funds will be obtained "when necessary")

__X__ Description of Authority of Government Entity to Make Statement of Intent

EXHIBIT 3-9

CHECKLIST OF CRITERIA FOR REVIEW OF STATEMENTS OF INTENT

NO • Copy of evidence indicating that parties signing the financial instrument (for the applicant) are authorized to represent the organization in the transaction.

NRC to check • Evidence that the statement of intent is an originally signed duplicate.

✓ • Identification of Federal, State, or local government licensee.

✓ • Description of facilities for which Statement of Intent pro· des financial assurance and corresponding decommissioning costs.

✓ • Statement that funds for decommissioning will be obtained when necessary.

✓ • Recitation of authority to sign the Statement of Intent.

✓ • Date.

✓ • Names and positions of signatories.

✓ • Signatures.

48-09843-18
48-09843-28
48-09843-32
48-09843-34

CMD: _____

LICENSE SCREEN ** - DECOMMISSIONING FINANCIAL ASSURANCE INFORMATION

DOCKET: 300230 LIC: _____ NAME: University of Wisconsin - Madison

PARTY ISSUING MECHANISM:
NAME : University of Wisconsin - Madison
ADDR1: 30 North Murray Street
ADDR2: _____
CITY : Madison
STATE: WI ZIP: 53715

ASSUR TYPE : - CERT (LOC) -
MECH TYPE : SI
MECH AMOUNT: 0 $ 500,000
APPROVED? _ DATE: 0
EXPIRES ? _ DATE: 0 until cancelled
ACTION (A=ADD C=CHG D=DELETE

PARTY ISSUING MECHANISM:
NAME :
ADDR1:
ADDR2:
CITY :
STATE: ZIP:

ASSUR TYPE : ? CERT -
MECH TYPE-:
MECH AMOUNT: 0
APPROVED? _ DATE: 0
EXPIRES ? _ DATE: 0
ACTION (A=ADD C=CHG D=DELETE)

** 000 000 **

B MJ L1U10 NUM A.a R3 C9
^T for ATtention. Hoae to Switch : Capture 044 : Numer:

CMD: _____

LTS - FINANCIAL ASSURANCE INFORMATION

VALID MECHANISM TYPE CODES AND THEIR MEANINGS:

MECH TYPE	DESCRIPTION
TR	TRUST FUND
ES	ESCROW ACCOUNT
CD	CERTIFICATE OF DEPOSIT
GF	GOVERNMENT FUND
GS	DEPOSIT OF GOVERNMENT SECURITIES
SB	SURETY BOND
LT	LETTER OF CREDIT
LN	LINE OF CREDIT
PG	PARENT COMPANY GUARANTEE
SI	STATEMENT OF INTENT

PRESS RETURN KEY FOR FINANCIAL ASSURANCE SCREEN:

B MJ L1U10 A.a R1 C1
T for ATtention. Hoae to Switch : Capture 044 : Numer:

JAN 2 1 1997

97-B

MEMORANDUM TO: Louis M. Bykoski
Materials Decommissioning Section
Low Level Waste and Decommissioning
Projects Branch
Division of Waste Management, NMSS

FROM: B. J. Holt, Chief
Nuclear Materials Licensing Branch
Division of Nuclear Materials Safety Branch, RIII

SUBJECT: REQUEST FOR ASSISTANCE IN THE REVIEW OF A DECOMMISSIONING FUNDING PLAN SUBMITTED BY THE UNIVERSITY OF WISCONSIN: NRC LICENSE NUMBER 48-09843-18

Attached you will find a Decommissioning Funding Plan (DFP) submitted by the University of Wisconsin. The DFP was submitted as part of the University's application for renewal of their broad scope license. We are currently in the process of performing a technical review of the application.

We request your assistance in the review of the licensee's DFP. If you have any questions please feel free to contact us.

Attachments: As stated

CONTACT: Kevin G. Null
(630) 829-9854

cc: C. D. Pederson

DOCUMENT NAME: M:\03003465.DE7
To receive a copy of this document, indicate in the box: "**C**" = Copy without attachment/enclosure "**E**" = Copy with attachment/enclosure "**N**" = No copy

OFFICE	DNMS/RIII	C	DNMS/RIII							
NAME	KGNull:brt	KN	BJHolt	BJH						
DATE	01/16/97		01/16/97							

OFFICIAL RECORD COPY

UNIVERSITY OF WISCONSIN MADISON

September 18, 1996

U.S. Nuclear Regulatory Commission, Region III
ATTN: Kevin Null
Nuclear Materials Licensing Section
801 Warrenville Road
Lisle, Illinois 60532-4351

RE: Decommissioning Funding Plan and Statement of Intent - BML No. 48-09843-18, Control No. 396520

References

1. Reg Guide 3.65, Standard format and Content of Decommissioning Plans for Licensees under 10 CFR Parts 30, 40, and 70.
2. Reg Guide 3.66, Standard format and Content of Financial Assurance Mechanisms Required for Decommissioning under 10 CFR Parts 30, 40, 70 and 72.
3. Spreadsheets titled:
   a. Nuclides and Activity (mCi) Received under UW Broadscope License for the Year Indicated.
   b. Sealed Source Nuclides and Activity (mCi) Received under UW Broadscope License for the Year Indicated.
   c. Unsealed Nuclides and Activity (mCi) Received under UW Broadscope License for the Year Indicated.
   d. Unsealed Long-Lived (T > 120 days) NRC-Regulated Nuclides and Activity (mCi) Received under UW Broadscope License for the Year Indicated.
4. Spreadsheets titled:
   a. Activity (mCi) Incinerated at Herrick Drive Incinerator for the Year Indicated.
   b. Activity (mCi) Disposed of to the Sanitary Sewer for the Year Indicated.
5. Radiation Safety Composite Inventory Report, 07/02/96
6. University of Wisconsin Radiation Safety Regulations.

Background

The University of Wisconsin, Madison (UW) is a Category A Licensee of Broad Scope authorizing "any byproduct material between Atomic Nos. 3 through 83, inclusive" in individual activities not to exceed 3 Ci each and 30 Ci in aggregate. The UW also has a separately licensed (R-74) TRIGA research reactor. This reactor is capable of producing a broad spectrum of radionuclides, however the R-74 license specifies the licensee may "possess, but not to separate, such byproduct material as may be produced by operation of the reactor." Thus, the broad scope license serves to complement the reactor license enabling all researchers at the UW to obtain irradiated product.

Safety Department
University of Wisconsin–Madison 30 North Murray Street Madison, Wisconsin 53715-1218
608/262-8769 FAX: 608/262-6767

On 16 July, 1990, the UW submitted a Statement of Intent to obtain $750,000 for decommissioning when necessary. Reference 2 requires the UW to submit a Decommissioning Funding Plan (DFP) for the broad scope license "at the time of their next license renewal occurring after July 27, 1990." This document will review uses of radionuclides licensed under the broad scope license (BML 48-09843-18) at the UW, review regulations appropriate to decommissioning, analyze anticipated costs for such a decommissioning, and provide an appropriate financial assurance mechanism.

Radionuclide Use at the UW

References 3 and 4 are spreadsheets describing the use of radioactive materials under the broad scope license over at least a 10 year period. (Note that the activities listed for 1996 – RECPT96 – are for 8 months of receipts; to normalize for the entire year the activities of the more routinely used isotopes (e.g., ^{3}H, ^{14}C, ^{32}P, ^{35}S, ^{125}I) for the entire year, multiply entries by 1.5). While there may be spikes indicative of unique, one-time research or time sensitive events, references 3 and 4 demonstrate the scope of our use and disposal of authorized radionuclides. Reference 5 represents a snap-shot of user possessions at the beginning of July, 1996.

Reference 3a is a gross summary of all radionuclides received by the UW, including both sealed and unsealed radionuclides. Reference 3b focuses on the receipt of sealed sources. Entries in this table include the transfer of sealed sources between one activity on campus and another. An explanation of some of the higher activities includes:

a. Transfer of a ^{90}Sr eye applicator from the Medical Physics Radiation Calibration Lab to the Radiation Therapy Department at the hospital.

b. Receipt of 400 mCi of ^{85}Kr from a vendor in California to perform calibration measurements. The source was returned to the owner in 1991.

c. Receipt of the ^{192}Ir HDR and other brachytherapy sources/seeds which were used in cancer therapy and then returned to the vendor.

d. The UW had been conducting research requiring large quantities of gaseous ^{3}H. This research was concluded in 1994 and the facility converted to a tomographic-Linac facility, hence the dramatic drop of ^{3}H receipts.

e. Periodically ^{63}Ni gas chromatographic sources require replacement. This is usually effected by a direct exchange with the vendor.

