CALIFORNIA POLYTECHNIC STATE UNIVERSITY
SAN LUIS OBISPO, CALIFORNIA 93407
(805) 546-0111

The Final Decommissioning Report For The AGN-201 Reactor

Submitted To:

United States Nuclear Regulatory Commission

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
SAN LUIS OBISPO, CALIFORNIA 93407
(805) 546-0111

Dismantling and Disposal Plan

Pre-dismantling Survey

Shipping Containers

Packaging Check list

Radiation Surveys (Fuels and Facility)

Shipment of Radium Beryllium Sources

Post Fuel Removal Radiation Survey

Shipping Papers

Personnel Monitoring

Packaging and Shipment of Components

Dismantling and Disposal Plan

California Polytechnic State University

AGN-201 Reactor

License No.: R-121

Docket No.: 50-394

April 1981

Prepared by:

R. W. Adamson, Reactor Administrator, Professor

Aeronautical and Mechanical Engineering Department, CPSU

DISMANTLING AND DISPOSAL PLAN

I. INTRODUCTION

California Polytechnic State University (CPSU) possesses an AGN-201 nuclear training reactor under USNRC License no. R-121 (Docket No. 50-394). It is proposed that this facility be defueled and dismantled in preparation for transfer of the reactor to: (a) another NRC-licensed facility; or (b) a DOE facility for ultimate disposal. The fuel will be retained at CPSU pending approval to transfer it to one of the above mentioned facilities. To permit the transfer of the AGN reactor, this document provides the CPSU plan for dismantling of the reactor's component parts. interim storage of the fuel at CPSU, and subsequent shipment of the fuel from the campus. To the extent possible, provisions of NRC Regulatory Guide 1.86, "Termination of Operating Licenses of Nuclear Reactors" have been followed.

Appendix A to this plan gives a brief description of the reactor; Appendix B summarizes its operating history; and Appendix C discusses radiation levels anticipated.

The general procedure for disassembly and disposal will be to verify that the reactor control rods and the start-up source have been removed, and then to remove the thermal column, the intact core can, and the separate sections of the reflector and shield assembly. The Ra-Be sources will remain locked in the shielded storage container adjacent to the west wall of the N.R.F. The control rod thimbles will remain stored in a locked cabinet in the separated adjacent Radioisotope Laboratory room. After having ascertained that the preceding items are properly stored, the general procedure for disassembly will be to remove the top cover, thermal column, the intact core can, then the

separate sections of the reflector and shield assembly.

Next, the individual fuel discs will be removed from the core can, wipe tested, and checked off by number for inventory and stored in two separate locked vaults, one-half in each.

After all the fuel has been removed to storage, the electrical connections for the control rod drives and other instrumentation will be disconnected. All reactor components and areas will be checked for induced radioactivity and contamination, and decontaminated as required. Upon completion of this, all non-radioactive reactor components will be shipped to the scheduled recipient.

When all of the recipient's NRC license approvals (or other appropriate approvals) are received by CPSU, the fuel will be shipped to the approved facility in accordance with all applicable Federal and State regulations. CPSU's existing radiation protection program will be utilized to accomplish all necessary radiation monitoring, waste management, and other radiation safety related aspects of the operation. During the entire operation, care will be taken to protect both the operations personnel and the general public from exposure to ionizing radiation, and to keep necessary radiation exposure as low as reasonably achievable.

II. DISMANTLING PROCEDURE

A. General

During the dismantling operations, an NRC-licensed Senior Reactor Operator (SRO) for the AGN-201 will be present. The Radiation Safety Officer, or his representative, will be present as necessary to monitor the operations for radiological safety. Personnel involved in the dismantling operation will receive instructions on the procedures at a pre-dismantling meeting.

B. Safety Evaluation

1. Nuclear Criticality Safety

A nuclear excursion would be the most serious type of accident that could occur during the disassembly and removal of the reactor core. However, it is one of the least likely of all credible accidents. To obtain criticality, the complete core assembly, including all fuel discs, the two fueled safety rods, and the fueled coarse control rod, must be assembled with a reflector in an optimum geometry.

Nuclear safety will be maintained since the safety and control rods have been previously removed and stored in the separate radioisotope room before any disassembly allowing removal of the core can is begun. The combined fuel content of the rods is approximately 45 grams of U-235 and the core itself contains approximately 620 grams of U-235.

As a further precaution, the temporary cadmium safety rod presently inserted into the glory hole will remain in place during

disassembly of the reactor. This cadmium rod will have to be removed just prior to removing the core can since the glory hole liner tube must be removed before the core container can be lifted out of the reactor.

In addition to a portable gamma monitoring meter, a portable neutron survey meter will be in continuous operation during the removal of the core can as one indicator of neutron multiplication. Two of the existing three thermal neutron instrumentation channels of the reactor will also be operational during dissassembly.

The Cd rod will be placed back into the glory hole immediately after the core can is removed from the reactor. The core can will not be left unattended. Upon removal, it will be transferred to the area where the fuel will be removed and stored. See Section II-C, Specific Procedures.

2. Radiation Safety

Radiation exposure could arise from three sources: the reactor core, activiation products outside the core, and the Ra-Be start-up source. Thorough surveys of the reactor core and the other reactor components, and comprehensive monitoring of the area and personnel during disassembly will prevent accidental and/or excessive radiation exposures. Such monitoring will be supervised by the Radiation Safety Officer.

The Ra-Be start-up sources were removed from the reactor last year. The sources were leak-tested by wiping after removal and remain stored in a shielded container in the N.R.F. source storage vault.

Personnel monitoring devices will be worn by individuals entering the AGN reactor area during disassembly.

3. Mechanical Safety

The most probable type of accident is that which might be called mechanical and may result from either human error or mechanical failure. The probability of human error will be minimized by making adequate preparation for the work and by following a predetermined plan of action. The probability of mechanical failure will be minimized by thorough inspection of all equipment in advance.

C. Specific Procedures

1. The Radiation Safety Officer will make a special pre-disassembly radiological survey. He will also initiate special access procedures, personnel and equipment monitoring procedures. and other procedures needed to keep radiation exposure as low as reasonably achievable. An operational check will be made of radiation monitoring equipment present. If all monitoring equipment responds properly, the operation will proceed.
2. The Senior Reactor Operator will brief the disassembly group on each step prior to its accomplishment.
3. Insure that the temporary cadmium rod is in the glory hole.
4. Insure that the control and safety rods have been removed.
5. Remove the control rod drive mechanisms and dashpots.
6. Drain the thermal column.
7. Unbolt and remove the thermal column.
8. Ascertain that neutron sources have been removed from the graphite

reflector and placed in the storage container.

9. Conduct an initial core survey, including a direct radiation survey and smear survey of the core tank top.
10. Remove the cadmium from the glory hole.
11. Remove the glory hole tube.
12. Lift the intact core can from the reactor.
13. Replace the cadmium in glory hole.
14. Conduct radiation survey to determine direct radiation levels from the core can and removable surface contamination on the exterior surface of the can.
15. Transfer the core can to the room adjacent to the reactor for disassembly and storage of the fuel.
16. The fuel will be removed from the core can sequentially with the top half of the fuel plates transferred to fuel safe number one and the bottom half to fuel safe number two.
17. The Radiation Safety Officer will perform a radiation survey of accessible internal surfaces to ascertain direct (induced) radiation levels and removable contamination levels.

NOTE: This concludes the nuclear portion of the disassembly process. The remaining disassembly will be conventional mechanical and electrical, with radiation surveys made as directed by the Radiation Safety Officer.

17. Remove the four access port tubes.
18. Remove the outer graphite shield.
19. Remove the four lead shield rings.

20. Remove the core support plate.

21. Remove the lead base plate shield.

22. Drain the shield water tank.

23. Reactor electrical and instrumentation disassembly — the electrical and instrumentation cables will be disconnected in the following general sequence:

    a. Nuclear Channel #1:

        1) Detector chamber H.V. off.

        2) Ratemeter main power off.

        3) Remove detector dry well from reactor tank.

        4) Disconnect pre-amp (2) and H.V. (1) cables.

    b. Nuclear Channels #2 and #3:

        1) Disconnect H.V. cables at battery supply pack.

        2) Remove detector dry wells from reactor tank.

        3) Disconnect signal and H.V. cables.

    c. Disconnect main distribution cable.

    d. Disconnect monitor cable.

    e. Disconnect main power cable.

III. STORAGE OF FUEL AT CPSU/SLO

A. Storage Location and Configuration

As indicated before, the individual core fuel disks and the fueled control and safety rods will be stored separately, well apart from each other. The rod fuel thimbles are stored in a locked cabinet located in the radioisotope room. These items will remain under physical security in separate locations in the N.R.F. until shipment from CPSU/SLO.

B. Criticality Considerations

With the fueled control rods and the reactor core divided into two physically well-separated locations, inadvertant criticality is impossible. Existing area radiation monitors will be used for surveillance of the core and the fueled rods while they are in storage.

C. Physical Security Considerations

The AGN core and fueled control rods will be stored in the adjacent room, which is a vital area as defined in the N.R.F. Security Plan. Thus these AGN components will be protected and covered by the active Security Plan, which provides excellent coverage for these components.

IV. TRANSPORTATION PLAN

CPSU will ship the AGN core and start-up source in accordance with applicable NRC, DOT and State of California regulations. As required, the following actions will be taken:

A. Confirm that the recipient is properly licensed or otherwise authorized to receive the radioactive material.

B. Utilize an NRC approved (licensed) DOT Type B shipping container(s) for the special nuclear material contained in the core and control rods.

C. CPSU will obtain approval to use the NRC approved DOT Type B shipping containers in accordance with 10 CFR 71.12.

D. CPSU will obtain approval for a transportation physical security plan which meets the required level of security for the SNM at the time of shipment.

E. Shipment will be by a means authorized by the NRC, DOT and State of California.

V. ENVIRONMENTAL CONSIDERATIONS

As stated earlier, the fuel and radioactive sources will be removed from the reactor and stored in separate locations, pending shipment offsite. All remaining reactor components will be decontaminated such that surface contamination levels are below the levels listed in NRC Regulatory Guide 1.86 for release to unrestricted use. There should be no direct radiation emissions above natural background.

No significant exposure to personnel or generation of any waste will occur during the disassembly process and all components are at very low level of radioactivity and in solid form. These low levels result from the operating history of the reactor (less than 3,000 watt-minutes of energy release throughout the reactor lifetime) and inoperative period (about two and a half years). The small volume of low level waste (paper towels, gloves, wipes, etc) used during disassembly will be disposed of in accordance with appropriate State and Federal regulations.

The AGN-201 has not operated in the past two and a half years, and there are no present or future plans to operate or use this reactor at CPSU. The space it occupies is urgently needed by the University for Mechanical Engineering laboratories. The reactor has little or no resale value that we can determine. Its best use would be at another university (or other facility) which needed such a reactor and which would use it as it was originally intended to be used. As a last resort, the fuel could be sent to DOE for reprocessing and use in other reactors, and the other reactor components used as spare parts for other AGN facilities or reclaimed as scrap.

A physical security chain link fence around the reactor will have to be removed, and a portion of the outer brick wall of the reactor room must be removed to allow removal of the large reactor components. The estimated cost of these changes is about $5,000. No other changes to the building, electrical lines, water lines, or sewerlines are required in the dismantling of the reactor.

State of California

Memorandum

California Polytechnic State University
San Luis Obispo, California 93407

To : R. Adamson

Date : March 18, 1982

File No.: ABN, 101-02, 1010

Copies :

From : J. Pickering

Subject: Pre-dismantling Survey, ME Reactor

On 3 February, a wipe test was performed with no removable contamination detected. Also, a water sample from the containment vessle was taken from the bottom. No contamination was detected in the water. See attached survey and counting data for locations of the wipe test.

On 8 February and 18 March, gamma and neutron surveys were performed respectively. See attached survey form for locations and measurements.

The following instrumentaion is available for the dismantling process:

Neutron Survey Meters

Eberline Model PNC-4, SN 2128, calibrated 19 Nov 81
RCL Model 20804, SN 107, calibrated 19 Nov 81

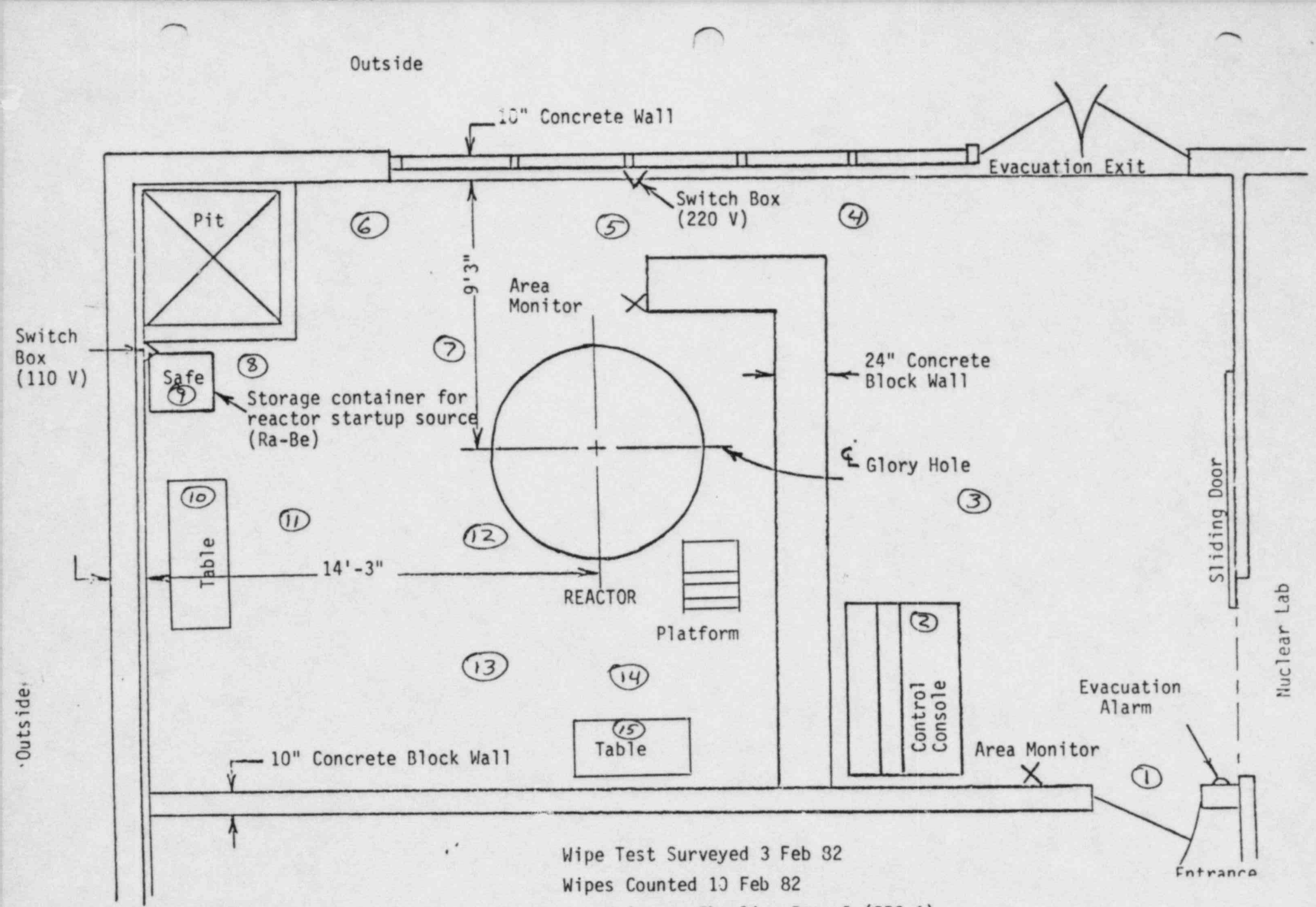
Beta-Gamma

Tech Assoc. Model PUG-1, SN 159, calibrated 12 Nov 81

Gamma (Micro R Meter)

Ladlum Model 12S, SN 16062, calibrated 12 Nov 81

The batteries were checked on 18 March 1982.