Thus, receipt as reported in reference 3 does not necessarily represent the acquisition of new sources nor does it necessarily mean the source received is still in the possession of the UW.

Reference 3d is a summary of the UW's receipts of radionuclides of interest for decommissioning (reference 2, Appendix G, Conversion Table for Determining Amount of Financial Assurance Required as a Function of Radionuclide Activity Levels). A comparison of activities received (ref 3d) with Radionuclide Conversion Table activities in Appendix G shows that, based upon actual receipts, the UW would not be required to complete a Decommissioning Funding Plan and, further, that Financial Assurance would realistically be below the "$150,000 (unsealed) ($\geq 10^3$, $\leq 10^4$)" range.

Decommissioning Funding Considerations

In the event of decommissioning, the UW would perform its own radiation safety support with in-house assets. To determine an accurate estimate of decommissioning costs we have detailed our anticipated expenses for decommissioning the license.

a. Use of unsealed radioactive material in research is done according to the University Radiation Safety Regulations (reference 6). When a researcher has completed using radioactive materials in a laboratory, they are required to perform a final survey for "gross contamination and/or radiation exposure levels, ... and for removable contamination,..." (Section IX, Part C, Deletions and Final Surveys). The Safety Department maintains a listing of these surveys in a room decommissioning file. Thus, decommissioning of individual rooms is accomplished at no cost.

b. Sealed sources consist of some Am-Be soil probes, calibration sources (< 1 Ci), and some higher activity irradiator sources. Commercial gage sources may be returned to the vendor or some other source for approximately $5000 each. Irradiator sources may be transferred to some other licensee. Estimated cost to dispose of all sealed sources under this license is approximately $100,000.

c. At this time, we anticipate the incinerator to be the only contaminated facility. Based upon our experience demolishing radioactive waste incinerators, to dismantle and appropriately dispose of the contaminated debris would cost approximately $130,000 (i.e., $90,000 for refractory and other debris, $40,000 for demolishing).

d. Our policy on sewer disposal is to decay all liquids and centralize disposal of non-hazardous, aqueous liquid wastes at our Mills Street waste facility. Because of the type of waste so disposed, we do not anticipate any residue in the plumbing. Sampling of sewer lines at this point would verify that belief. The cost to sample and clean this disposal route would be low; not likely in excess of $50,000.

e. Volatile radionuclides may only be used in adequately vented fume hoods where the releases may be monitored. The Safety Department routinely surveys exhaust ducts prior to maintenance. We have never detected contamination in fume hood exhaust ducts in excess of 0.5 nCi/100 cm^2. Therefore, we do not believe exhaust ducting in any of our facilities will require decontamination and disposal as radioactive waste.

Thus, a good estimate of decommissioning costs for the UW's broad scope license is $280,000.

Paragraph 1.3, reference 2 (LICENSEES USING MORE THAN ONE TYPE OF NUCLEAR MATERIAL) notes that it "would be difficult to require separate decommissioning plans and financial responsibility requirements in circumstances where there is an interdependence of facilities, operations, or projected decommissioning activities." In our view, three (3) other byproduct material licenses should be consolidated with this plan.

a. BML 48-09843-28 licenses 5 closed-beam irradiators. We recently decommissioned an irradiator site at a cost of $5000. A good estimate of decommissioning this license would be $10,000 per source or $50,000.

b. BML 48-09843-32 licenses panoramic irradiators for use by our Medical Physics Department. In 1993 we disposed of a teletherapy unit, several lower activity irradiator and brachytherapy sources, an Am-Be source, and some smaller activity sources for $90,000. A good estimate to decommission this license is the $75,000 mandated.

c. BML 48-09843-34 licenses a ^{60}Co teletherapy unit for use in the School of Veterinary Medicine. We believe the $75,000 mandated to be a valid decommissioning estimate.

We do not intend including the UW's Research reactor in the plan because it is distinct with its own building and will require a DFP upon renewal in 2000. Therefore, we estimate that byproduct material licensure decommissioning would not be expected to exceed $500,000.

Summary

The UW has a Category A specific license of broad scope issued by the NRC to be used in education, to conduct basic research and to perform medical diagnosis and therapy using radioactive materials and several irradiator licenses. Because use of the radioactive materials is dictated by the needs of the researchers and to complement the UW's research reactor program, this license is necessarily one authorizing a broad spectrum of nuclides in relatively unspecified quantities. In reality, the isotopes used under the broad scope license are those commonly used in biological research (e.g., ^{3}H, ^{14}C, ^{32}P, ^{35}S, ^{51}Cr, ^{125}I) and use of rarer isotopes tends to be of extremely low activity for a short duration only. Thus, the cost to decommission the UW's broad scope and irradiator licenses would be similarly low. We estimate this cost not to exceed $500,000.

To that end, we have included a Statement of Intent by the UW Board of Regents to provide adequate funding for decommissioning activities when required.

If you have any questions pertaining to this request, please call me at (608) 262-9178 or FAX me at (608) 262-6767.

Sincerely,

Ronald R. Bresell
Radiation Safety Officer

The University of Wisconsin System

Office of General Counsel
1738 Van Hise Hall, 1220 Linden Drive
Madison, Wisconsin 53706
(608) 262-2995 FAX(608) 262-3985

Charles J. Stathas (608) 262-6166
John B. Tallman 262-0747
Patricia A. Brady 262-6497
Edward S. Alschuler 265-2960

September 17, 1996

United States Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

TO WHOM IT MAY CONCERN:

The Board of Regents of the University of Wisconsin System, an agency of the State of Wisconsin, doing business as the University of Wisconsin- Madison, hereby states its intent to obtain the funds for decommissioning when necessary for the following licenses:

48-09843-18	Broad Scope A License	$300,000
48-09843-28	Irradiator License	50,000
48-09843-32	Panoramic Irradiator License	75,000
48-09843-34	Panoramic Irradiator License	75,000

I hereby certify that I am authorized to act on behalf of the Board of Regents in signing this document.

Board of Regents of the
University of Wisconsin System

By: Charles J. Stathas
Charles J. Stathas
General Counsel and
Assistant Trust Officer

xc: John Torphy
Ronald Bresell
Kathleen Irwin

Nuclides and Activities (mCi) Received under UW Broadscope License for Year Indicated

NUCLID	FULL	RECPT86	RECPT87	RECPT88	RECPT89	RECPT90	RECPT91	RECPT92	RECPT93	RECPT94	RECPT95	RECPT96
AM-241	AMERICIUM-241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000
AM-241	AMERICIUM-241 *	50.0000	250.0005	0.0000	0.0000	0.0000	50.0000	0.0000	0.0100	0.0000	145.1800	0.0000
AU-198	GOLD-198	0.0000	805.3400	1057.6200	165.9000	210.9000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
BA-133	BARIUM-133	0.0000	0.0000	0.0000	0.0001	0.0070	0.0000	0.0000	0.1000	0.0000	0.0000	0.0000
BR-82	BROMINE-82	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C-14	CARBON-14 *	272.4380	414.2142	273.9533	240.3372	146.5089	259.7868	203.7551	145.6480	162.4562	164.5978	122.8640
CA-41S	CALCIUM-41 SEAL	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0000	0.0000	0.0000	0.0000
CA-45	CALCIUM-45	18.0580	60.2000	48.0100	55.0000	77.0000	70.0000	43.0000	21.0030	33.0020	23.0000	7.0000
CD-109	CADMIUM-109 SEA	0.5010	1.0021	0.1021	0.5031	1.0021	1.0021	3.0021	2.0021	1.0021	1.5000	2.0000
CD-109S	CADMIUM 109 SS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	45.0000	19.5000	0.0000	36.5000	30.0000
CE-141	CERIUM-141	1.2500	0.0000	0.0000	5.0000	2.0000	4.0000	5.0000	2.5000	1.5000	1.5000	1.0000
CL-36	CHLORINE-36	0.1000	0.0500	5.0250	0.2020	0.1500	1.1000	0.7000	1.2750	4.1750	1.5500	0.0000
CL-38	CHLORINE-38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0170	0.0000	0.0000	0.0300
CM-244	CURIUM 244*	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CM-244	CURIUM-244	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000	2.0000	0.0000	0.0000	0.0000	0.0000
CO-56	COBALT-56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO-57	COBALT-57	0.0736	54.1142	6.0701	15.1485	103.0280	30.1000	11.0100	27.2100	61.5000	18.7000	10.0000
CO-57S	COBALT-57	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
CO-60	COBALT-60 *	0.0509	0.0010	0.0000	102.0004	0.0000	0.0000	0.0000	0.0020	0.0000	0.0056	0.0000
CR-51	CHROMIUM-51	648.0000	1364.0000	1147.0100	1094.0128	760.0000	764.0000	749.2260	627.5000	588.0000	443.0000	304.0000
CS-137	CESIUM-137 *	0.0000	0.0015	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
CS-137S	CESIUM-137S	0.0000	0.0000	0.0000	55.0000	0.0000	1177.2000	47.0000	0.0000	30.8000	50.0000	199.9500
CU-64	COPPER-64	0.0500	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CU-67	COPPER-67	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EU-152	EUROPIUM-152	0.0000	0.0000	0.0100	0.0001	0.0000	0.0000	0.0000	0.0000	1.6600	0.0000	0.0000
EU-152	EUROPIUM-152M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.0000	0.0000	0.0000
EU-154	EUROPIUM-154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0890	0.0000	0.0000
EU-155	EUROPIUM-155	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
F-18	FLUORINE-18	0.0000	80.0000	0.0000	12.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FE-55	IRON-55	0.0760	0.0000	0.1000	0.1001	0.0000	0.0000	0.0000	1.1007	8.0060	5.0030	0.0130
FE-55S	IRON-55 SS	0.0000	0.0000	10.0000	0.0000	10.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FE-59	IRON-59	0.2535	0.2500	0.0000	0.5000	0.5000	0.0000	0.0000	0.5040	0.0020	0.0010	0.0070
GA-67	GALLIUM-67	0.0000	0.0000	0.0000	6.0000	7.0000	18.0000	12.0000	18.0000	0.0000	0.0000	0.0000
GD-153	GADOLINIUM-153	712.0002	1795.0000	1.0001	1.0002	1.0000	0.0000	0.1000	0.0010	0.0000	0.0000	0.0000
GD-153	GADOLINIUM-153	0.0000	3750.0000	3665.9000	1000.0000	280.0000	510.0000	2366.9591	0.0010	0.0000	65.8000	0.0000
GE-68	GERMANIUM-68	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.2000	0.0000	0.0000	0.0000
GE-68S	GERMANIUM-68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000
GE-68S	GERMANIUM 68 SS	0.0000	0.0000	0.0000	0.0000	2.5000	0.0000	7.0000	0.0000	0.0000	0.0000	0.0000
H-3	TRITIUM *	3367.1121	14314.7156	4061.2099	2955.6888	11406.0569	1185.6586	2395.3914	2939.8904	801.6350	911.4390	394.8440
I-123	IODINE-123 *	0.0000	22.0300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-125	IODINE-125	917.3188	1741.1115	1504.8233	1232.8107	1064.6298	1287.1398	650.9060	701.5889	825.5197	714.7322	327.4237
I-125B	I-125 Bone min	2047.8898	1412.0188	1446.0000	1400.0000	650.0000	148.5353	0.0000	0.0000	0.0000	0.0000	0.0000
I-125S	IODINE-125S	0.0000	0.0000	0.0000	0.0000	0.0000	77.9400	292.8300	533.5900	338.7600	243.1400	211.3800
I-129	IODINE-129	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-131	IODINE-131	364.0023	451.3120	1004.4091	623.5036	226.0006	106.0030	32.0089	3.5022	0.5010	1.5011	4.0009
IN-111	INDIUM-111	35.0000	53.0000	42.0000	36.0000	22.0000	42.0000	52.2440	49.4660	6.0000	7.0000	0.0000
IR-192	IRIDIUM-192	3259.9880	5746.7830	4962.1489	34189.2810	1791.4395	12315.3425	0.0000	0.0000	0.0000	0.0000	0.0000
IR-192A	IRIDIUM-192A	0.0000	0.0000	0.0000	0.0000	39397.0000	37497.0000	39398.9999	39996.0000	28997.0000	40976.0000	18999.0000
IR-192S	IRIDIUM-192S	0.0000	0.0000	0.0000	0.0000	0.0000	78.2300	1219.7195	515.3261	442.7920	257.1233	405.3728
K-42	POTASSIUM-42	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2020	0.1900	0.0820
KR-85	KRYPTON-85	0.0000	0.0000	0.0000	400.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
LU-176	LUTETIUM 176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
MN-54	MANGANESE-54	0.5000	0.5010	0.7000	0.5000	1.0000	0.0000	0.2000	1.7000	1.5000	1.5000	0.0000
MN-56	MANGANESE-56 RE	0.4100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3400	5.0000	6.2000	0.0030
MO-99	MOLYBDENUM-99 *	0.0000	500.5000	200.0000	205.9600	0.0000	0.0000	0.0000	0.0000	0.0000	200.0000	0.0000
NA-22	SODIUM-22	0.7000	1.2010	6.4000	2.2000	4.6000	3.8000	5.7000	1.9000	2.4000	0.7000	1.3000
NA-24	SODIUM-24	0.5100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.9800	2.8000	1.5470
NB-95	NIOBIUM-95	0.0000	6.0000	4.0000	3.0000	3.0000	2.0000	2.0000	2.0000	1.0000	2.0000	0.0000
NI-63	NICKEL-63	12.0000	2.0000	2.0000	2.0050	0.0000	0.0000	1.0000	7.0000	9.0000	0.0000	0.0000
NI-63GC	NICKEL-63 GAS C	75.0000	60.0000	38.0000	100.0000	85.0000	15.0000	0.0000	60.0000	30.0000	15.0000	23.0000
P-32	PHOSPHORUS-32 *	1949.7500	3645.7020	3279.9849	3596.5510	3755.7500	3941.3851	3859.7186	3186.0089	2947.7436	2990.4748	1705.3980
P-33	PHOSPHORUS-33	6.0000	0.0000	24.0000	6.0000	4.0000	0.0000	3.0000	7.2500	15.5000	27.4400	18.0495
PM-147	PROMETHIUM-147	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1000.0000	0.0000	0.0000	0.0000
PO-210	POLONIUM-210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6.0000
PU-239	PLUTONIUM-239	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RA-226	RADIUM-226S	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RA-228	RADIUM 228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RB-86	RUBIDIUM-86	1.0000	5.0000	5.0000	9.0000	4.0000	7.0000	6.0000	1.0000	0.0000	0.0000	1.0000
RU-103	RUTHENIUM-103	0.0000	0.0000	0.0000	2.0000	2.0000	3.0000	3.5000	1.0000	0.5000	1.0000	0.5000
RU-106	RUTHENIUM-106	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000
S-35	SULFUR-35	887.2000	1359.7869	1573.0500	1874.2650	2134.6700	2193.1000	2663.4000	2768.4240	2155.3500	1772.2500	1129.4400
SC-46	SCANDIUM-46	1.2500	7.0000	4.0000	2.0000	5.0000	1.0000	4.0000	1.5000	2.0000	2.5000	1.0000
SE-75	SELENIUM-75	0.0000	2.5000	2.0000	4.0000	2.0000	0.0000	0.0000	0.0000	3.0000	10.0340	0.0000
SI-31	SILICON-REACTOR	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0000	2.5000	0.0000
SN-113	TIN-113	0.0000	4.0000	6.0000	3.0000	3.0000	3.0000	5.0000	3.0000	2.0000	2.5000	0.5000
SN-119	TIN-119-SEALED	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SN-121	TIN-121M	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SR-82	STRONTIUM-82, D	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000	0.0000	0.0000	0.0000	0.0000
SR-85	STRONTIUM-85	2.7500	6.0000	4.0000	4.5000	3.0000	2.0000	2.0000	1.0000	1.0000	1.0000	1.0000
SR-89	STRONTIUM-89	0.0000	0.0006	0.0000	0.0000	0.0001	0.0000	0.0004	0.0001	8.0002	0.0000	0.0003
SR-90S	STRONTIUM-90SS	27.0000	55.0000	25.0000	0.0000	0.0000	6.8500	0.0000	0.1000	0.0000	0.0000	50.0000
TB-158	TERBIUM-158	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
TC-94M	TECHNETIUM	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
TC-99	TECHNETIUM-99	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TC-99M	TECHNETIUM-99M	0.0000	0.0000	91.0000	0.0000	153.1000	759.1000	3324.8287	3139.9000	1271.0000	275.0000	1840.0000
TH-230	THORIUM 230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
TL-201	THALLIUM-201	0.0000	0.0000	29.9822	25.1802	18.7383	4.4116	0.1420	1.7500	0.0000	0.3000	0.0000
TL-204	THALLIUM-204 SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U-235	URANIUM-235 *	0.0000	0.0000	0.0000	0.0520	0.0205	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U-238	URANIUM-238 *	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
XE-133	XENON-133	0.0000	172.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Y-88	YTTRIUM-88 SEAL	0.0000	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Y-90	YTTRIUM-90	0.0000	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ZN-62	ZINC-62	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	170.0000	480.0000	240.0000	230.0000	150.0000
ZN-65	ZINC-65	0.1500	0.5000	0.1000	0.5000	1.0000	0.5000	0.0000	3.0000	0.0000	0.0000	2.5000
ZN-69	ZINC -69	1.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Sealed Source Nuclides and Activities (mCi) Received under UW Broadscope License for Year Indicated