Wipe Test Surveyed 3 Feb 82

Wipes Counted 10 Feb 82

Using an Eberline Rascal (PRS-1)
SN 493, 210 Probe
Calibrated 20 Nov 81

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT Mechanical Engineering REPORT DATE March 18, 1982 PAGE 1

LOCATION Reactor SURVEY DATE 3 February 1982 TIME

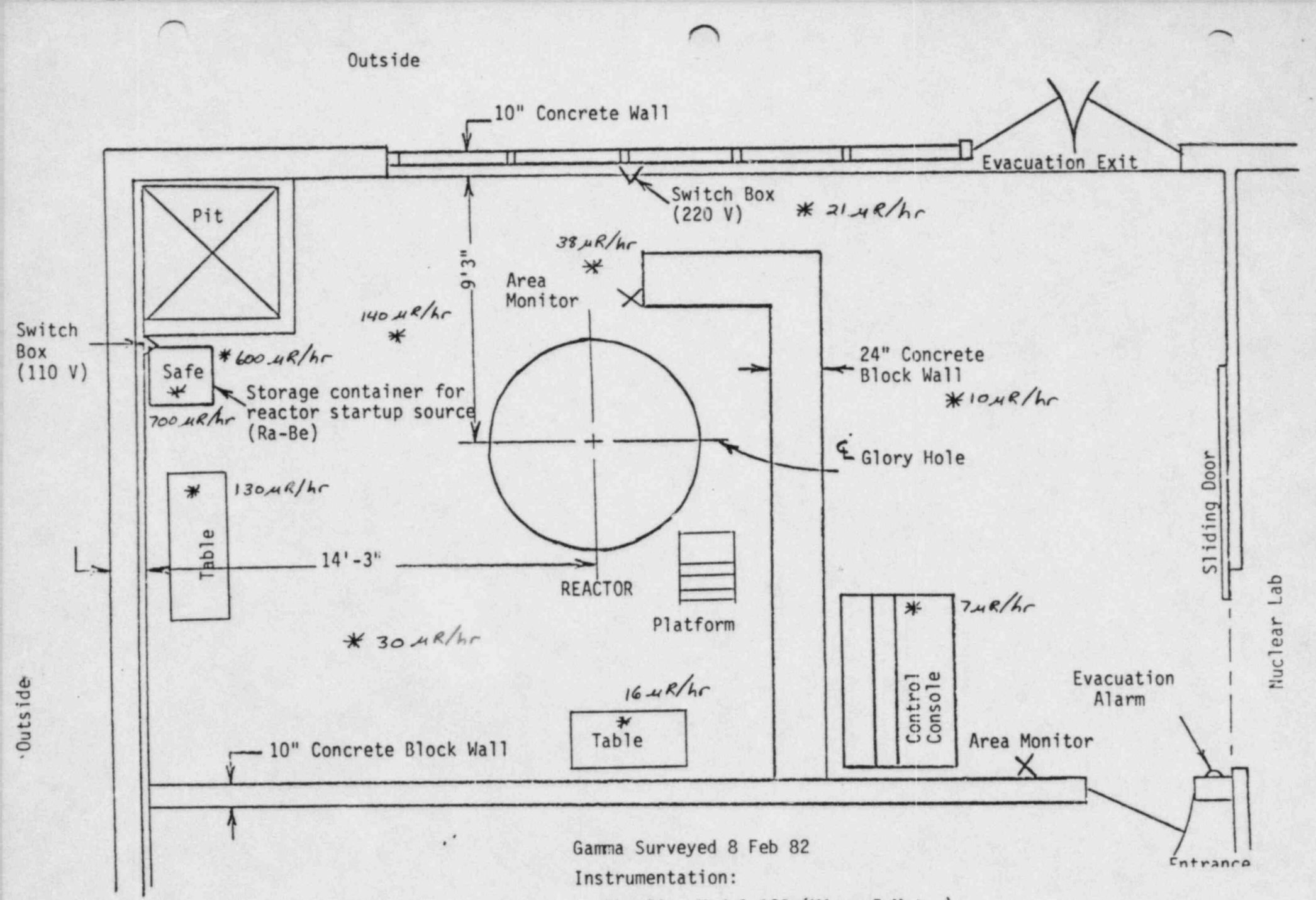
RESP. USER J. Pickering ☐ ROUTINE, ☒ SPECIAL, Pre-close out

SURFACE CONTAMINATION MEASUREMENTS		READINGS cpm @ contact		REMOVABLE pCi/100 cm^2			NOTES
Room	Objects Monitored	β + γ	α	β + γ	α	Smpl. No.	
Reactor	Floor by entrance	26	26			1	
Reactor	Console	31	31			2	
Reactor	Floor	28	28			3	
Reactor	Floor	22	22			4	
Reactor	Floor	22	22			5	
Reactor	Floor	25	25			6	
Reactor	Floor	30	30			7	
Reactor	Floor	30	30			8	
Reactor	Top of safe	27	27			9	
Reactor	Table top	30	30			10	
Reactor	Floor	29	29			11	
Reactor	Floor	25	25			12	
Reactor	Floor	24	24			13	
Reactor	Floor	28	28			14	
Reactor	Table top	29	29			15	
	Standard Sources						
	CS-13 ^{99}Tc	4623	--				
	CS-7A ^{137}Cs	391,134	--				
	CS-11 ^{230}Th	--	4274				
	Background	25	25				

INSTRUMENTS: Eberline "Rascal" PRS-1, SN 493, 210 Probe, calibrated 20 November 1981 by manufacturer

COMMENTS: No removable contamination was detected. Counting time 300 seconds each.

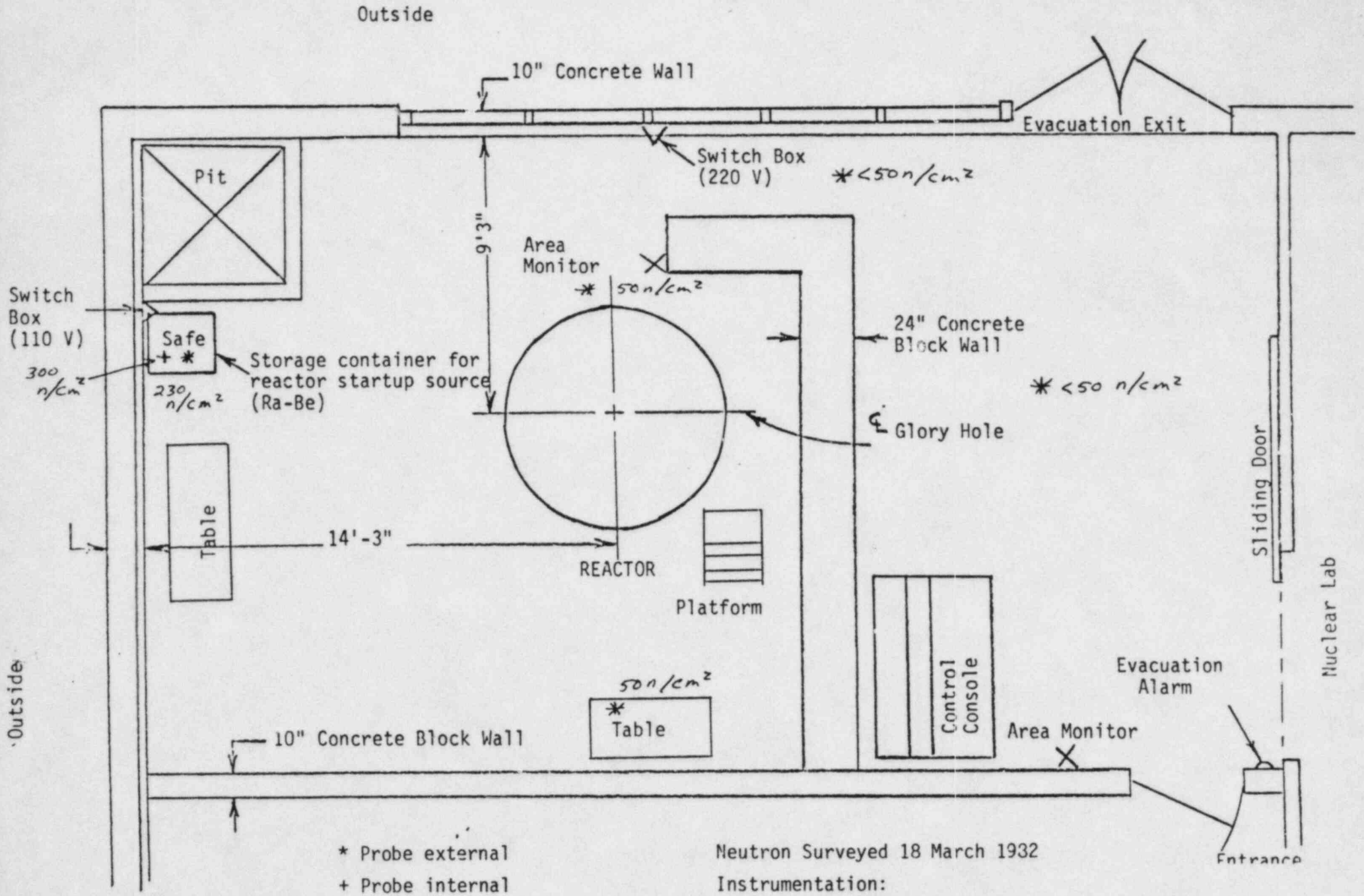
MONITORED BY John J. Pickering RSO



Gamma Surveyed 8 Feb 82

Instrumentation:

Eberline Model 12S (Micro R Meter)
SN 16062
Calibrated 12 Nov 91



* Probe external

\+ Probe internal

Neutron Surveyed 18 March 1932

Instrumentation:

Eberline Model PNC-4
SN 2128
Calibrated 19 Nov 81

SHIPPING FORM FOR [illegible] 1 OF 1

FROM: UNION CARBIDE CORPORATION
NUCLEAR DIVISION
OAK RIDGE Y-12 PLANT
P. O. Box Y
Oak Ridge, Tennessee 37830
"FOR THE U.S. DEPARTMENT OF ENERGY"

PURCHASE ORDER NO.	Y-12 WORK REQUEST NO.
	SHIP ORDER
Y-12 ACCOUNT NO.	GROSS WEIGHT
266665	

SHIPPING STATUS OF THIS WORK REQUEST
[X] Partial [ ] Final

TO: Cal. Poly Tech State University
AG/ME Dept.
San Luis Obispo, California 93407
ATTN: Mr. Robert W. Adamson

SHIPPING METHOD
[ ] Air Express
[ ] REA
[X] Motor Freight Prepaid
[ ] ERDA Truck
[ ] ERDA Railcar

SECURITY PROTECTION
[ ] Armed Surveillence
[ ] Protection Signature
[X] None Required

ITEM NO. P.O.	ITEM NO. W.R.	QTY.	CONTAINER NUMBER	IDENTIFIER	DRAWING NUMBER, SERIAL NUMBER OR DESCRIPTION	NET WEIGHT (GRAMS)	SAMPLE WEIGHT (GRAMS)
		2	K2-01-09 K2-01-10		55 Gal. Drum DOT 6J " "		

DATE SHIPPED
~~XXXXXX~~ 11-01-82

SIGNATURE OF SHIPPER
G.N. Cobham
TRT

ATTENTION RECIPIENT:
Please sign one copy and return
to: TRAFFIC DEPARTMENT
UNION CARBIDE CORPORATION
NUCLEAR DIVISION
Oak Ridge Y-12 Plant
P.O. Box Y, Oak Ridge, Tenn. 37830

I certify that I have received and/or accepted the shipment on this Shipping Form.

DATE RECEIVED

SIGNATURE OF RECIPIENT

DISTRIBUTION:
1. Special Production Packing
2. Y-12 SS Control
3. Product Engineering
4.
5. (Sign and Return)
6.
7.
8. Traffic Department

Nº X08964

UCN-7929B
(2-79)

11-1-82

THIS IS NOT A BILL OF LADING — Not the Original Bill of Lading, nor a copy or duplicate, covering the property named herein, and is intended solely for filing or record.