NUCLIDE	FULL	RECPT86	RECPT87	RECPT88	RECPT89	RECPT90	RECPT91	RECPT92	RECPT93	RECPT94	RECPT95	RECPT96
AM-241S	AMERICIUM-241 *	50.0000	250.0005	0.0000	0.0000	0.0000	50.0000	0.0000	0.0100	0.0000	145.1800	0.0000
AU-198	GOLD-198	0.0000	805.3400	1057.6200	165.9000	210.9000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CA-41S	CALCIUM-41 SEAL	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0050	0.0000	0.0000	0.0000	0.0000
CD-109	CADMIUM-109 SEA	0.5010	1.0021	0.1021	0.5031	1.0021	1.0021	3.0021	2.0021	1.0021	1.5000	2.0000
CD-109S	CADMIUM 109 SS	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	45.0000	19.5000	0.0000	36.5000	30.0000
CM-244S	CURIUM-244	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000	2.0000	0.0000	0.0000	0.0000	0.0000
CO-57S	COBALT-57	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
CO-60	COBALT-60 *	0.0509	0.0010	0.0000	102.0004	0.0000	0.0000	0.0000	0.0020	0.0000	0.0056	0.0000
CS-137	CESIUM-137 *	0.0000	0.0015	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
CS-137S	CESIUM-137S	0.0000	0.0000	0.0000	55.0000	0.0000	1177.2000	47.0000	0.0000	30.8000	50.0000	199.9500
FE-55S	IRON-55 SS	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
GD-153	GADOLINIUM-153	712.0002	1795.0000	1.0001	1.0002	1.0000	0.0000	0.1000	0.0000	0.0000	0.0000	0.0000
GD-153S	GADOLINIUM-153	0.0000	3750.0000	3666.9000	1000.0000	280.0000	510.0000	2366.9591	0.0000	0.0000	65.8000	0.0000
GE-68S	GERMANIUM-68	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000
GE-68SS	GERMANIUM 68 SS	0.0000	0.0000	0.0000	0.0000	2.5000	0.0000	7.0000	0.0000	0.0000	0.0000	0.0000
I-125B	I-125 Bone min	2047.8898	1412.0188	1446.0000	1400.0000	650.0000	148.5353	0.0000	0.0000	0.0000	0.0000	0.0000
I-125S	IODINE-125S	0.0000	0.0000	0.0000	0.0000	0.0000	77.9400	292.8500	533.5900	338.7600	243.1400	211.3800
I-129	IODINE-129	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
IR-192	IRIDIUM-192	3259.9880	5746.7830	4962.1489	34189.2810	1791.4395	12315.3425	0.0000	0.0000	0.0000	0.0000	0.0000
IR-192A	IRIDIUM-192A	0.0000	0.0000	0.0000	0.0000	39397.0000	37497.0000	39398.9999	39996.0000	29997.0000	40976.0000	18999.0000
IR-192S	IRIDIUM-192S	0.0000	0.0000	0.0000	0.0000	0.0000	78.2300	1219.7195	515.3261	442.7920	257.1233	405.3728
KR-85	KRYPTON-85	0.0000	0.0000	0.0000	400.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NI-63GC	NICKEL-63 GAS C	75.0000	60.0000	38.0000	100.0000	85.0000	15.0000	0.0000	60.0000	30.0000	15.0000	23.0000
PM-147	PROMETHIUM-147	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1000.0000	0.0000	0.0000	0.0000
PO-210	POLONIUM-210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	6.0000
PU-239	PLUTONIUM-239	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RA-226	RADIUM-226S	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SN-119	TIN-119-SEALED	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SR-90S	STRONTIUM-90SS	27.0000	55.0000	25.0000	0.0000	0.0000	6.8500	0.0000	0.1000	0.0000	0.0000	50.0000
TC-99	TECHNETIUM-99	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TL-204	THALLIUM-204 SE	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Y-88	YTTRIUM-88 SEAL	0.0000	0.0000	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unsealed Nuclides and Activities (mCi) Received under UW Broadscope License for Year Indicated

NUCLIDE	FULL	RECPT86	RECPT87	RECPT88	RECPT89	RECPT90	RECPT91	RECPT92	RECPT93	RECPT94	RECPT95	RECPT96
AM-241	AMERICIUM-241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000
BA-133	BARIUM-133	0.0000	0.0000	0.0000	0.0001	0.0070	0.0000	0.0000	0.1000	0.0000	0.0000	0.0000
BR-82	BROMINE-82	0.0000	0.0000	1.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
C-14	CARBON-14 *	272.4380	414.2142	273.9533	240.3372	146.5089	259.7868	203.7551	145.6480	162.4562	164.5978	122.8640
CA-45	CALCIUM-45	18.0580	60.2000	48.0100	55.0000	77.0000	70.0000	43.0000	21.0030	33.0020	23.0000	7.0000
CE-141	CERIUM-141	1.2500	0.0000	0.0000	5.0000	2.0000	4.0000	5.0000	2.5000	1.5000	1.5000	1.0000
CL-36	CHLORINE-36	0.1000	0.0500	5.0250	0.2020	0.1500	1.1000	0.7000	1.2750	4.1750	1.5500	0.0000
CL-38	CHLORINE-38	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0170	0.0000	0.0000	0.0300
CM-244	CURIUM 244*	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO-56	COBALT-56	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO-57	COBALT-57	0.0736	54.1142	6.0701	15.1485	103.0280	30.1000	11.0100	27.2100	61.5000	18.7000	10.0000
CO-60	COBALT-60 *	0.0509	0.0010	0.0000	2.0004	0.0000	0.0000	0.0000	0.0020	0.0000	0.0056	0.0000
CR-51	CHROMIUM-51	648.0000	1364.0000	1147.0100	1094.0128	760.0000	764.0000	749.2260	627.5000	588.0000	443.0000	304.0000
CS-137	CESIUM-137 *	0.0000	0.0015	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
CU-64	COPPER-64	0.0500	0.0000	0.0000	0.0000	0.0000	10.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CU-67	COPPER-67	0.0000	0.0000	0.0000	0.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000
EU-152	EUROPIUM-152	0.0000	0.0000	0.0100	0.0001	0.0000	0.0000	0.0000	0.0000	1.8600	0.0000	0.0000
EU-152M	EUROPIUM-152M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	8.0000	0.0000	0.0000
EU-154	EUROPIUM-154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0890	0.0000	0.0000
EU-155	EUROPIUM-155	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
F-18	FLUORINE-18	0.0000	80.0000	0.0000	12.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FE-55	IRON-55	0.0760	0.0000	10.1000	0.1001	0.0000	0.0000	0.0000	1.1007	8.0060	5.0030	0.0130
FE-59	IRON-59	0.2535	0.2500	0.0000	0.5000	0.5000	0.0000	0.0000	0.5040	0.0020	0.0010	0.0070
GA-67	GALLIUM-67	0.0000	0.0000	0.0000	6.0000	7.0000	18.0000	12.0000	18.0000	0.0000	0.0000	0.0000
GE-68	GERMANIUM-68	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.2000	0.0000	0.0000	0.0000
H-3	TRITIUM *	3367.1121	14314.7156	4061.2099	2955.6888	11406.0569	1185.6586	2395.3914	2939.8904	801.6350	911.4390	394.8440
I-123	IODINE-123 *	0.0000	22.0300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-125	IODINE-125	917.3188	1741.1115	1504.8233	1232.8107	1064.6298	1287.1398	850.9060	701.5889	825.5197	714.7322	327.4237
I-129	IODINE-129	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
I-131	IODINE-131	364.0023	451.3120	1004.4091	623.5036	226.0006	106.0030	32.0089	3.5022	0.5010	1.5011	4.0009
IN-111	INDIUM-111	35.0000	53.0000	42.0000	36.0000	22.0000	42.0000	52.2440	49.4660	6.0000	7.0000	0.0000
K-42	POTASSIUM-42	0.0240	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2020	0.1900	0.0820
LU-176	LUTETIUM 176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
MN-54	MANGANESE-54	0.5000	0.5010	0.7000	0.5000	1.0000	0.0000	0.2000	1.7000	1.5000	1.5000	0.0000
MN-56	MANGANESE-56 RE	0.4100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.3400	5.0000	6.2000	0.0030
MO-99	MOLYBDENUM-99 *	0.0000	500.5000	200.0000	205.9600	0.0000	0.0000	0.0000	0.0000	0.0000	200.0000	0.0000
NA-22	SODIUM-22	0.7000	1.2010	6.4000	2.2000	4.6000	3.8000	5.7000	1.9000	2.4000	0.7000	1.3000
NA-24	SODIUM-24	0.5100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.9800	2.8000	1.5470
NB-95	NIOBIUM-95	0.0000	6.0000	4.0000	3.0000	3.0000	2.0000	2.0000	2.0000	1.0000	2.0000	0.0000
NI-63	NICKEL-63	12.0000	2.0000	2.0000	2.0050	0.0000	0.0000	1.0000	7.0000	9.0000	0.0000	0.0000
P-32	PHOSPHORUS-32 *	1949.7500	3645.7020	3279.9849	3596.5510	3755.7500	3941.3851	3859.7186	3186.0089	2947.7436	2990.4748	1705.3980
P-33	PHOSPHORUS-33	6.0000	0.0000	24.0000	6.0000	4.0000	0.0000	3.0000	7.2500	15.5000	27.4400	18.0495
RA-228	RADIUM 228	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
RB-86	RUBIDIUM-86	1.0000	5.0000	5.0000	9.0000	4.0000	7.0000	6.0000	1.0000	0.0000	0.0000	1.0000
RU-103	RUTHENIUM-103	0.0000	0.0000	0.0000	2.0000	2.0000	3.0000	3.5000	1.0000	0.5000	1.0000	0.5000
RU-106	RUTHENIUM-106	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000
S-35	SULFUR-35	887.2000	1359.7869	1573.0500	1874.2650	2134.6700	2193.1000	2663.4000	2768.4240	2155.3500	1772.2500	1129.4400
SC-46	SCANDIUM-46	1.2500	7.0000	4.0000	2.0000	5.0000	1.0000	4.0000	1.5000	2.0000	2.5000	1.0000
SE-75	SELENIUM-75	0.0000	2.5000	2.0000	4.0000	2.0000	0.0000	0.0000	0.0000	3.0000	10.0340	0.0000
SI-31	SILICON-REACTOR	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	2.0000	2.5000	0.0000
SN-113	TIN-113	0.0000	4.0000	6.0000	3.0000	3.0000	3.0000	5.0000	3.0000	2.0000	2.5000	0.5000
SN-121M	TIN-121M	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
SR-82	STRONTIUM-82, D	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	5.0000	0.0000	0.0000	0.0000	0.0000
SR-85	STRONTIUM-85	2.7500	5.0000	4.0000	4.5000	3.0000	2.0000	2.0000	1.0000	1.0000	1.0000	1.0000
SR-89	STRONTIUM-89	0.0000	0.0006	0.0000	0.0000	0.0001	0.0000	0.0004	0.0001	8.0002	0.0000	0.0003
TB-158	TERBIUM-158	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
TC-94M	TECHNETIUM-94M	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
TC-99	TECHNETIUM-99	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TC-99M	TECHNETIUM-99M	0.0000	0.0000	91.0000	0.0000	153.1000	759.1000	3324.8287	3139.0000	1271.0000	275.0000	1840.0000
TH-230	THORIUM 230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
TL-201	THALLIUM-201	0.0000	0.0000	29.9822	25.1802	18.7383	4.4116	0.1420	1.7500	0.0000	0.3000	0.0000
U-235	URANIUM-235 *	0.0000	0.0000	0.0000	0.0520	0.0208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U-238	URANIUM-238 *	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
XE-133	XENON-133	0.0000	172.1000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ZN-62	ZINC-62	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	170.0000	480.0000	240.0000	230.0000	150.0000
ZN-65	ZINC-65	0.1500	0.5000	0.1000	0.5000	1.0000	0.5000	0.0000	3.0000	0.0000	0.0000	2.5000
ZN-69	ZINC -69	1.3000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Unsealed Long-Lived (T > 120 days) NRC-RegulatedNuclides and Activities (mCi) Received under UW Broadscope License for Year Indicated

NUCLIDE	FULL	RECPT86	RECPT87	RECPT88	RECPT89	RECPT90	RECPT91	RECPT92	RECPT93	RECPT94	RECPT95	RECPT96
AM-241	AMERICIUM-241	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0005	0.0000	0.0000	0.0000
BA-133	BARIUM-133	0.0000	0.0000	0.0000	0.0001	0.0070	0.0000	0.0000	0.1000	0.0000	0.0000	0.0000
C-14	CARBON-14 *	272.4380	414.2142	273.9533	240.3372	146.5089	259.7868	203.7551	145.6480	162.4562	164.5978	122.8640
CA-45	CALCIUM-45	18.0580	60.2000	48.0100	55.0000	77.0000	70.0000	43.0000	21.0030	33.0020	23.0000	7.0000
CL-36	CHLORINE-36	0.1000	0.0500	5.0250	0.2020	0.1500	1.1000	0.7000	1.2750	4.1750	1.5500	0.0000
CM-244	CURIUM 244*	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
CO-60	COBALT-60 *	0.0509	0.0010	0.0000	2.0004	0.0000	0.0000	0.0000	0.0020	0.0000	0.0056	0.0000
CS-137	CESIUM-137 *	0.0000	0.0015	0.0000	0.0000	0.0000	0.2000	0.0001	0.0000	0.0000	0.0000	0.0000
EU-152	EUROPIUM-152	0.0000	0.0000	0.0100	0.0001	0.0000	0.0000	0.0000	0.0000	1.8600	0.0000	0.0000
EU-154	EUROPIUM-154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0890	0.0000	0.0000
EU-155	EUROPIUM-155	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
FE-55	IRON-55	0.0760	0.0000	10.1000	0.1001	0.0000	0.0000	0.0000	1.1007	8.0060	5.0030	0.0130
H-3	TRITIUM *	3367.1121	14314.7156	4061.2099	2955.6888	11406.0569	1185.6586	2395.3914	2939.8904	801.6350	911.4390	394.8440
I-129	IODINE-129	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
LU-176	LUTETIUM 176	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000
MN-54	MANGANESE-54	0.5000	0.5010	0.7000	0.5000	1.0000	0.0000	0.2000	1.7000	1.5000	1.5000	0.0000
NI-63	NICKEL-63	12.0000	2.0000	2.0000	2.0050	0.0000	0.0000	1.0000	7.0000	9.0000	0.0000	0.0000
RU-106	RUTHENIUM-106	0.0000	0.0000	0.2000	0.0000	0.0000	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000
SN-121M	TIN-121M	0.0000	0.5000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TB-158	TERBIUM	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0000
TC-99	TECHNETIUM-99	0.0000	0.0000	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
TH-230	THORIUM 230	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
U-235	URANIUM-235 *	0.0000	0.0000	0.0000	0.0520	0.0208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
U-238	URANIUM-238 *	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000
ZN-65	ZINC-65	0.1500	0.5000	0.1000	0.5000	1.0000	0.5000	0.0000	3.0000	0.0000	0.0000	2.5000