SHORT FORM

CARRIER	DATE	CARRIER'S NO.	SHIPPER'S NO.
ROADWAY EXPRESS, INCORPORATED	11/03/32		Y-65779

RECEIVED, subject to the classification and tariffs in effect on the date of the receipt by the carrier of the property described in this Bill of Lading,

UNION CARBIDE CORPORATION
NUCLEAR DIVISION

AT OAK RIDGE, TENNESSEE 37830 FROM: Installation: PLANT Y-12

the property described below, in apparent good order, except as noted (contents and conditions of contents of packages unknown), marked, consigned, and destined as indicated below, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed, as to each carrier of all or any of said property over all or any portion of said route to destination, and as to each party at any time interested in all or any of said property, that every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight Bill of Lading set forth (1) in Official, Southern, Western, and Illinois Freight Classification in effect on the date hereof, if this is a rail or a rail-water shipment, or (2) in the applicable motor carrier classification or tariff, if this is a motor carrier shipment, or (3) in the Uniform Railway Express Receipt, if this is a railway or air express shipment, or (4) in the Uniform Airbill, if this is an air freight shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said Bill of Lading, including those on the back thereof, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CONSIGNED TO

(Mail or street address of consignee - For purposes of notification only.)

DESTINATION: CALIFORNIA POLY. TECH. STATE UNIVERSITY, A&ME DEPARTMENT (ATTN: MR. ROBERT H. ADAMSON)

STATE / COUNTY

ROUTE: SAN LUIS OBISPO, CALIFORNIA 93407

RECEIVED
JUN 9 1982
Mechanical Engineering Department

DELIVERING CARRIER: ROADWAY EXPRESS, INCORPORATED

CAR OR VEHICLE INITIALS

NO. PKGS.	HM	DESCRIPTION OF MATERIALS, SPECIAL MARKS, AND EXCEPTIONS	WEIGHT (Subject to Correction)	CLASS OR RATE	CHECK COLUMN
2 M/ DRUMS		CONTAINERS, EMPTY, RADIOACTIVE MATERIAL SHIPPING, NEW, DRUM, METAL.	196#		
		ITEM #41070 OF NMFC 100-I			

Gross _____ Tare _____ Net _____

Subject to Section 7 of Conditions of applicable Bill of Lading, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:

The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

_____
Signature of Consignor

If charges are to be prepaid, write or stamp here, "TO BE PREPAID".

TO BE PREPAID

ACCT. OR W.O. NO.

266665

*It is understood and agreed that this shipment is made by the consignor for and on behalf of the U.S. Government; that the consignor is authorized to and will make any payment due as consignor or shipper from government funds advanced to it by the U.S. Department of Energy and not from its own assets; and that nothing herein shall preclude liability of the Government for any payment properly due hereunder if for any reason such payment is not made by the consignor from such government funds. This shipment is subject to the terms and conditions set forth in the standard form of the U.S. Government bill of lading and to any available special rates or charges.

*Shipper's imprint in lieu of stamp; not a part of Bill of Lading approved by the Interstate Commerce Commission.

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

*Subject to Rail Freight Agreement with Atomic Energy Commission, et. al., dated July 12, 1951, where applicable.

UNION CARBIDE CORPORATION - Nuclear Division, Shipper
Operating Under Contract No. W-7405-Eng. 26
with the U.S. Department of Energy

The additions on the face hereof and to the terms and conditions are noted.

PER J. R. SCHERGENHORN

PERMANENT POST-OFFICE ADDRESS OF SHIPPER

P.O. BOX Y, OAK RIDGE, TN 37830

Agent

Per 11/3/82

UCN-4368
(1235 7-80)

Department of Energy
Oak Ridge Operations
P.O. Box E
Oak Ridge, Tennessee 37830

October 26, 1982

Dr. Robert W. Adamson
A&ME Department
California Polytechnic State
University
San Luis Obispo, CA 93407

Dear Dr. Adamson:

RETURN OF ^{235}U ENRICHED U FROM CALIFORNIA POLYTECHNIC STATE UNIVERSITY TO U. S. DEPARTMENT OF ENERGY

Reference is made to our recent telephone conversations in regard to the above subject.

A review of the regulations of both the U. S. Nuclear Regulatory Commission (NRC) and the U. S. Department of Transportation (DOT) reveals that the reactor fuel; i.e., uranium as oxide mixed with polyethylene, can be shipped under the general license provisions of NRC for a packaging arrangement specified by DOT. Specifically, 10 CFR Part 71.12(a) covers the requirements of 49 CFR 173.396(b)(7). Copies of these specific regulations as well as other applicable regulations are enclosed. This general licensing provision has been confirmed with NRC; however, a Quality Assurance (QA) Plan must be filed with NRC. In regard to the QA Plan, we have informed NRC that DOE will provide the necessary shipping containers to you. Thus, only a fairly simple QA Plan will be required from you. Enclosed is a copy of the QA Plan used by Tuskegee Institute for their packages. You may wish to modify it to fit your situation and submit to NRC.

Description of Container

Two packages will be provided and each will consist of a 5-gallon drum inside a 55-gallon drum with the space in between filled with vermiculite. The uranium discs should be divided by ^{235}U content as nearly equal as possible and positioned in the inner 5-gallon buckets. The free space inside the 5-gallon buckets should be filled with packing material to minimize movement during transit.

A seal is required on the closure of each outer drum. We will also provide the seals. [See 49 CFR 173.393(b)].

Two Radioactive-Yellow II labels are required to be attached on opposite sides of each package. They should be completed as follows:

Contents - 3.23 mCi $^{235}U(20)$

Transport Index - 1.8

We will assist you in the preparation of shipping papers.

Please call me at (615) 576-0853 if we can be of additional assistance.

Sincerely,

William A. Pryor

William A. Pryor
Nuclear Physicist
Facilities & Safety System Branch
Safety and Environmental Control Division

SE-332:WAP

Enclosures:
As stated.

FROM: UNION CARBIDE CORPORATION
NUCLEAR DIVISION
OAK RIDGE Y-12 PLANT
P. O. Box Y
Oak Ridge, Tennessee 37830
"FOR THE U.S. DEPARTMENT OF ENERGY"

PURCHASE ORDER NO.	Y-12 WORK REQUEST NO.
	SHIP ORDER
Y-12 ACCOUNT NO.	GROSS WEIGHT
266665	

SHIPPING STATUS OF THIS WORK REQUEST
[X] Partial [ ] Final

TO: Cal. Poly Tech State University
A&ME Dept.
San Luis Obispo, California 93407
ATTN: Mr. Robert W. Adamson

SHIPPING METHOD
[ ] Air Express
[ ] REA
[X] Motor Freight Prepaid
[ ] DOE Truck
[ ] DOE Railcar

SECURITY PROTECTION
[ ] Armed Surveillence
[ ] Protection Signature
[X] None Required

ITEM NO. P.O.	ITEM NO. W.R.	QTY.	CONTAINER NUMBER	IDENTIFIER	DRAWING NUMBER, SERIAL NUMBER OR DESCRIPTION	NET WEIGHT (GRAMS)	SAMPLE WEIGHT (GRAMS)
SO		1	C3-23-03		One Each "EMPTY" Special Shipping Container.		

DATE SHIPPED
03-23-83

SIGNATURE OF SHIPPER
G.N. Cobham
PRT

ATTENTION RECIPIENT:
Please sign one copy and return
to: TRAFFIC DEPARTMENT
UNION CARBIDE CORPORATION
NUCLEAR DIVISION
Oak Ridge Y-12 Plant
P.O. Box Y, Oak Ridge, Tenn. 37830

I certify that I have received and/or accepted the shipment on this Shipping Form.

DATE RECEIVED

SIGNATURE OF RECIPIENT

DISTRIBUTION:
1. Special Production Packing
2. Y-12 SS Control
3. Product Engineering
4.
5. (Sign and Return)
6.
7.
8. Traffic Department

This form is intended only for totally unclassified shipments; its use must be approved by the Project Engineer or Dispatching Department Supervisor.

№ X1957

UCN-79298
(2 10-80)

2-23-83

PACKAGING CHECKLIST

Compliance

The Reactor Safeguard Advisory Committee and the Radiation Safety Officer will be on hand to perform all handling, packaging, and inspection operations. The Department Head of Mechanical Engineering will audit procedure.

The fuel discs will be divided in the following fashion in order to provide approximately equal division.

CONTAINER I

ITEM	SERIAL NO.	WEIGHT
4 Fuel Discs 1 1/2" each	2041-2044	378.23 g
	U-235 Total =	378.23 g

CONTAINER II

ITEM	SERIAL NO.	WEIGHT
3 Fuel Discs 3/4" each	2046-2048	169.14 g
1 Fuel Disc 3/4" each	204145	57.95
2 Fuel Discs 3/8" each	2045, 2049	55.79
1 Fuel Disc 3/16" each	20411	16.11
	Subtotal =	298.99 g

CONTAINER III

ITEM	SERIAL NO.	WEIGHT
2 Safety Rods		30.60 g
1 Course Rod	2031, 2035, 2038 20312	13.91
1 Fine Rod	2021-2024	3.56
1 Additional Rod	203146	1.83
4 Rod Pieces		5.44
Thermal Fuse Assembly	2011	0.41
	Subtotal =	55.75 g
	U-235 Total =	354.74 g

Above material placed in proper containers.

Compliance

○ Packing material placed in each container to minimize movement.

○ Five gallon containers centered inside proper 55 gallon drums with vermiculite filler.

○ Outer drum closures (49CFR 178.103-5, 12-gauge bolted ring with drop forged lugs, one of which is threaded, and having at least a 1.6cm (5/8 inch) diameter steel bolt and a lock nut, or equivalent device) in place.

○ Lock wire and seals (49CFR 178.103-5) in place.

Drums labeled with two radioactive - yellow II labels completed as follows:

CONTAINER I

○ Contents - ~~3.68~~ 3.40 mCi U-235 (20)

Transport Index - ~~2.1~~ 1.8

CONTAINER II

○ Contents - ~~3.46~~ 3.40 mCi U-235 (20)

Transport Index - ~~2.0~~ 1.8

CONTAINER III

Contents - 0.23 mCi U-235 (20)

Transport Index = 0

○ Drums stored in locked nuclear facility storage room until transportation arrangements completed.

[signature] Sr. Reactor Operator

Signature Title

3/15/83

Date

TO: Radiological Inspection Files (101-02) DATE: March 18, 1983

RADIATION PROTECTION SURVEY REPORT

Under the provisions of applicable regulations of the U.S. Nuclear Regulatory Commission (10 CFR), the California Department of Health (17 CAC) and the CPSU Radiation Safety Committee, a radiation protection survey of the use of ionizing radiation was performed in the area(s) listed Below.

AREA MONITORED Reactor Facility, Mechanical Engineering

The findings of the survey were as follows:

1. Wipe tests and radiation survey results for the fuel handling and packaging performed by the Reactor Safeguard Advisory Committee on March 15 are included in this cover.

2. Area wipe test results are given in Table I. No removable contamination above background was found.

3. Uranium fuel disc and cadmium rod wipe test results are given in Table II. The highest amount of removable contamination was 91 CPM above background for fuel disc serial no. 2048. This amount corresponds to approximately 0.25 picocuries of activity.

4. Area radiation survey results are given in Table III.

TABLE I - Area Wipe Test Results

Equipment:

Eberline Instrument Corporation "Rascal" Portable Ratemeter/Scaler, Model No. PRS - 1

Eberline Instrument Corporation End Window Hand Probe and Sample Holder, Models HP - 210/SH - 4A

Calibration Standard:

Cobalt - 60, Inventory Number P - 141, 701 CPM Above Background, Current Activity = 0.0019 uCi (3/83)

Results:

LOCATION	TOTAL MEASURED CPM	NET CPM ABOVE BACKGROUND
A	56	-2
B	54	-4
C	45	-13
D	49	-9
E	46	-12
F	45	-13
G	56	-2
H	50	-8
I	48	-10
J	58	0
K	60	2
L	54	-4
M	53	-5
N	50	-8
O	58	0
P	58	0
Q	60	2

NOTES:

1. Locations A through H are shown in figure 1.
2. Locations I through K are shown in fugure 2.
3. Locations L through N are three different points on the outside of the core tank.
4. Locations O through Q are three different points on the inside of the empty core tank.
5. Background = 58 CPM.
6. Standard Wipe - pads were used to take the wipe samples.
7. Data taken 3/15/83

TABLE II - Uranium Fuel Discs And Cadmium Rod Wipe Test Results

Equipment and Calibration Standard: See Table I

Results:

FUEL DISC THICKNESS	SERIAL NO.	TOTAL MEASURED CPM	NET CPM ABOVE BACKGROUND
CONTAINER I			
1 1/2"	2041	67	9
1 1/2"	2042	86	28
1 1/2"	2043	91	33
3/4"	204145	67	9
CONTAINER II			
1 1/2"	2044	98	40
3/8"	2045	101	43
3/4"	2046	69	11
3/4"	2047	68	10
3/4"	2048	149	91 (See Note 3)
3/8"	2049	98	40
3/16"	20411	72	14
Cadmium Rod		55	-3
Cadmium Tube		56	-2

NOTES:

1. All wipe samples were taken as each fuel disc was removed from the core tank
2. Standard Wipe - pads were used to take wipe samples
3. 91 CPM above background is approximately equal to 0.25±0.03 picocuries for the 50 cm^2 wipe
4. Background = 58 CPM
5. Data taken 3/15/83

TABLE III - Area Radiation Survey Results

Equipment:

Ludlum Measurements Micro R Meter, Model No. 12S

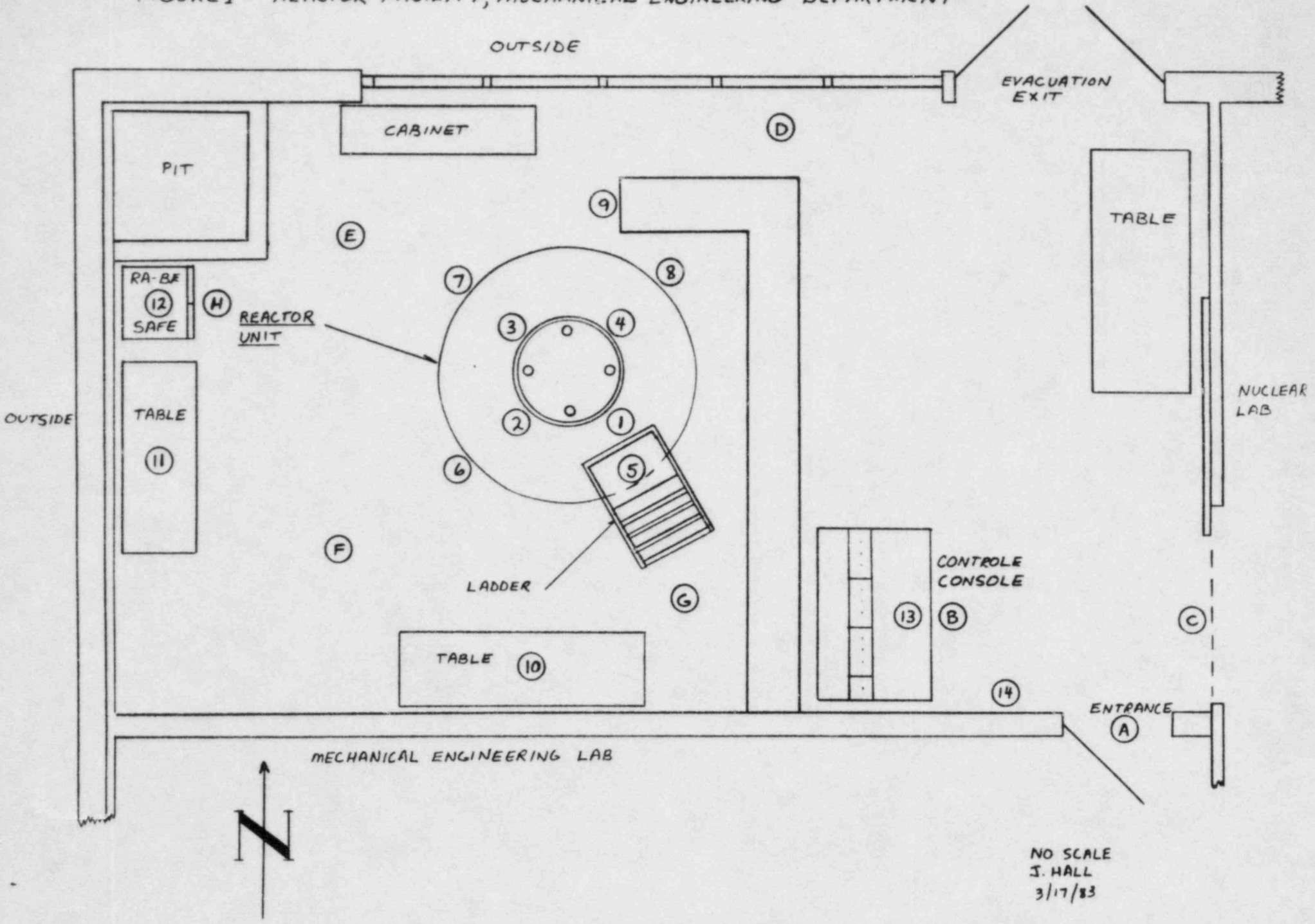
Results:

AREA LOCATION	READINGS (MICROROENTGENS PER HOUR)
1	5.0
2	5.0
3	8.0
4	6.0
5	8.0
6	50.0
7	50.0
8	12.0
9	19.0
10	10.0
11	90.0
12	2500.0
13	7.0
14	8.5
15	600.0
16	600.0
17	600.0

NOTES:

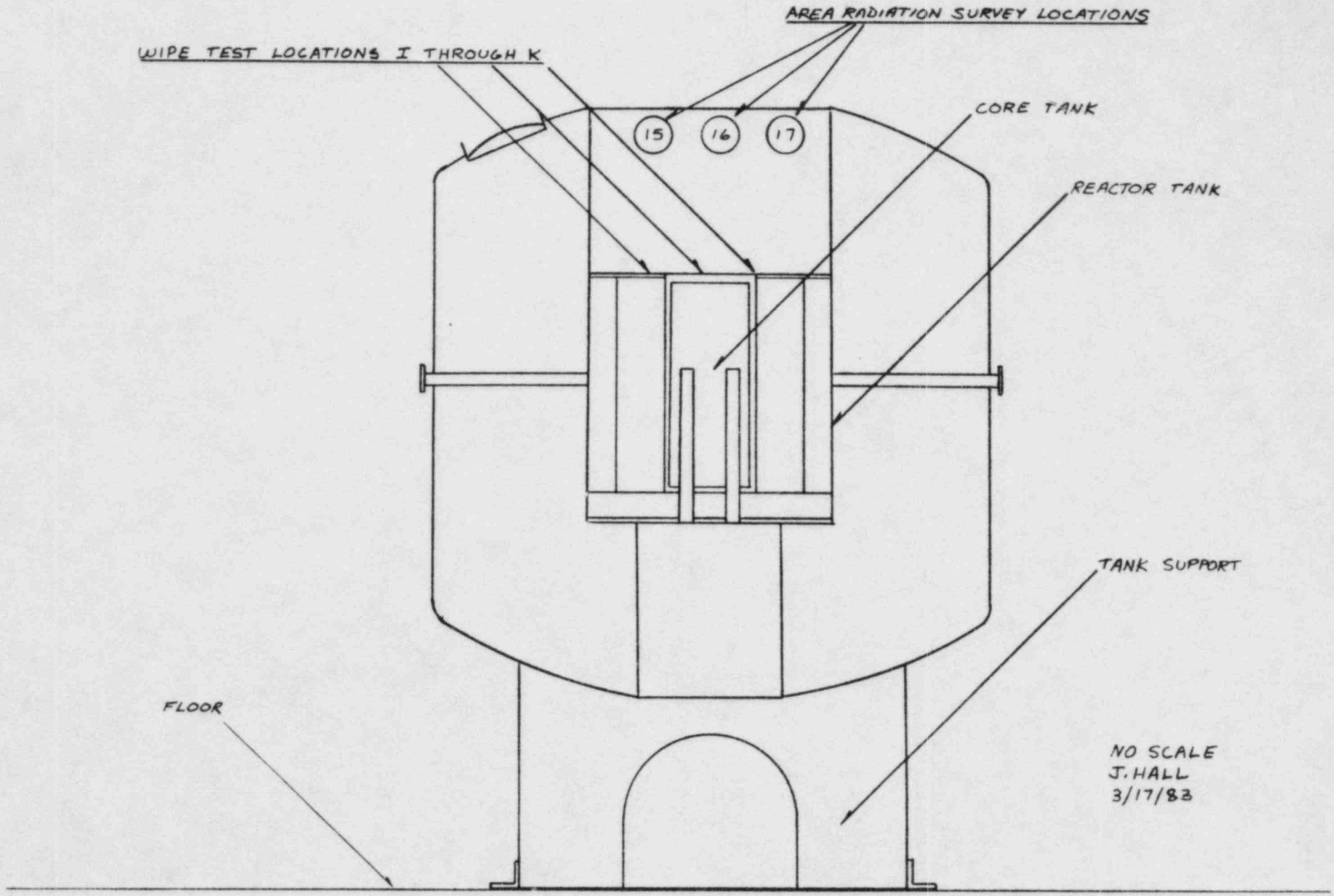
1. Locations 1 through 14 are shown in figure 1.
2. Location 5 is at the top platform of the ladder.
3. Location 12 is on top of the Radium - Beryllium storage safe.
4. Measurements 1 through 14 were taken before the thermal column and core tank were removed.
5. Locations 15 through 17 are shown in fugure 2.
6. Measurements 15 through 17 were taken at the top of the core tank with the thermal column removed.
7. The Micro R Meter was operated in the fast mode.

FIGURE 1 - REACTOR FACILITY, MECHANICAL ENGINEERING DEPARTMENT



NO SCALE
J. HALL
3/17/83

FIGURE 2 - CROSS SECTIONAL DRAWING OF AGN-201 NUCLEAR REACTOR



SAN LUIS OBISPO

SHIPPING INSTRUCTIONS

PURCHASE ORDER NUMBER

PAGE OF PAGES

PURCHASE ORDER

FOB

Terms

Delivery

Quote

VENDOR: SEE REVERSE SIDE FOR PURCHASE ORDER INSTRUCTIONS

9707

CONTRACT DELEGATION N

DATE (MONTH, DAY, YE

May 9, 1983

VENDOR

Thomas Gray & Assoc.
1205 W. Barkley Ave.
Orange, CA 92668

SHIP TO: UNIVERSITY WAREHOUSE
California Polytechnic State University,
San Luis Obispo, California 93407

CHARGE TO: ACCOUNTING OFFICE
California Polytechnic State University,
San Luis Obispo, California 93407

QUANTITY	UNIT	STOCK ITEM NUMBER	DESCRIPTION	UNIT PRICE	EXTENS
			Pickup and disposal of two Radium Beryllium sealed Sources, 10 and 5 milligrams each.		
			Pickup and disposal - one 55 gal. drum		575.00
			One 17-H, 55 gal. drum with gasket		25.00
			One Five gal. inner container		390.00
			Radiation survey meter to be on site at time of pickup.		
			Vendor to contact:		
			Robert Adamson and Mike Weber at (805) 546-1115 prior to pickup.		
			To be picked up at Mech. Engr. Lab., Bldg. #40.		
			PRICE QUOTATION BY RICHARD GALLEGOS TO DEPARTMENT ON 4-28-83		

Completed pl
M. Adamso
5/24/8

COMPLETED

Alternate Vendors,
Special Instructions

Sales Tax

Total 990.00

Estimate or Purchase Order Number 9764

Account Number 01-11-5-0000-001-000

Contract Number

Appropriation Ch 326-82 item 6610-001-001

Department Academic Programs

Date Needed

Requested by Frank Lebens

Approved by

Authorized Signature

Sch #/date	Inv. #/date	LIQ	EXP	BAL
			PURCHASING	

Received
copy
6/7/83

GENERATOR NUMBER CAR 9.9 - 0.0.11 - 8.7.4.9

(1) GENERATOR NAME Calif. St. Polytechnic University
ADDRESS Aero & Mech Engg. Dept
CITY San Luis Obispo STATE CA 93407
CONTACT R W. Adamson, Prof. M.E.
PHONE 805/546-1115 or 2407
USER PERMIT NO 2514 SHIPMENT NO 5-24-32

RADIOACTIVE WASTE SHIPMENT & DISPOSAL FORM

US ECOLOGY, INC.
EXECUTIVE OFFICE: (502) 426-7160
P.O. BOX 7246 • LOUISVILLE, KENTUCKY 40207
Illinois Office: (815) 454-2376

(2) Consigned To:
~~P~~.O. Box 638
Richland, WA 99352
(509) 377-2411

☐ P.O. Box 578
Beatty, NV 89003
(702) 553-2203

USE THIS NO. ON ALL CONTINUATION PAGES **No. 17314** PAGE 1 OF 1

(3) AGENT/BROKER Thomas Cary and Assoc. I
ADDRESS 1205 W. Barkley Ave.
CITY Orange STATE Ca.
CONTACT Jeffrey Mellon
PHONE 714 997 5090 USER PERMIT NO 6920

(4) CARRIER _____ SHIPPING DATE _____
TYPE OF CASK _____ RADIATION READING _____

(5) Item No.	(6) Container Type	(7) Container Volume (Cu. Ft.)	(8) Container Weight (pounds)	(9) Physical Form	(10) Waste Description	(11) Solidification or Absorbent Media	(12) Chemical Form	(13) Radionuclide	(14) Activity ☐ Curies ☒ Millicuries	(15) Special Nuclear Material (Grams)	(16) Source Material (Kilograms)	Radiation Levels mR/hR (17) Container Surface	Radiation Levels mR/hR (18) 3 Ft (TI)	(19) Transport Group	(20) Fissile Class	(21) Label
1	30 gal 17.14 diam	4.01		DRY SOLID	Sealed Sources.	None	Radium + Be encapsulated in steel shielded with Pb, cement + wax	Ra/Be Rafter	10.0 5.0	Ø	Ø	7.5	1.0	I I	— —	Radioactive Material Radioactive Yellow II
																Radioactive
																Radioactive
																Radioactive
																Radioactive
																Radioactive
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																Radioactive
																Radioactive
1		4.01		(22) TOTALS					15.0	Ø	Ø					

(23)

TOTAL QUANTITY	PROPER SHIPPING NAME & HAZARD CLASS (PER 49 CFR 172.101)	IDENTIFICATION NUMBER	TOTAL WEIGHT IN POUNDS
	Radioactive Device, N.O.S. – Radioactive Material	UN2911	
	Radioactive Material, Fissile, N.O.S. – Radioactive Material	UN2918	
	Radioactive Material, Low Specific Activity, N.O.S. – Radioactive Material	UN2912	
	Radioactive Material, N.O.S. – Radioactive Material	NA9191	
	Radioactive Material, Limited Quantity, N.O.S. – Radioactive Material	UN2910	
1	Radioactive Material, Special Form, N.O.S. – Radioactive Material	NA9192	

(24)

Total # of Pkgs. This Shipment	Total Activity This Shipment	Total Volume This Shipment
1	15.0 ☐ Ci ☒ mCi	4.01 cu ft

(25) THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND/OR IN COMPLIANCE WITH ALL REGULATIONS APPLICABLE AT THE DESIGNATED DISPOSAL SITE

X [signature] R W Adamson

Pre-Dismantling (Post-Fuel Removal) Surface Contamination Survey of the AGN-201 Reactor and Facility

July 20, 1983

by: R. Adamson, Reactor Administrator
J. Neelands, Technician
A. Z. Rosen, Acting Radiation Safety Officer

The following surveys were conducted:

1. **Gamma Surveys**

Numbered survey points are shown on the attached Figures 1, 2 and 3.
Instrument: Ludlum Model 125 - Micro-R meter, calibrated 12/4/82

A. Area Survey Results (See Figure 1 for numbered positions)

(Except as noted, all surveys were done at waist-height. All readings include background - 8 to 10 μR/hr.)

Position	Gamma Readings (μR/hr)
(1) on surface	7
(2)	9
(3)	9
(4)	8
(5)	8
(6) at center of safe	8
(7) on surface	8
(8) on surface	7
(9)	8
(10) on surface	8
(11) centerline of reactor	7
(12) centerline of reactor	7

B. Reactor Survey Results (See Figure 2)

Position	Gamma Readings (μR/hr)
(13) inside water tank	6
(14') at top surface of reactor	8
(14) inside graphite liner	35
(15') at bottom surface of thermal column	35
(15) 1 m below bottom surface of thermal column	10
(16) control rod access tank (center)	8

C. Core Survey Results (See Figure 3)

Position	Gamma Readings (μR/hr)
(17) at surface of graphite (bottom)	14
(18) at surface of graphite (side)	23
(19) at tank surface (bottom)	10
(20) at tank surface (top)	10

2. Removable Contamination

Alpha Symbols (A through FF) show where wipes were made on Figures 1, 2 and 3. Instrument: Eberline "Rascal" PRS-1, S/N 493; Alpha/Beta Probe 210, calibrated 7/26/83. Background Reading 46 ±2 CPM. Wipes were made over 100 cm^2 area unless otherwise noted.