Activity (mCi) Incinerated at Herrick Drive Incinerator for Year Indicated

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Totals
H-3	1422.22	1432.64	2249.91	10354.1	48816.9	1300	1625	1042.15	352.006	2275.011	552.976	426.7051	796.8366	241.5642	475.031	73363.05
C-14	87	20.4645	119.245	246.395	668.852	126	117	56.23	79.032	138.721	68.628	85.3515	109.1228	80.9645	147.229	2150.235
Na-22	0.13	0.05	1.288	0	5.5099	0.82	0.132	0.44	1.695	2.453	1.844	1.29292	1.9013	0.557	0.26	18.37312
P-32	1.5	0.99	5.109	7.128	9.3547	7.3	123	46.85	46.693	42.22	21.223	13.99898	16.103	23.89269	13.573	378.9354
P-33	0	0	0	0	0	0	0.0365	0	0	0	0	0	0	0	0.249	0.2855
S-35	13.36	27.444	58.16	488.544	335.431	267	338	287.09	384.588	136.545	333.43	392.0034	220.655	205.5203	181.499	3669.27
Cl-36	0	0	0.001	0	0.448	0.001	0.43	0	0.981	0.681	0.003	0.08579	0.1604	0.172	1.547	4.51019
Ca-45	0.48	0	0.071	21.3645	13.0299	8	9.65	7.64	20.005	3.311	6.987	4.1365	4.60971	2.851623	3.063	105.1992
Sc-46	5.1	1.6718	2.065	2.479	2.7278	1.8	3.34	1.07	1.439	7.23	0.831	2.6047	0.9532	0.929	1.217	35.4575
Cr-51	23.9	21.713	21.024	18.92	17.961	51	7.97	0.006	1.688	265.102	18.109	39.5	32.455	17.684	24.311	561.343
Mn-54	0	0	0.2	0	0.0819	0.15	0.158	0.108	0.285	1.044	0.051	0.07715	0.2896	0.00007	0.326	2.77072
Fe-55	0	0	0	0.002	0.0262	0	0	0	0	0	0	0	0	0	0	0.0282
Co-57	2.3	0.67	0	0	1.4141	1.3	3.03	1.43	1.6	5.914	0.92	1.670744	0.7195	1.34025	1.817	24.12559
Fe-59	0.19	0.004	0	0	0	0.2	0.332	0.002	0.302	0.307	0.2	0	0	0	0	1.537
Co-60	0	0	0.26	0	0	0.082	0	0	0	0.002	0.1	0	0	0	0	0.444
[illegible]63	0	0	0	0	19.9584	0.22	15.7	0.001	0	0.042	0.068	0.0001	0.053	0	0.027	36.0695
[illegible]65	0	0.36	0.67	0	0.0173	0.1	0.0505	0	0.051	0.008	0	0	0.0024	0.032	0	1.2912
Ga-68	0	0	0	0	0.0136	0.01	0	0	0	0	0	0	0	0	0	0.0236
Se-75	0.94	0.387	0.7122	1.589	0.9939	0.62	0.118	0.0354	0.068	0	10.402	0.0002	0	0	0	15.8657
Sr-85	3.1	1.5173	2.011	2.557	2.7408	1.6	2.51	0.67	1.84	1.355	0.43	1.93	0.44	0.43102	0.742	23.87412
Rb-86	0	0	0	0	0.012	0.048	0.03	0.001	0	0.277	0	0.01077	0	0	0	0.37877
Y-88	0	0	0	0	0	0	0	0	0	0.102	0	0	0.00001	0	0	0.10201
Sr-90	0	0	0	0	0.004	0.0001	0	0	0	0	0	0	0	0	0	0.0041
Y-90	0	0	0	0	0.004	0.0001	0.12	0	0	0.001	0	0	0	0	0	0.1251
Nb-95	0	0	0	0	0.493	1.2	2.36	0.68	1.25	0.98	0.431	2.07472	0.85734	0.328	0.626	11.28006
Mo-99	0	0	0.12	0	0	0	0	0	0	0	0	0	0	0	0	0.12
Tc-99	0	0	0	0	0	0.05	0	0	0	0	0	0	0	0	0	0.05
Ru-103	0.17	0.04	0	0	0.013	0	0	0	0.275	3.523	0.816	1.66939	0.4919	0.1704	0.415	7.58369
Cd-109	0.2	0	0	0	0.0346	0.13	0.438	0.095	0.017	0.757	0.16	1.93	0.1379	0.6431	0.549	5.0916
In-111	0	2.636	0	0	0	3.1	2.18	1.996	2.35	4.195	5.507	0.9149	0.04992	0	0.229	23.15782
Sn-113	0	0	0	0	0.9471	1.3	2.74	1.24	1.167	1.865	1.2	3.9895	2.0471	1.0798	1.311	18.8865
I-123	0	0	0	0	0	0	0.56	0	0	0	0	0	0	0	0	0.56
I-125	18.8	25.84	38.002	22.519	25.7177	46	33.7	24.66	32.657	20.424	17.493	13.8349	8.1433	9.346596	15.574	352.7115
I-131	0	0	0	0	0	0	0.92	0.207	0.853	0.244	0.006	0	0	0.013	0.118	2.361
Ba-133	0	0	0	0	0.0967	0	0	0	0	0	0	0	0	0	0	0.0967
Cs-137	0	0	0.002	0	4.6226	2	0	0	0	0.066	0.009	0	0	0.0019	0	6.7015
Ce-141	0	0.7039	2.614	2.168	1.722	0.28	0.131	0	2.008	0.633	1.33	2.75091	0.96511	0.3694	0.399	16.07432
Eu-152	0	0	0	0	0	0.25	0	0	0	0	0	0	0	0	0	0.25
[illegible]-153	0	0	0	0	0.1	0.031	0	0	0.317	0.289	0	0	0	0	0.008	0.745
[illegible]-154	0	0	0	0	0	0.064	0	0	0	0	0	0	0	0	0	0.064
Tl-201	0	0	0	0	0	0	0	7.865	0.943	0.176	0.001	0	0	0	0	8.985
Pb-210	0	0	0.012	0	0	0	0	0	0	0	0	0	0	0	0	0.012
Po-210	0	0	0	0	0	0	0	0	0	0.005	0	0	0	0	0	0.005
Totals:	1579.39	1537.132	2501.476	11167.77	49929.23	1820.656	2289.636	1480.466	934.11	2913.483	1043.155	996.5322	1196.994	587.8908	870.12	80848.03
Labware (ft3)			1845.5	9732	1516	2312	4517	4901	6902	5769	3816.25	6565.85	5916.45	5008	5252.85	64053.9
Animals (lb)			23731	15354	16555	14427	12948	10732	12357	15747	7907	17000	11985	6760	8540	174043