Overall detection efficiency for:
Alpha (AM-241 standard) 10%
Beta (TC-99 standard) 8%
(combined efficiency used is 10%)

	Position		Count Rate (CPM)	(CR-BR)	Max DPM
A	Sides of graphite liner in		46	0	—
B	in reactor tank (Fig. 2)		45	-1	—
C			42	-4	—
D			48	2	20
E	Graphite inserts (Fig. 2)		46	0	—
F	"Green" control	inside	44	-2	—
G	rod holder	outside	53	7	70
H	— graphite spacer		69	23	230
I	"Orange" control	inside	45	-1	—
J	rod holder	outside	49	3	30
K	— graphite spacer		59	13	130
L	"Purple" control	inside	48	2	20
M	rod holder	outside	50	4	40
N	— graphite spacer		55	9	90
O	Fine control	inside	50	4	40
P	rod holder	outside	46	0	—
Q	— graphite spacer		52	6	60
R	Control rod holes in		57	11	110
S	graphite core (Fig. 3)		45	-1	—
T			48	2	20
U			50	4	40
V	See Figure 3		62	16	160
W	See Figure 3		49	3	30
X	See Figure 3		45	-1	—
Y	See Figure 3		48	2	20
Z	See Figure 3		50	4	40
AA	See Figure 3		57	11	110
BB	Control rod supports (Fig. 2)		49	3	30
CC	Internal wall of access port (Figure 2)		43	-2	—
DD	Inside glory hole liner (Fig. 2) (area 10 cm^2)		44	-1	—
EE	Westinghouse ion chamber bottom (area 10 cm^2)		46	0	—
FF	Bottom surface of thermal column (Figure 2)		45	-1	—

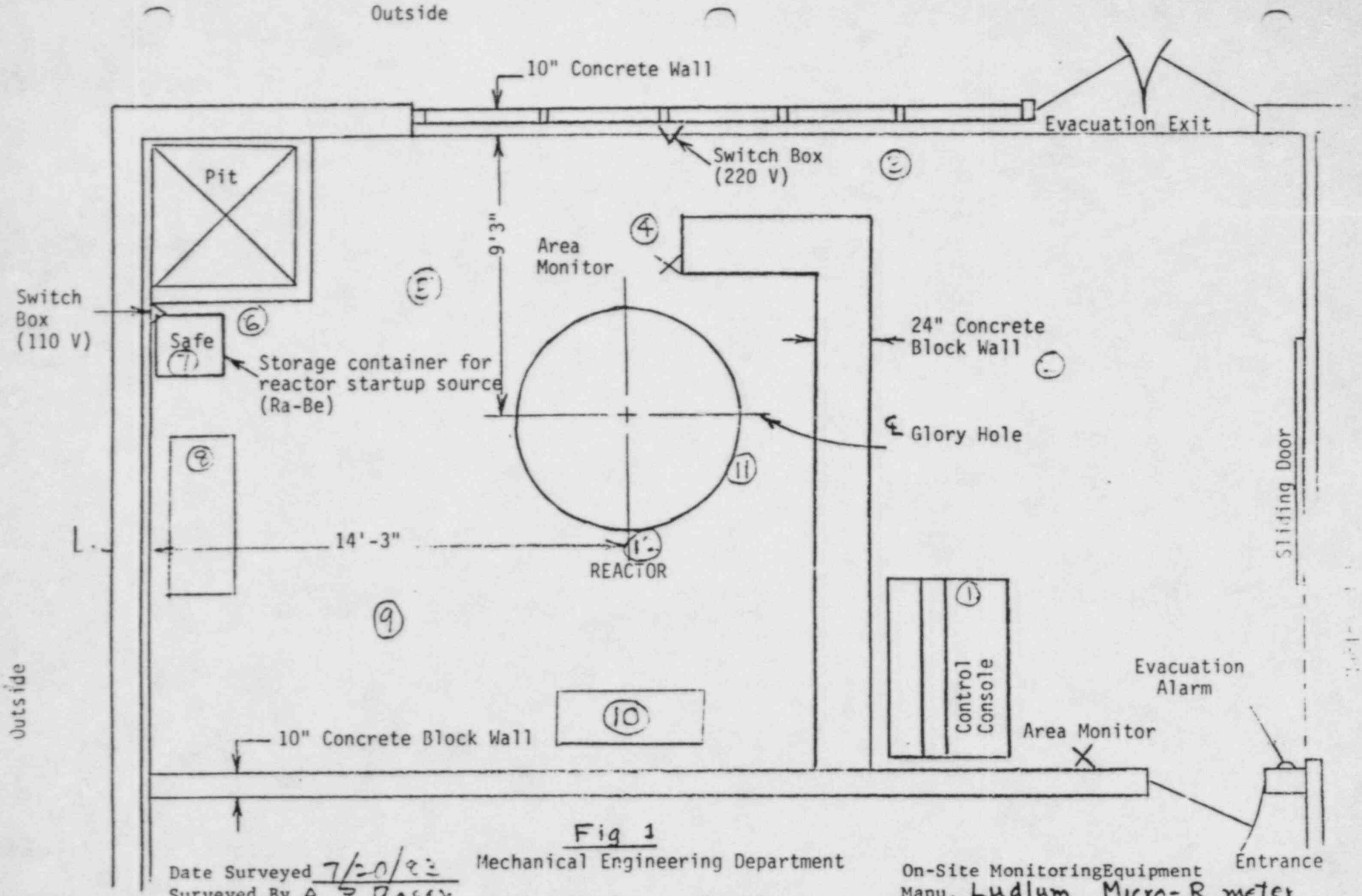


Fig 1

Mechanical Engineering Department

AGN-201 Reactor Facility

Date Surveyed 7/20/82

Surveyed By A. J. Rosen

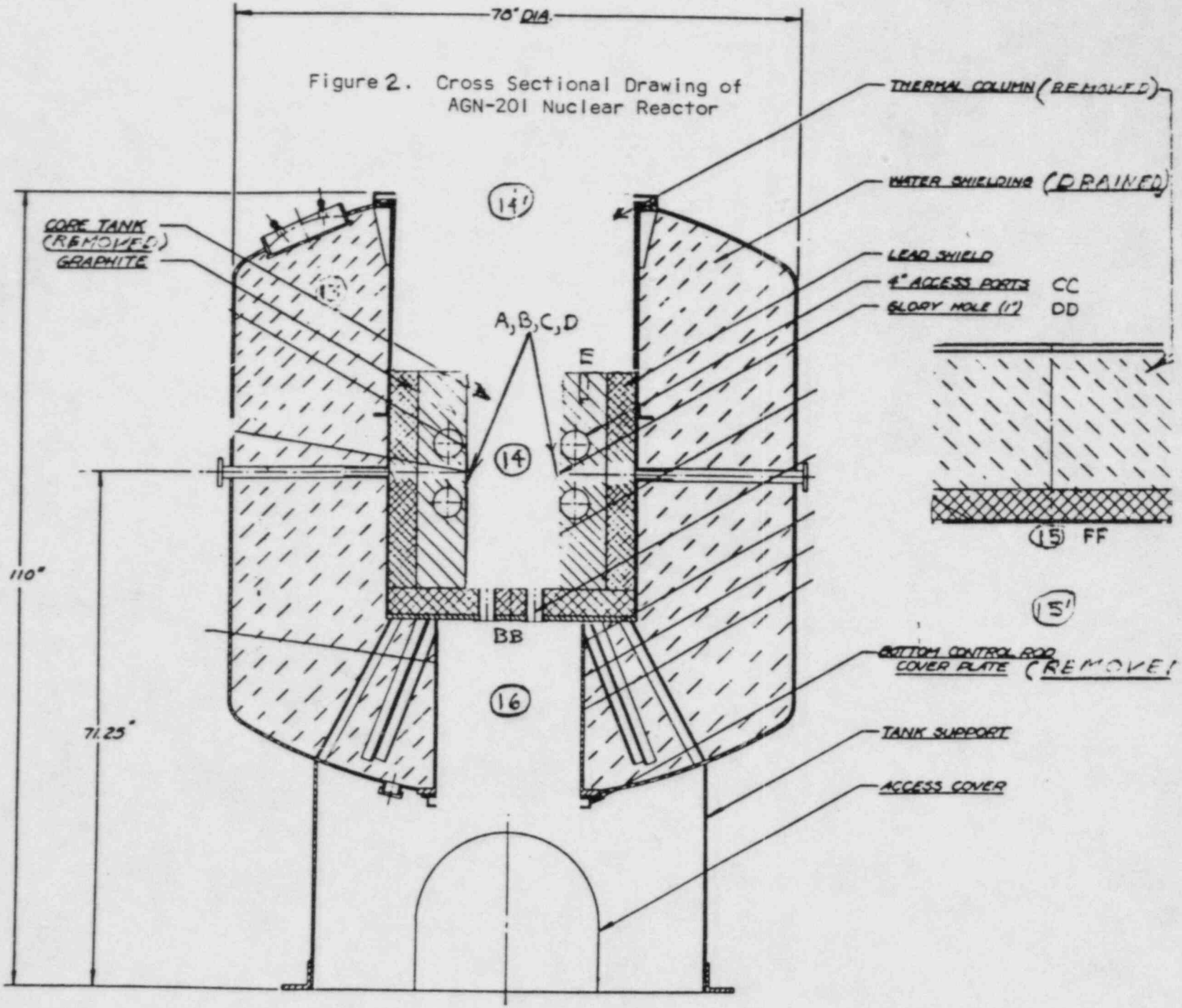
Signature A J Rosen

On-Site Monitoring Equipment

Manu. Ludlum Micro-R meter

Model 125 SN 16062

Figure 2. Cross Sectional Drawing of AGN-201 Nuclear Reactor



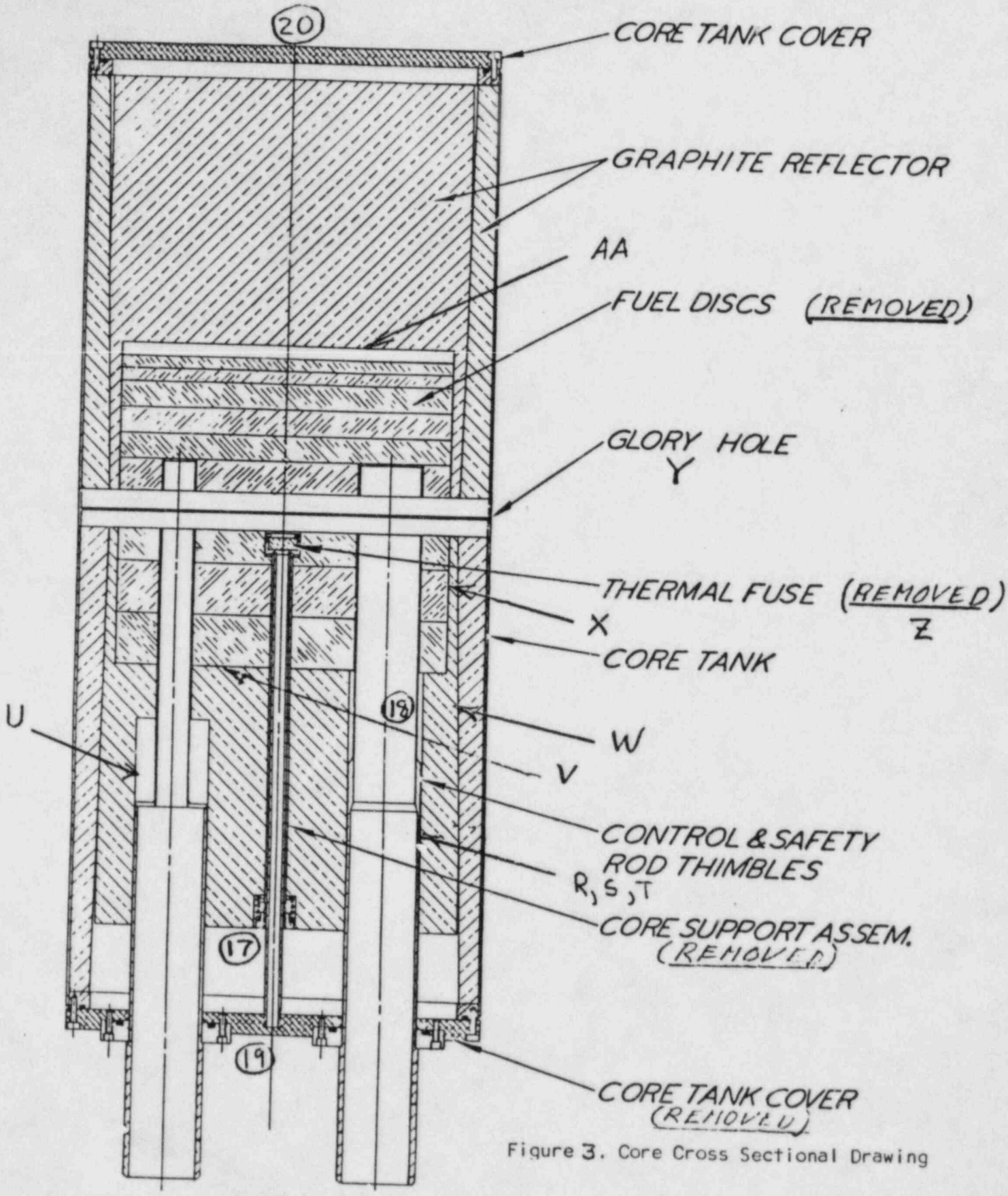


Figure 3. Core Cross Sectional Drawing

G.M. Counter Model HP-210

April 14, 1984

Thresh = 0.35

	Readings/Min.	$\bar{X}$	Net above BKgd
Bkg	56, 48, 73	59	0
sample	61, 62, 59	61	+6
sample	64, 62, 66	64	+9

Cs-137 Gamma STD 59795/59576/59822 $\bar{X}$ = 59,731 (59,676)

Bkgd. 56, 45, 51 51

$\frac{51+59}{2} = 55$

Note:

1. Samples are combined wipes for Drums 1, 2+3
2. No removable contamination was found above background.

Jeffrey L. Hall, R.S.O.

Return of U-235 enriched Uranium to U.S. Department of Energy

Proposed Shipper: Yellow Freight Systems, Inc.
1601 E. Donovan Rd.
Santa Maria, CA.
(805) 922-8435

Description: Three 55 gallon drums, each weigh approximately 120 lbs.
Two drums are labeled with Radioactive - Yellow II labels.
One drum has a Radioactive - White I.

Destination: Department of Energy
Oak Ridge Y-12 Plant
Oak Ridge Operations
Oak Ridge, Tennessee 37830

Shipping Papers

DOT Shipping Name: Radioactive Material, Special form, N.O.S.

DOT Identification Number: NA 9182

Name: 235 U (20), SPECIAL FORM

Activity: 2 Drums @ 0.00323 Curies each
1 Drum @ 0.00023 Curies

Category of Labels Applied: 2 Drums with Radioactive - Yellow II
1 Drum with Radioactive - White I

Transportation Index: 2 Drums with 1.8
1 Drum with 0

Shipper's Certification:

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation.

Jeffrey T. Hall
R.S.O.

4/14/83
Date

(This must be signed by the Campus Radiation Safety Officer)

Ready to ship on April 14

SAN LUIS OBISPO

SHIPPING INSTRUCTIONS

PURCHASE ORDER NUMBER

PAGE OF PAGES

PURCHASE ORDER

VENDOR: SEE REVERSE SIDE FOR PURCHASE ORDER INSTRUCTIONS

9059

CONTRACT/DELEGATION

FOB

Terms N-30

Delivery As Specifie

Quote

DATE (MONTH, DAY, YR)

April 15, 1983

VENDOR

Yellow Freight Systems
1601 E. Donovan Rd.
Santa Maria, CA 93454

SHIP TO: UNIVERSITY WAREHOUSE
California Polytechnic State University,
San Luis Obispo, California 93407

CHARGE TO: ACCOUNTING OFFICE
California Polytechnic State University,
San Luis Obispo, California 93407

If yes, fill in information at top left also.

QUANTITY	UNIT	STOCK ITEM NUMBER	DESCRIPTION	UNIT PRICE	EXTENSION
			Shipping of U-235 enriched uranium to the U.S. Dept. of Energy.	36.07 / 100 lbs.	129.85
			Three 55 gallon drums, each weigh approximately 120 lbs. Two drums are labeled with Radioactive - Yellow II labels. One drum has a Radioactive - White I.		
			Arbitrary Charge		4.33
			To be shipped to: Dept. of Energy Oak Ridge Y-12 Plant Oak Ridge Operations Oak Ridge, Tennessee 37830		
			Packaging and labeling shall comply with DOT requirements per 49 CFR, Code of Federal Transportation.		
			Materials to be picked up at the Mechanical Lab., Building 40.		
			ORDER PLACED WITH CHRIS BY PURCHASING ON 4-15-83 ***CONFIRMING ORDER, DO NOT DUPLICATE***		

Closed per Peggy 4-18-83

COMPLETED

Alternate Vendors, Special Instructions

Sales Tax

Total 134.68

Estimate or Purchase Order Number 9059

Account Number 01-64-5-1000-001-696

Contract Number

Appropriation Ch 326-82 item 6610-001-001

Department Purchasing Office

Date Needed 4-20-83

Requested by Ray Macias

Approved by

Authorized Signature

Sch #/date	Inv. #/date	LIQ	EXP	BAL
			PURCHASING	

ALWAYS LIST HAZARDOUS MATERIALS FIRST IN DESCRIPTION OF ARTICLES COLUMN.

SPEEDIBILL® MOORE BUSINESS FORMS, INC., KANSAS CITY, MO. • N 5641077943

YELLOW

STRAIGHT BILL OF LADING - SHORT FORM- Original-Not Negotiable

RECEIVED, subject to the classifications and tariffs in effect on the date of issue of this Original Bill of Lading.

SHIPPER NO. _____

CARRIER NO. _____

DATE 4/15/83

YELLOW FREIGHT SYSTEM, INC. YFSY

(NAME OF CARRIER) (SCAC)

TO: CONSIGNEE Dept. of Energy On Collect on Delivery Shipments the letters "COD" must appear before consignee's name	FROM: SHIPPER Calif. Polytechnic State University
STREET Oak Ridge Y-12 Plant Oak Ridge Operations	STREET
DESTINATION Oak Ridge, TN ZIP 37830	ORIGIN San Luis Obispo, CA ZIP 93407
ROUTE:	VEHICLE NUMBER

NO. SHIPPING UNITS	(X) HM	KIND OF PACKAGING, DESCRIPTION OF ARTICLES, SPECIAL MARKS AND EXCEPTIONS (LIST HAZARDOUS MATERIALS FIRST)	Weight (Subject to Correction)	Rate	CHARGES (For Carrier use only)
3	55/gal drums	Radioactive materials - (two drums labeled w/ Yellow II labels, one drum labeled w/ White I label)	360 lbs	36.07/100 lbs	
PO # 9059		Arbitrary Charge			4.83

YELLOW PRO NUMBER: 164-039640-4

"X" APPROPRIATE BOX: SRA ORIGIN | SINGLE SHPT | MULTIPLE SHPT | POOL LIFT PET | MOON | DESTINATION

REMIT C.O.D. TO: ADDR

COD AMT $

COD FEE PREPAID ☐ $ COLLECT ☐

TOTAL CHARGES $

Note—Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding.

$ _____ per _____

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

(Signature of Consignor)

FREIGHT CHARGES: FREIGHT PREPAID except where box at right is checked ☐ Check box if charges are to be collected

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns. CJS

This is to certify that the above-named materials are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation.

SHIPPER _____

PER E. J. Wood

CARRIER Yellow GO

PER J. E. Liberal

DATE 4-15-83 1520

OD 136-10/78

MAY CONTAIN [illegible] FOR HAZARDOUS MATERIALS

For Clarification:

Referencing the film badge distribution sheet film badges were assigned by Robert Adamson.

Those individuals at the time of dismanteling were assigned finger rings, (identified by the circled numbers on the distribution list), in addition to their whole body badges, which are identified in their individual department printouts.

For the individuals assigned both whole body badges and finger rings they are identified on the distribution list by one circled number, (example: Ted Nash was assigned whole body badge visitor PS2 and finger ring #2).

Mr. Young the N.R.C. inspector was assigned the whole body badge visitor PS8.

[illegible] Warner, M.C.

FILM BADGE DISTRIBUTION TO BE USED IN MECHANICAL ENG
3-15-83

NAME	DEPARTMENT	S.S.#	DATE OF BIRTH	TYPE
T. NASH (2)	M E	440-44-3363	13-3-26	F+R
R e Bing (3)	R Wx Safety	542-36-1162	1-7-36	F+R
L. NEELANDS (4)	Sch. of Engr	553-54-8645	9/12/30	R
Rob Fisher (5)	PG&E Diablo Canyon	172-38-8615	8/22/47	F+R
Art. Tuan (6)	Physics			R
Robert Adamson (7)	M.E.			R
Delbert Young Jr.	NRC #PS8	557-46-8082	8/3/31	F

CALIF POLY STATE UNIV
DEPT OF PUBLIC SAFETY
ATTN JEFF HALL
SAN LUIS OBISPO CA 93407

Radiation Detection Company

P.O. BOX 1414 • SUNNYVALE, CALIFORNIA 94088
PHONE (408) 735-8700

REPORT DATE	QTR	OPTION
9[illegible]83	2	3
START DATE	END DATE	
401[illegible]3	430[illegible]3	

ACCOUNT NUMBER	GROUP NUMBER
2990	10

DOSIMETRY REPORT

FREQUENCY
MONTHLY

SOCIAL SECURITY NUMBER 1	DATE OF BIRTH MO-DAY-YR 2	NAME OR LOCATION 3	BADGE NUMBER 4	NOTE 5	CURRENT DOSE (MILLIREM) PENETRATING X + GAMMA 6	PENETRATING NEUTRON 7	NON-PENETRATING BETA 8	OTHER START DATE 9	CUMULATIVE DOSE (MILLIREM) CALENDAR QUARTER PENETRATING 10	CALENDAR QUARTER NON-PENETRATING 11	CALENDAR YEAR PENETRATING 12	CALENDAR YEAR NON-PENETRATING 13	LIFETIME PENETRATING 14	LIFETIME NON-PENETRATING 15
			1	1	0				0	0	0	0	0	0
			3	1	0				0	0	0	0	0	0
			4	1	0				0	0	0	0	0	0
			5	1	0				0	0	0	0	0	0
			6	1	0				0	0	0	0	0	0
			8	1	0				0	0	0	0	0	0
			9	1	0				0	0	0	0	0	0
			10	1	0				0	0	0	0	0	0
554783161		HALL JEFF	3396		0	0	0		0	0	0	0	0	0
554783161	80552	HALL J	3397	1	0				0	0	0	0	0	0
572311035	91761	LONG LINDA	5320		0	0	0		0	0	0	0	0	0
		VISITOR PS 1	9900		0	0	0		0	0	0	0	0	0
		VISITOR PS 2	9901		0	0	0		0	0	0	0	25	0
		VISITOR PS 3	9902		0	0	0		0	0	0	0	0	0
		SHIP CONTROL	9903		0		0		0	0	0	0	0	0
		VISITOR PS4	9904		0	0	0		0	0	0	0	0	0
		VISITOR PS5	9905		0	0	0		0	0	0	0	0	0
		VISITOR PS6	9906		0	0	0		0	0	0	0	0	0
		VISITOR PS7	9907		0	0	0		0	0	0	0	0	0
		VISITOR PS8	9908		0	0	0		0	0	0	0	0	0
		VISITOR PS9	9909		0	0	0		0	0	0	0	0	0
		TED NASH	A001		0		0							

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CALIF POLY STATE UNIV
DEPT OF PUBLIC SAFETY
ATTN JEFF HALL
SAN LUIS OBISPO CA 93407

Radiation Detection Company

P.O. BOX 1414 • SUNNYVALE, CALIFORNIA 94088
PHONE (408) 735-8700

REPORT DATE	QTR	OPTION
52683	2	3
START DATE	END DATE	
40183	40630	

ACCOUNT NUMBER	GROUP NUMBER
2990	

DOSIMETRY REPORT

FREQUENCY: MONTHLY

SOCIAL SECURITY NUMBER 1	DATE OF BIRTH MO DAY YR 2	NAME OR LOCATION 3	IBM NUMBER 4	NOTE 5	CURRENT DOSE MILLIREM: PENETRATING X + GAMMA 6	PENETRATING NEUTRON 7	NON PENETRATING BETA 8	OTHER START DATE 9	CUMULATIVE DOSE MILLIREM: CALENDAR YEAR PENETRATING 10	CALENDAR YEAR NON PENETRATING 11	FISCAL YEAR PENETRATING 12	FISCAL YEAR NON PENETRATING 13	LIFETIME PENETRATING 14	LIFETIME NON PENETRATING 15
520644040	61127	BALLEK C	796		0	0	0		0	0	0	0	0	0
564748406	61226	BROWN DRUG	1103		0	0	0		0	0	0	0	0	0
550561009	52240	BROWN R	1116		0	0	0		0	0	0	0	0	0
550561009	52240	BROWN R	1117	1	0				0	0	0	0	0	0
156324494	42343	BUFFA A J	1147		0	0	0		0	0	0	0	260	0
526443695	61537	DICKERSON R	1839		0	0	0		0	0	0	0	0	0
526443695	61537	DICKERSON R	1840	1	0				0	0	0	0	0	0
387305956	70134	HAFEMEISTER D	3374		0	0	0		0	0	0	0	0	0
561252664	110962	HIMEL M	3642		0	0	0		0	0	0	0	0	0
335368846	100422	POLING J E	7128		0	0	0		0	0	0	0	260	0
170145452	20520	ROSEN A Z	7145		0	0	0		0	0	0	0	50	0
244784982	20637	VANWYNGAARDEN	8972		0	0	0		0	0	0	0	0	0
447844982	20637	VANWYNGAARDEN	8973	1	0				0	0	0	0	0	0
		VISITOR P1	9900		0	0	0		0	0	0	0	405	0
		AREA P1	9905		0	0	0		0	0	0	0	0	0
		AREA P2	9906		0	0	0		0	0	0	0	0	0
		AREA P3	9907		60	0	0		60	0	345	0	705	0
		AREA P4	9908		90	0	0		90	0	345	0	575	0

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PHONE (408) 735-8700

REPORT DATE	QTR	OPTION
82683	2	3
START DATE	END DATE	
40183	43083	

ACCOUNT NUMBER	GROUP NUMBER
2990	2

DOSIMETRY REPORT

FREQUENCY: MONTHLY

SOCIAL SECURITY NUMBER 1	DATE OF BIRTH MO-DAY-YR 2	NAME OR LOCATION 3	IBM NUMBER 4	NOTE 5	CURRENT DOSE (MILLIREM) PENETRATING X + GAMMA 6	PENETRATING NEUTRON 7	NON-PENETRATING BETA 8	OTHER START DATE 9	CUMULATIVE DOSE (MILLIREM) CALENDAR QUARTER PENETRATING 10	CALENDAR QUARTER NON PENETRATING 11	CALENDAR YEAR PENETRATING 12	CALENDAR YEAR NON-PENETRATING 13	TOTAL PENETRATING 14	TOTAL NON-PENETRATING 15
022206851	22726	GRAY C	3245		0		0		0	0	0	0	0	0
555548645	91230	NEELANDS J	5999		0	0	0		0	0	0	0	0	0
529307303	91429	NELSON R	6026		0		0		0	0	0	0	0	0
499828677	50946	ORTIZ M E	6652		0		0		0	0	0	0	0	0
518326992	20730	STANSFIELD W	8106		0		0		0	0	0	0	0	0
		VISITOR B1	9900		0		0		0	0	0	0	0	0
		VISITOR B2	9901		0		0		0	0	0	0	0	0