Activity (mCi) Disposed of to the Sanitary Sewer for Year Indicated

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	Totals
H-3	0.24	197.991	1586.84	2947.985	1702.3	588	566.4606	395.8572	298.8591	657.498	345.814	430.6453	303.9904	309.673	763.844	11196
C-14	0.79	8.59	320.64	37.5088	34.7	28.6	17.6369	31.3014	10.995	17.4094	12.6446	13.1187	9.7477	8.614	5.312	557.6085
Na-22	0.55	0.105	0.04	1.048	0.42	0.074	0.393	0.54	1.005	1.385	0.5089	2.2647	1.2837	1.037	1.77	12.4243
P-32	0.18	0.01	0.56	9.105	3.71	5.1	11.8829	12.2515	16.9604	15.0229	7.422	8.1804	5.5727	5.395	4.068	105.4206
P-33	0	0	0	0	0	0	0	0	0	0.0139	0	0.0001	0	0	0	0.014
S-35	1.12	27.34	9	39.127	44.85	48.2	57.2915	34.3217	64.7508	95.673	72.7558	103.0183	87.5166	67.816	83.625	836.4057
Cl-36	0	0	0	0.01	0	0	0.0381	0	0.002	0.478	0.0469	0.321	2.142	2.469	5.503	11.008
Ca-45	0.1	0.363	101.9	11.674	13.13	4.82	3.334	1.719	2.5591	6.1471	7.989	7.974	6.5865	3.153	6.602	178.0507
Sc-46	0	0	0	0.0102	0.016	0.0056	0.003	0	0.1204	0.0744	0.0035	0	0.002	0	0	0.2351
Cr-51	0	0	0.2	0.293	0.49	0	21.02	5.937	25.235	10.067	8.852	5.092	2.834	2.447	7.817	90.284
Mn-54	0	0	0	0.029	0.0411	0.013	0	0	0	0	0	0.007	0.052	0	0.99	1.1321
Fe-55	0	0	0	0	0	0	0	0	0.01	0.008	0	0	0	0	2.18	2.198
Co-57	0	0	0	0.116	0.0072	0.105	0.0145	0.0063	0.053	0.029	0.032	0.07	1.401	0.715	0.01	2.559
Fe-59	0	0.0056	0	0.151	0	0.105	0	0	0	0	0	0.00039	0	0	0	0.26199
Co-60	0	0	0	0	0.0007	0.0004	0	0	0	0	0	0	0	0	0	0.0011
Ni-63	0	0	0	0.334	0.03	0.9	0	0	0.015	4.25	0.0271	0.415	0	1.5	2.06	9.5311
[illegible]n-65	0	0.0105	0.05	0.045	0	0	0	0	0	0	0	0	0.245	0.0009	0	0.3514
Ga-67	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0	0.1
As-73	0	0.0009	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0009
Se-75	0	0	0.3	0	0.0028	0	0.5	0.147	0	0	0	0.8797	0	0	0	1.8295
Sr-85	0	0	0	0.0102	0.0153	0.0004	0.0042	0	0	0.002	0	0	0	0	0	0.0321
Rb-86	0	0	0	0	0.007	0	0	0	0	0.002	0.025	0.026	0	0	0	0.06
Y-88	0	0	0	0	0.0014	0.0008	0	0	0	0	0	0	0	0	0	0.0022
Sr-89	0	0	0	0	0	0.0004	0	0	0	0	0	0	0	0	0	0.0004
Sr-90	0	0	0	0	0	0.004	0	0	0	0	0	0	0	0	0	0.004
Zr-95	0	0	0	0	0	0.0001	0	0	0	0	0	0	0	0	0	0.0001
Tc-99m	0	0	0	0	0	0	0	0	0	4.1	10.52	20.1	20	0	0	54.72
Ru-103	0	0	0	0	0	0	0	0	0.2258	0.006	0.0074	0	0	0	0	0.2392
Ru-106	0	0.0001	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0001
Cd-109	0	0	0.004	0	0.0033	0.0021	0.003	0	0	0	0	0	0	0	0	0.0124
Sn-113	0	0	0	0	0.0006	0.0003	0	0	0.0226	0.0035	0	0	0	0	0	0.027
Sb-125	0	0.001	0	0	0	0	0	0	0	0	0	0	0	0	0	0.001
I-125	2.86	3.49	19.83	180.2753	95.3	45.2	28.7926	26.3179	126.6762	25.6563	18.6114	13.9491	13.2255	13.29	16.089	629.5633
I-131	0	0	0	0	0	0.9905	0.0908	1.1811	3.1042	2.995	3.56	0.03	0.03	0	0	11.9816
Ba-133	0	0	0	0	0.1227	0.002	0	0.0003	0	0	0	0	0	0	0	0.125
Cs-134	0	0	0	0	0	0.0001	0	0	0	0	0	0	0	0	0	0.0001
Cs-137	0	0	0.001	0	0.0008	0.0066	0	0	0	0.0002	0	0	0	0	0	0.0086
Ce-139	0	0	0	0	0.0001	0.0001	0	0	0	0	0	0	0	0	0	0.0002
Ce-141	0	0	0	0.0102	0.013	0	0	0	0.3935	0.015	0.0085	0	0	0	0	0.4402
Eu-152	0	0	0	0	0	0.0013	0	0	0	0	0	0	0	0	0	0.0013
Gd-153	0	0	0	0	0	0	0.0235	0	0	0	0	0	0	0	0.04	0.0635
Tl-201	0	0	0	0	0	0	0	0	0	1.8962	0	0	0	0	0	1.8962
Hg-203	0	0	0.03	0	0.0004	0.0002	0	0	0	0	0	0	0	0	0	0.0306
Tl-204	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0.01
Bi-207	0	0	0	0	0	0.0001	0	0	0	0	0	0	0	0	0	0.0001
Pb-210	0	0	0	0.318	0	0	0	0	0	0	0	0	0	0	0	0.318
Ra-226	0	0	0	0	0.0001	0	0	0	0	0	0	0	0	0	0	0.0001
Am-241	0	0	0	0	0.0003	0.0001	0	0	0	0.0001	0	0	0	0	0	0.0005
																0
Totals:	5.84	237.9071	2039.395	3228.049	1895.162	822.142	707.4886	509.5804	550.9871	842.7299	488.9281	606.0917	454.6291	416.1099	899.91	13704.95
User Sewer (mCi)														19.93		19.93
Volume (l)							10224	9376	22807.77	12914.35	11568	10166.9	9964.11	11,022.43	9,001.38	107044.9

Daily Volume -- 6 E 11 ml

RN
7/9/96

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
AR-41	0	50	0	0	3000
AS-76	0	200	0	0	3000
AU-198	0	202	0	0	3000
AU-198S	0	2000	107	107	3000
BA-133	0	28	1	1	3000
BA-140	0	0	0	0	3000
BR-80	0	1	0	0	3000
BR-82	0	221	0	0	3000
CA-45	0	563	42	42	3000
CA-47	0	12	0	0	3000
CD-109	0	156	7	7	3000
CD-109S	0	95	0	0	3000
CD-115	0	2	0	0	3000
CE-139	0	110	0	0	3000
CE-141	0	39	0	0	3000
CE-144	0	0	0	0	3000
CL-36	0	22	1	1	3000
CL-38	0	11	0	0	3000
CR-51	0	895	127	127	3000
CS-134	0	1	0	0	3000
CU-64	0	364	0	0	3000
CU-67	0	54	0	0	3000
DY-159	0	0	0	0	3000
EU-152	0	25	2	2	3000
EU-152M	0	10	0	0	3000
EU-154	0	15	0	0	3000
F-18	0	3000	0	0	3000
FE-55	0	81	7	7	3000
FE-59	0	48	0	0	3000
GD-153	0	24	0	0	3000
HG-203	0	19	0	0	3000
I-125	0	2098	814	814	3000
I-125S	0	1300	62	62	3000
I-129	0	0	0	0	1000
I-131	0	736	1	1	3000
IN-111M	0	10	0	0	3000
IN-113M	0	100	0	0	3000
IN-114M	0	200	0	0	3000
IR-192	0	100	0	0	3000
IR-192S	0	2500	144	144	3000
K-42	0	26	0	0	3000
KR-79	0	0	0	0	3000
KR-81	0	30	0	0	3000
KR-85	0	400	0	0	3000
LA-140	0	0	0	0	3000
LU-176	0	0	0	0	3000

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
MN-56	0	10	6	6	3000
NB-95	0	127	1	1	3000
NI-63	0	213	55	55	3000
NI-63GC	0	849	397	397	3000
O-15	0	2700	0	0	3000
O-19	0	5	0	0	3000
P-33	0	948	20	20	3000
PB-210	0	10	0	0	3000
PB-210S	0	0	0	0	1
PM-147	0	1000	0	0	3000
PO-210	0	20	6	6	80
PR-144	0	0	0	0	3000
PT-197	0	0	0	0	3000
PU-238	0	0	0	0	0
RB-86	0	165	2	2	3000
RH-106	0	0	0	0	3000
RU-103	0	102	0	0	3000
RU-106	0	0	0	0	3000
RU-106S	0	10	4	4	3000
S-35	0	7208	2107	2107	3000
SB-124	0	101	0	0	3000
SB-125	0	0	0	0	3000
SC-46	0	28	1	1	3000
SE-75	0	58	3	3	3000
SM-151	0	50	50	50	3000
SN-113	0	35	1	1	3000
SN-119M	0	50	10	10	3000
SN-121M	0	0	0	0	3000
SR-85	0	4041	1	1	3000
SR-87M	0	400	0	0	3000
SR-89	0	65	0	0	3000
SR-90	0	92	1	1	3000
TB-158	0	0	0	0	3000
TC-99	0	10	0	0	3000
TE-123	0	0	0	0	3000
TL-201	0	203	1	1	3000
TL-204	0	1	0	0	3000
TM-170	0	0	0	0	3000
XE-127	0	300	0	0	3000
XE-133	0	2011	0	0	3000
Y-90	0	1	0	0	3000
YB-169	0	4700	0	0	3000
ZN-65	0	433	5	5	3000
ZN-69	0	10	0	0	3000
ZR-95	0	0	0	0	3000

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
*** Total ***		41704	3985	3985	