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PHONE (408) 735-8700

REPORT DATE	QTR	
42983	1	
START DATE	END DATE	
3018	3/31/8	

ACCOUNT NUMBER	GROUP NUMBER
2990	

DOSIMETRY REPORT

FREQUENCY: MONTHLY

SOCIAL SECURITY NUMBER 1	DATE OF BIRTH MO DAY YR 2	NAME OR LOCATION 3	IBM NUMBER 4	NOTE 5	CURRENT DOSE MR/REV PENETRATING X + GAMMA 6	PENETRATING NEUTRON 7	NON PENETRATING BETA 8	OTHER START DATE 9	CUMULATIVE DOSE MR/REV PENETRATING 10	NON PENETRATING 11	PENETRATING 12	NON PENETRATING 13	PENETRATING 14	NON PENETRATING 15
52084040	112751	BALLEK C	796		0	0	0		0	0	0	0	0	0
54574940	112650	BROWN DOUG	1107		0	0	0		0	0	0	0	0	0
54574940	112650	BROWN DOUG	1103		0	0	0		0	0	0	0	0	0
55056100	122450	BROWN R	1116		0		0		0	0	0	0	0	0
55056100	122450	BROWN R	1117	1	0				0	0	0	0	0	0
19432449	423431	BUFFA A J	1147		0	0	0		0	0	0	0	260	0
22570460	112647	CELATAUR C	1799	Y	0		0	901	0	0	0	0	0	0
52644369	415371	DICKERSON R	1839		0		0		0	0	0	0	0	0
52644369	415371	DICKERSON R	1840	1	0				0	0	0	0	0	0
52644369	415371	DICKERSON R	1840	Y1	0			901	0	0	0	0	0	0
38730595	701341	HAFENEISTER D	3374		0	0	0		0	0	0	0	0	0
56122664	110621	HINFL M	3642		0	0	0		0	0	0	0	0	0
33436884	304421	POLING J E	7128		0	0	0		0	0	0	0	260	0
17018545	209201	ROSEN A Z	7149		0	0	0		0	0	0	0	50	0
17018545	209201	ROSEN A Z	7144	1	0				0	0	0	0	0	0
24478498	206371	VANWYNGAARDEN	8972		0		0		0	0	0	0	0	0
44784982	206371	VANWYNGAARDEN	8973	1	0				0	0	0	0	0	0
		VISITOR P1	9900	G					0	0	0	0	405	0
		VISITOR P 2	9904	Y	0	0	0	901	0	0	0	0	475	0
		AREA P1	9905		0		0		0	0	0	0	0	0
		AREA P2	9906		0		0		0	0	0	0	0	0
		AREA P3	9907		70	0	0		285	0	285	0	645	0
		AREA P4	9908		110	0	0		255	0	255	0	485	0
		ADAMSON	A001	1	0		0							
		NEELANDS	A003	1	0		0							

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REPORT DATE	QTR	OPTION
50283	1	3
START DATE	END DATE	
30183	33183	

ACCOUNT NUMBER	GROUP NUMBER
2990	10

DOSIMETRY REPORT

FREQUENCY: MONTHLY

SOCIAL SECURITY NUMBER 1	DATE OF BIRTH MO-DAY-YR 2	NAME OR LOCATION 3	BM NUMBER 4	NOTE 5	CURRENT DOSE (MILLIREM) PENETRATING X + GAMMA 6	PENETRATING NEUTRON 7	NON PENETRATING BETA 8	OTHER START DATE 9	CUMULATIVE DOSE (MILLIREM) CALENDAR QUARTER PENETRATING 10	CALENDAR QUARTER NON-PENETRATING 11	CALENDAR YEAR PENETRATING 12	CALENDAR YEAR NON-PENETRATING 13	LIFE PENETRATING 14	LIFE NON-PENETRATING 15
			1	1	0				0	0	0	0	0	0
			2	1	0				0	0	0	0	0	0
			3	1	0				0	0	0	0	0	0
			5	1	0				0	0	0	0	0	0
			8	1	0				0	0	0	0	0	0
			9	1	0				0	0	0	0	0	0
			10	1	0				0	0	0	0	0	0
554783161		HALL JEFF	3396		0	0	0		0	0	0	0	0	0
554783161	80552	HALL J	3397	1	0				0	0	0	0	0	0
566394349	80360	LONG K	5318	Y	0	0	0	901	0	0	0	0	0	0
566394349	80360	LONG K	5319	Y1	0			901	0	0	0	0	0	0
572311035	91761	LONG LINDA	5320		0	0	0		0	0	0	0	0	0
		VISITOR PS 1	9900		0	0	0		0	0	0	0	5	0
		VISITOR PS 2	9901		0	0	0		0	0	0	0	250	0
		VISITOR PS 3	9902		0	0	0		0	0	0	0	0	0
		SHIP CONTROL	9903		0		0		0	0	0	0	0	0
		VISITOR PS4	9904		0	0	0		0	0	0	0	0	0
		VISITOR PS5	9905		0	0	0		0	0	0	0	0	0
		VISITOR PS6	9906		0	0	0		0	0	0	0	0	0
		VISITOR PS7	9907		0	0	0		0	0	0	0	0	0
		VISITOR PS8	9908		0	0	0		0	0	0	0	0	0
		VISITOR PS9	9909		0	0	0		0	0	0	0	0	0

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ATTN JEFF HALL
SAN LUIS OBISPO CA 93407

Radiation Detection Company

P.O. BOX 1414 • SUNNYVALE, CALIFORNIA 94088
PHONE (408) 735-8700

REPORT DATE	QTR	OPTION
42983	1	3
START DATE	END DATE	
301 83	331 83	

ACCOUNT NUMBER	GROUP NUMBER
2990	4

DOSIMETRY REPORT

FREQUENCY: MONTHLY

SOCIAL SECURITY NUMBER 1	DATE OF BIRTH MO-DAY-YR 2	NAME OR LOCATION 3	BM NUMBER 4	NOTE 5	CURRENT DOSE (MILLIREM) PENETRATING X + GAMMA 6	PENETRATING NEUTRON 7	NON-PENETRATING BETA 8	OTHER START DATE 9	CUMULATIVE DOSE (MILLIREM) CALENDAR QUARTER PENETRATING 10	CALENDAR QUARTER NON-PENETRATING 11	CALENDAR YEAR PENETRATING 12	CALENDAR YEAR NON-PENETRATING 13	LIFETIME PENETRATING 14	LIFETIME NON-PENETRATING 15
433267621	121319	ADAMSON R	98		0	0	0		0	0	0	0	0	0
654504781	63026	COX B	1585		0	0	0		0	0	0	0	0	0
566624020	20644	WEBER M	9273		0	0	0		0	0	0	0	0	0
		ME AREA #1	9900		0	0	0		0	0	0	0	20	0
		ME AREA #2	9901		0	0	0		0	0	0	0	0	0

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REPORT DATE	QTR	IN
42983	1	
START DATE	END DATE	
30183	33183	

ACCOUNT NUMBER	GROUP NUMBER
2990	2

DOSIMETRY REPORT

FREQUENCY: MONTHLY

SOCIAL SECURITY NUMBER 1	DATE OF BIRTH MO-DAY-YR 2	NAME OR LOCATION 3	IBM NUMBER 4	NOTE 5	CURRENT DOSE (MILLIREM) PENETRATING X + GAMMA 6	PENETRATING NEUTRON 7	NON PENETRATING BETA 8	OTHER START DATE 9	CALENDAR QUARTER PENETRATING 10	CALENDAR QUARTER NON-PENETRATING 11	CALENDAR YEAR PENETRATING 12	CALENDAR YEAR NON-PENETRATING 13	LIFETIME PENETRATING 14	LIFETIME NON-PENETRATING 15
022206851	22726	GRAY C	3245		0		0		0	0	0	0	0	0
555548645	91230	NEELANDS J	5909		0	0	0		0	0	0	0	0	0
529307303	91428	NELSON R	6026		0		0		0	0	0	0	0	0
459682671	50946	ORTIZ M E	6652		0		0		0	0	0	0	0	0
518329928	20130	STANSFIELD W	8106		0		0		0	0	0	0	0	0
		VISITOR 81	9900		0		0		0	0	0	0	0	0
		VISITOR 82	9901		0		0		0	0	0	0	0	0

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These printouts clarify that the exposures received on the M.E. area #1 film badge and the visitor PS2 film badge were received prior to March 1983 and April 1983.

Badge	Exposure	Date
M.E. area #1	20	4-1-80
visitor PS2	250	9-1-81

CALIF POLY STATE UNIV
MECHANICAL ENG DEPT
ATTN A Z ROSEN PHYSICS
SAN LUIS OBISPO CA 93407

Radiation Detection Company

P.O. BOX 1414 • SUNNYVALE, CALIFORNIA 94088
PHONE (408) 735-8700

REPORT DATE	QTR	OPTION
100380	2	3
START DATE	END DATE	
40180	43080	

ACCOUNT NUMBER	GROUP NUMBER
2990	4

DOSIMETRY REPORT

FREQUENCY: MONTHLY

SOCIAL SECURITY NUMBER 1	DATE OF BIRTH MO DA YR 2	NAME OF LOCATION 3	BIN NUMBER 4	SEX 5	CURRENT DOSE (MILLIREMS) PENETRATING DEEP GAMMA 6	PENETRATING NEUTRON 7	NON-PENETRATING BETA 8	OTHER START DATE 9	CUMULATIVE DOSE (MILLIREMS) CALENDAR QUARTER PENETRATING 10	CALENDAR QUARTER NON-PENETRATING 11	CALENDAR YEAR PENETRATING 12	CALENDAR YEAR NON-PENETRATING 13	LIFETIME PENETRATING 14	LIFETIME NON-PENETRATING 15
433267621	121319	ADAMSON R	98		0	0	0		0	0	0	0	0	0
		ME AREA #1	9900		20	0	0		20	0	20	0	20	0
		ME AREA #2	9901		0	0	0		0	0	0	0	0	0

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ATTN JOHN PICKERING
SAN LUIS OBISPO CA 93407

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PHONE (408) 735-8700

REPORT DATE	QTR	OPTION
110681	3	3
START DATE	END DATE	
90181	93081	

ACCOUNT NUMBER	GROUP NUMBER
2990	10

DOSIMETRY REPORT

FREQUENCY: MONTHLY

SOCIAL SECURITY NUMBER 1	DATE OF BIRTH MO-DAY-YR 2	NAME OR LOCATION 3	BAR NUMBER 4	NOTE 5	CURRENT DOSE (MILLIREM) PENETRATING X + GAMMA 6	PENETRATING NEUTRON 7	NON-PENETRATING BETA 8	OTHER START DATE 9	CUMULATIVE DOSE (MILLIREM) CALENDAR QUARTER PENETRATING 10	CALENDAR QUARTER NON PENETRATING 11	CALENDAR YEAR PENETRATING 12	CALENDAR YEAR NON-PENETRATING 13	LIFETIME PENETRATING 14	LIFETIME NON PENETRATING 15
203348644	102545	PICKERING J	7071		0	0	0		0	0	0	0	0	0
540525998	81444	VAN ACKER D	8956		0	0	0		0	0	0	0	0	0
		VISITOR PS2	9901		250	0	0		250	0	250	0	250	0
		VISITOR PS3	9902		0	0	0		0	0	0	0	0	0

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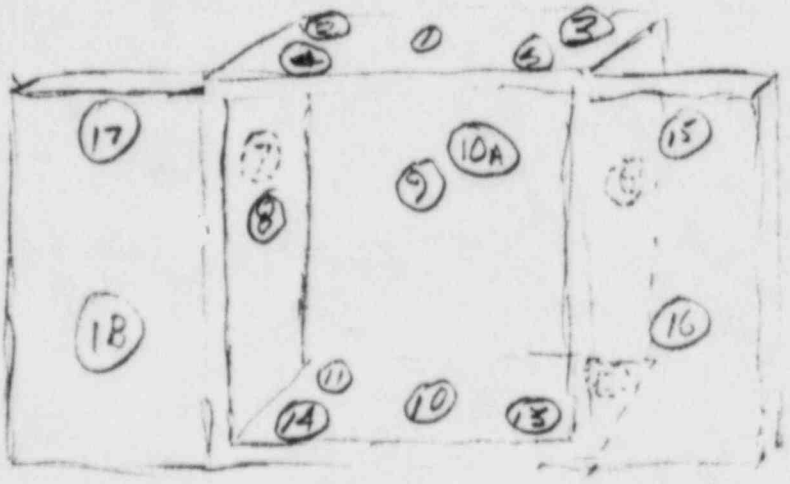
REMOVAL OF SAFE LOCATED IN M.E. ~~TREATMENT~~ Reactor ROOM

PARAFFIN CONTAINER

Description: Square shaped safe, gray in color, approximately 2' x 2' in size.

R.E: To be moved to the Physics Department



A Radiation Safety survey was performed on May 3, 1984 at 0850 hours, using a Technical Associated model Pug-1 #159 and HP-210 G.M. Probe. There was no detectable activity found above background, for the safe and paraffin container. The safe and Paraffin container was released to Physics department.

Thomas A. Schell

Thomas A. Schell,
Radiatior Safety Officer

TAS/rmc

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT M.E. REPORT DATE 5-4-84 PAGE

LOCATION Rx Room SURVEY DATE 5-4-84 TIME

RESP. USER ☐ ROUTINE, ☑ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
10A	Lead Safe	0.9	NDA	NDA	15 / 0	15 / 0	— / —	3 / 4	— / —
14					11 / 0		— / —		— / —
18					15 / 0		— / —		— / —
15					16 / 0		1 / —		3 / —
13					14 / 0		— / —		— / —
11					15 / 0		— / —		— / —
12					16 / 0		1 / —		3 / —
9					17 / 0		2 / —		6 / —
3					12 / 0		— / —		— / —
8					10 / 0		— / —		— / —
10					14 / 0		— / —		— / —
7					14 / 0		— / —		— / —
2					15 / 0		— / —		— / —
4					15 / 0		— / —		— / —
16					15 / 0		— / —		— / —
5					15 / 0		— / —		— / —
1					15 / 0		— / —		— / —
6					17 / 0		2 / —		6 / —
17					16 / 0		1 / —		3 / —
19	Paraffin lined Container				14 / 0		— / —		— / —

INSTRUMENTS: [redacted] Pmg-1 #159
Harshaw NS-12

COMMENTS:

dpm = (cpm - Bkgcpm) / Eff.