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
AM-241	1	1	0	0	250
AM-241S	1	3421	2414	2414	5000
AM-BE	1	100	50	50	100
AS-73	1	200	0	0	3000
C-14	1	5892	500	500	5000
CM-244	1	0	0	0	1
CM-244S	1	20	4	4	40
CO-60	1	612	1	1	5000
CO-60S	1	102	101	101	5000
CS-137	1	8239	674	674	20000
CS-137S	1	2022201	6289	6289	20000
FE-55S	1	120	28	28	3000
GD-153S	1	12001	2058	2058	12000
H-3	1	1642884	369142	369142	2000000
H-3GC	1	600	0	0	500000
I-125B	1	2050	0	0	3000
MO-99	1	8801	0	0	10000
P-32	1	9483	1439	1439	5000
PU-239	1	0	0	0	0
SI-31	1	10	4	4	3000
TC-94M	1	300	1	1	10
TC-99M	1	8562	160	160	10000
U-238	1	864	0	0	166
*** Total ***		3726463	382867	382867	

nuclide	nuk->license	poss_lim	balance	nuk->balance	nuk->nrcli
CM-244	1	0.0150	0.0031	0.0031	1.000
CM-244S	1	20.0000	4.0000	4.0000	40.000
PU-239	1	0.1010	0.0005	0.0005	0.035
PU-239S	2	5000.0000	3000.0000	3000.0000	3000.000

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
PU-239S	2	5000	3000	3000	3000
SR-90S	2	1677	222	222	3000
TH-230	2	0	0	0	0
U-235	2	0	0	0	0
*** Total ***		6677	3223	3223	

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
AS-72	3	200	0	0	3000
AS-74	3	204	0	0	3000
AU-195	3	150	0	0	3000
BE-7	3	2	0	0	3000
BI-207	3	0	0	0	3000
BR-76	3	550	0	0	3000
BR-77	3	220	0	0	3000
C-10	3	101	0	0	3000
C-11	3	1700	0	0	3000
CO-55	3	20	0	0	3000
CO-56	3	100	0	0	3000
CO-57	3	409	147	147	3000
CO-57S	3	1	0	0	1000
CO-58	3	200	0	0	3000
CS-129	3	0	0	0	3000
CU-61	3	220	0	0	3000
CU-62	3	400	0	0	3000
F-17	3	200	0	0	3000
FE-52	3	110	0	0	3000
GA-67	3	313	0	0	3000
GA-68	3	650	0	0	3000
GE-68	3	220	0	0	3000
GE-68S	3	50	12	12	50
GE-68SS	3	7	0	0	3000
HG-195	3	150	0	0	3000
HG-197	3	6	0	0	3000
I-123	3	230	0	0	3000
I-124	3	100	0	0	3000
IN-111	3	391	0	0	3000
IR-192A	3	22000	9697	9697	2
K-38	3	20	0	0	3000
K-40	3	1	0	0	3000
KR-77	3	1	0	0	3000
MG-28	3	0	0	0	3000
MN-51	3	100	0	0	3000
MN-52	3	101	0	0	3000
MN-52M	3	100	0	0	3000
MN-54	3	25	1	1	3000
N-13	3	1260	0	0	3000
NA-22	3	52	5	5	1500
NA-24	3	21	4	4	3000
O-14	3	250	0	0	3000
RA-226	3	213	101	101	1000000
RA-226S	3	25	0	0	1000000
RA-228	3	0	0	0	3000
RB-81	3	60	0	0	3000

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
RB-82	3	750	0	0	3000
SR-82	3	750	0	0	3000
TE-123M	3	100	0	0	3000
TH-228	3	0	0	0	3000
TH-232	3	10	0	0	3000
TI-44	3	0	0	0	3000
V-48	3	120	0	0	3000
V-50	3	1	0	0	3000
XE-123	3	1	0	0	3000
Y-87	3	600	0	0	3000
Y-88	3	111	0	0	3000
ZN-62	3	400	0	0	3000
*** Total ***		33977	9966	9966	

 Summary of nuclides where Total Poss Limits > NRC Limit

07/02/96

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
AM-BE	1	100	50	50	100
AS-70		100	0	0	0
BA-137M		0	0	0	0
BR-74M		100	0	0	0
BR-75		150	0	0	0
BR-80M		520	0	0	0
C-14	1	5892	500	500	5000
CO-57		10	0	0	0
CA-41S	O	0	0	0	0
CD-107		100	0	0	0
CL-34M		150	0	0	0
CO-54M		100	0	0	0
CS-137I		1450000	0	0	0
CS-137S	1	2022201	6289	6289	20000
CU-60		520	0	0	0
EU-155		0	0	0	0
F-18	0	3000	0	0	3000
GA-64		100	0	0	0
GA-66		200	0	0	0
GD-153S	1	12001	2058	2058	12000
GE-68S	3	50	12	12	50
GE-71S		0	0	0	0
GE-75S		0	0	0	0
GE-77S		0	0	0	0
I-126		100	0	0	0
I-130		100	0	0	0
IN-110		100	0	0	0
IN-112		100	0	0	0
IN-115M		100	0	0	0
IR-192A	3	22000	9697	9697	2
KR-81M		50	0	0	0
MO-93M		100	0	0	0
NB-90		200	0	0	0
NB-92M		100	0	0	0
NB-96		100	0	0	0
NI-63S		15	0	0	0
P-210SS		20	0	0	0
P-30		100	0	0	0
P-32	1	9483	1439	1439	5000
PB-205		0	0	0	0
PD-103		4500	0	0	0
PD-103S		300	0	0	0
PN-13		0	0	0	0
PU-238	0	0	0	0	0
PU-239	1	0	0	0	0

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
PU-239S	2	5000	3000	3000	3000
PU-240		0	0	0	0
RB-82GE		3000	0	0	0
RB-82M		200	0	0	0
RB-83		100	0	0	0
RB-84		100	0	0	0
RB-84M		500	0	0	0
RB-87		0	0	0	0
RH-100		100	0	0	0
RH-102M		100	0	0	0
RH-96		100	0	0	0
RH-98		100	0	0	0
RH-99		100	0	0	0
RH-99M		100	0	0	0
S-35	0	7208	2107	2107	3000
SB-116		100	0	0	0
SB-116M		100	0	0	0
SB-117		100	0	0	0
SB-118M		100	0	0	0
SB-120		100	0	0	0
SB-122		100	0	0	0
SC-43		200	0	0	0
SC-44		100	0	0	0
SC-44M		100	0	0	0
SC-48		100	0	0	0
SN-113M		100	0	0	0
SR-82GE		3000	0	0	0
SR-85	0	4041	1	1	3000
TC-92		100	0	0	0
TC-94		100	0	0	0
TC-94M	1	300	1	1	10
TC-95		200	0	0	0
TC-95M		300	0	0	0
TC-96		300	0	0	0
TE-121		100	0	0	0
TE-121M		100	0	0	0
TI-45		100	0	0	0
TL-45		500	0	0	0
TN-113		0	0	0	0
U-234		0	0	0	0
U-236		0	0	0	0
U-238	1	864	0	0	166
V-47		200	0	0	0
XE-127M		500	0	0	0
Y-84		200	0	0	0

Radiation Safety
Composite Inventory Report
UW - Madison

Nuclide	License Status	Total of User Possession Limits	Total of User Balances (mCi)	UW-Madison Balance uncorrected (mCi)	NRC License Limit (mCi)
Y-86		500	0	0	0
Y-87M		200	0	0	0
YB-169	0	4700	0	0	3000
ZN-63		600	0	0	0
ZR-89		600	0	0	0
*** Total ***		3568175	25154	25154	

The University of Wisconsin System

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Edward S. Alschuler 265-2960

September 17, 1996

United States Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

TO WHOM IT MAY CONCERN:

The Board of Regents of the University of Wisconsin System, an agency of the State of Wisconsin, doing business as the University of Wisconsin- Madison, hereby states its intent to obtain the funds for decommissioning when necessary for the following licenses:

48-09843-18	Broad Scope A License	$300,000
48-09843-28	Irradiator License	50,000
48-09843-32	Panoramic Irradiator License	75,000
48-09843-34	Panoramic Irradiator License	75,000

I hereby certify that I am authorized to act on behalf of the Board of Regents in signing this document.

Board of Regents of the
University of Wisconsin System

By: Charles J. Stathas
Charles J. Stathas
General Counsel and
Assistant Trust Officer

xc: John Torphy
Ronald Bresell
Kathleen Irwin