MONITORED BY Thomas Schell

State of California

California Polytechnic State University
San Luis Obispo, California 93407

Memorandum

To : File

Date : April 5, 1984

File No.:

Copies :

From : T. Schell

Subject: Removal of Lead bricks from reactor room in Mechanical Engineering.

At 10:00 a.m. Mr. Jim Neelands; Art Rosen removed 80 lead bricks from the reactor room. These bricks were previously used in the AGN 201 reactor.

In conformance with regulations, the bricks were surveyed for radiation using a Tech. Associates Pug-1 #159 with an H.P. 210 "Pancake" probe, and a Ludlum No. 125 Micro R meter #16062.

There were no detected radiation readings found above background. Average background readings were approximately 40 c.p.m. ≠ 4.5 micro R/hr.

Wipes were taken and no removable contamination was found (see attached wipe sample log.)

Thomas A. Schell

Thomas A. Schell, R.S.O.

Serial # NS-12

WIPE SAMPLE LOG

Date	Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	β γ α	REMARKS
4-5-84	47	Load Bricks	21	1 min	21	22	—	22	NDA	β/α	
	48		18		18	0	—	3.6	NDA		
	49		19		19		—				
	50		22		22		—				
	51		23		23		1				
	52		22		22		—				
	53		19		19		—				
	54		19		19		—				
	55		20		20		—				
	56		18		18		—				
	57		20		20		—				
	58		19		19		—				
	59		21		21		—				
	60		22		22		—				
	61		21		21		—				
	1 thru 5	Background Wipe									
	80										

DPM = (CPM - Bkg CPM) Eff. Factor

Serial # NS-12

WIPE SAMPLE LOG

Date	Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	β γ α	REMARKS
4-5-84	24	Load Bricks	24 -	1min	24 -	22	0 2 -	2.2 2.6	NDA NDA	β/α	
	25		19 -		19 -		- -				
	26		23 -		23 -		1 -				
	27		20 -		20 -		- -				
	28		18 -		18 -		- -				
	29		17 -		17 -		- -				
	30		21 -		21 -		- -				
	31		18 -		18 -		- -				
	32		18 -		18 -		- -				
	33		22 -		22 -		- -				
	34		20 -		20 -		- -				
	35		19 -		19 -		- -				
	36		20 -		20 -		- -				
	37		20 -		20 -		- -				
	38		19 -		19 -		- -				
	39		24 -		24 -		2 -				
	40		20 -		20 -		- -				
	41		22 -		22 -		- -				
	42		22 -		22 -		- -				
	43		22 -		22 -		- -				
	44		23 -		23 -		1 -				
	45		18 -		18 -		- -				
	46		20 -		20 -		- -				

DPM = (CPM - Bkg CPM) Eff. Factor

Serial # ____

WIPE SAMPLE LOG

Date	Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	β γ α	REMARKS
4-5-84	1	Lead Bricks	18	1 min	18	22	0	—	3.6	NDA NDA	β/α
	2		20		20		—				
	3		21		21		—				
	4		19		19		—				
	5		20		20		—				
	6		20		20		—				
	7		22		22		—				
	8		18		18		—				
	9		20		20		—				
	10		20		20		—				
	11		22		22		—				
	12		23		23		1				
	13		21		21		—				
	14		18		18		—				
	15		19		19		—				
	16		20		20		—				
	17		22		22		—				
	18		20		20		—				
	19		20		20		—				
	20		21		21		—				
	21		22		22		—				
	22		21		21		—				
	23		19		0		—				

DPM = (CPM - Bkg CPM) Eff. Factor

AWC INCORPORATED
NUCLEAR SERVICES

4335 W. Tropicana
Las Vegas, Nevada 89103

Telephone (702) 871-7733
Telecopy (702) 871-1182

June 19, 1984

Tom Schell
Radiation Safety Officer
Cal Poly
San Luis Obispo, CA 93407

Dear Tom:

We were pleased to be of service to you for the removal, packaging, and disposal of the various components of the AGN-201 reactor during the week of June 11 to 14, 1984.

In addition to the components as originally contracted for, several items of the core tank were cut out and disposed of as radioactive waste. Included among the items packaged and shipped out for disposal were:

- thermal column tank
- graphite liner
- stainless steel spacers - 4 each
- steel tank for holding spacers
- steel plate with rods for spacers
- bottom steel plate of core tank and about 2/3 rds of core tank cylinder

The lead shields, water tank, and tank supports were thoroughly surveyed for both fixed and removable contamination. No radiation levels in excess of background levels were measured. No removable contamination in excess of levels as set forth the NRC's "Guidelines for Decontamination of Facilities and Equipment" were found (See Attached Swipe Surveys Records). Therefore, we believe that the reactor room facility and all remaining equipment meet the "unrestricted use" criteria; however, as agreed, you should complete a more formal final radiological survey, and issue a final report for the NRC's review and approval.

If we can be of further assistance to you in the areas of Health Physics, Industrial Hygiene, and Safety, please contact me.

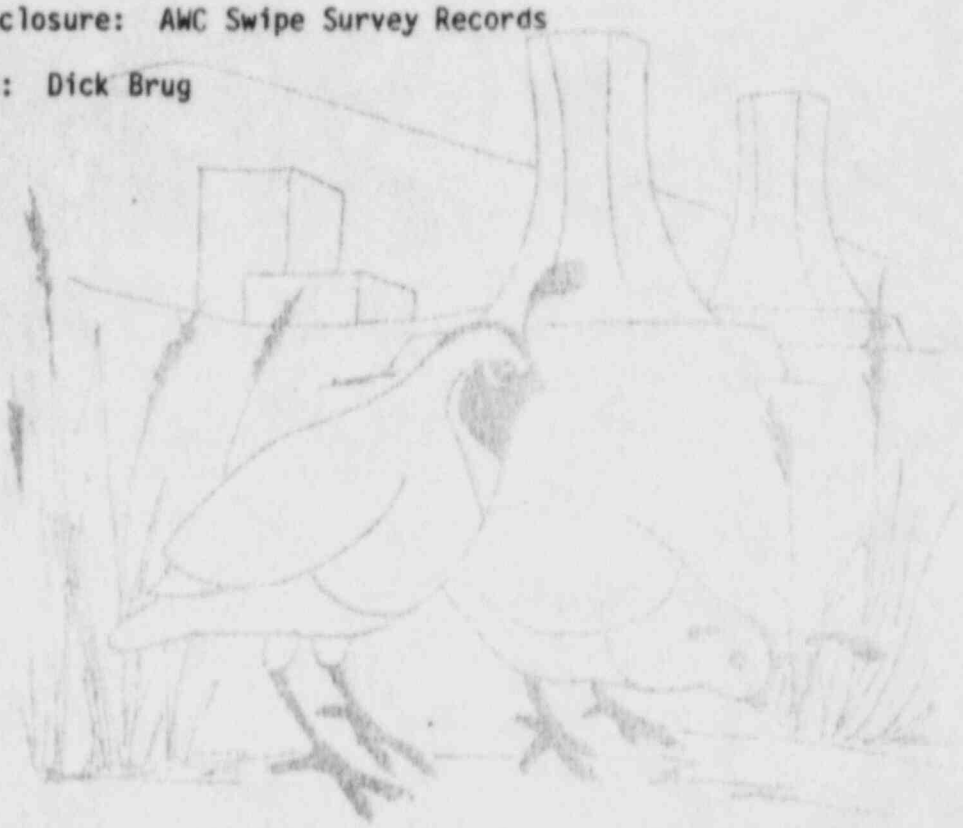
Sincerely

Bill

James W. "Bill" Ayres
President
AWC, Inc.

Enclosure: AWC Swipe Survey Records

cc: Dick Brug



AWC INCORPORATED

3044 South Highland Drive
Las Vegas, Nevada 89103

Instrument ~~Gas~~ Flow Prop. Counter

Serial # 01

6/11/84 to 6/13/84

PP 1

gg Eadie
R L Walters
D. Haze

WIPE SAMPLE LOG

Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	B γ	REMARKS
1	Thermal Column Tank		1 min	122	105	17	~~2.5~~ 0.5	1.43		
2	inside			97		0		0		
3	↓			113		8		20		
4				120		15		38		
5				95		0		0		
6	Thermal Column Tank			111		6		15		
7	outside			91		0		0		
8	↓			99		0		0		
9				114		9		23		
10	↓			105		0		0		
11	Graphite			100		0		0		
12	↓			94		0		0		
13				91		0		0		
14				87		0		0		
15				101		0		0		
16	↓			107		2		5		
17	Rod Tank			103		0		0		
18	↓			96		0		0		
19				110		5		13		
20	↓			92		0		0		
21	Rods			95		0		0		
22	↓			155		50		125		
23	↓			105		0		0		

DPM = (CPM - Bkg CPM) Eff. Factor

TECHNICIAN

3464 South Highland Drive
Las Vegas, Nevada 89103

Instrument _____

Serial # _____

(2)

WIPE SAMPLE LOG

Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	B Y	REMARKS
24	Rods		1 min	140	105	35	2.5 / 2.5	1 / 88		
25	Rod Box Inside			92		0		0		
26	Floor Vessel			92		0		0		
27	Room			115		10		25		
28				95		0		0		
29				92		0		0		
30	Passage Way			114		9		23		
31				92		0		0		
32				107		2		5		
33	Floor Control			103		0		0		
34	Side			85		0		0		
35				111		6		15		
36				108		3		8		
37				102		0		0		
38				99		0		0		
39				85		0		0		
40				112		7		18		
41	Hallway			112		7		18		0
42	"			89		0		0		
A3	Lid Thermal Column Tank			103		0		0		
A4	Rod Plunger			112		7		18		
45				89		0		0		
46				88		0		0		

DPM = (CPM - Bkg CPM) Eff. Factor

3044 South Highland Drive
Las Vegas, Nevada 89103

Instrument _____

Serial # _____

(3)

WIPE SAMPLE LOG

Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	B Y	REMARKS
47	Rod Plungers		1 min	98	105	0	2.5	0		
48	Flow through shield			82		0		0		
49	Gas Detector			106		1		3		
50	CAN TOP			104		0		0		
51	Top Lead Ring			109		4		10		
52	Inside top lead ring			82		0		0		
53	Container around 1st ring			99		0		0		
54	Bottom 2nd Ring			99		0		0		
55	Bottom 3rd Ring			108		3		8		
56	Bottom 4th Ring			102		0		0		
57	Bottom Plate			104		0		0		
58	#1 Vessel Piece			95	97	0		0		Vessel cut to Remove
59	inside			95		0		0		Hot plate cut into
60	↓			90		0		0		3 pieces
61	↓			83		0		0		
62	outside			90		0		0		
63	↓			85		0		0		
64	↓			102		5		13		0
65	#2 inside			79		0		0		
66				108		11		28		
67				109		12		30		
68	↓			90		0		0		
69	outside		↓	110	13		↓	33		

TOP
1
2
3
4 Bottom

DPM = (CPM - Bkg CPM) Eff. Factor

TECHNICIAN

3084 South Highland Drive
Las Vegas, Nevada 89103

Instrument _____

Serial # _____

(4)

WIPE SAMPLE LOG

Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	BY	REMARKS
70	# Vessel 2		1 min.	103	97	6	2.5	15		
71	Dose of vessel			98		1		3		
72	inside			92		0		0		
73				96		0		0		
74				100		3		8		
75				99		2		5		
76				93		0		0		
77	outside			90		0		0		
78				95		0		0		
79				97		0		0		
80				99		2		5		
81				94		0		0		
82	AIR FILTER 41 cu. ft.			105	97	8		20		7.8×10^{-12} μCi/cc MPC (Co-60) = 9×10^{-9}
83	Floor By			92		0		0		
84	Console			95		0		0		
85				93		0		0		
86	Floor outside inside door			98		1		3		
87	"			116		19		48		
88				98		1		3		
89				95		0		0		
90				97		0		0		
91				100		3		8		
92				109		12		30		

DPM = (CPM - Bkg CPM) Eff. Factor

TECHNICIAN

3681 South Highland Drive
Las Vegas, Nevada 89103

Instrument _____

Serial # _____

(5)

WIPE SAMPLE LOG

BO

Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	BY	REMARKS
93	Water tank outer wall		1min	91	97	0	0.5	0		
94	Tubes			110		13		33		
95	Tubes			105		0		0		
96	Tubes			101		9		23		
97	Floor behind console			97		0		0		
98	Top of filter cabinet			90		0		0		
99	Floor by water tank			97		0		0		
100	floor by water tank			108		11		28		
101	base of tank			94		0		0		
102	floor by tank			109		12		30		
103	inside tank.			105		8		20		

DPM = (CPM - Bkg CPM) Eff. Factor

TECHNICIAN

AWC INCORPORATED
NUCLEAR SERVICES

4335 W. Tropicana
Las Vegas, Nevada 89103

Telephone (702) 871-7733
Telecopy (702) 871-1182

RECEIVED JUL 10 1984

July 6, 1984

Tom Schell
Radiation Safety Officer
Cal Poly
San Luis Obispo, CA 93407

Dear Tom:

Enclosed is the "Radioactive Waste Shipment & Disposal Manifest" for the AGN-201 reactor components which were packaged and taken to Southwest Nuclear Co., Pleasanton, California for ultimate disposal at U.S. Ecology's Richland, Washington Disposal Site.

If we can be of further service to you, please let me know.

Sincerely,

Gregory G. Eadie

Gregory G. Eadie

cc: Dick Brug
Enclosure: Radwaste Manifest

GENERATOR NO. CAU 09-445-5102

GENERATOR NAME: California Polytechnic State Univ.

AGENT/BROKER: AWC, Inc

US ECOLOGY, INC.

CONTINUATION SHEET

REV. 1/84

RECEIVED JUL 1 0 1984

MANIFEST # 48960

PAGE 2 OF 2

(9) Item No.	(10) Container Type	(11) Container Volume (Cu. Ft.)	(12) Container Weight (pounds)	(13) Physical Form	(14) Waste Description (See Note #1)	(15) Solidification or Absorbent Media (See Note #2)	(16) Chemical Form/ Chelating Agent (10CFR20.311)	Check Below if < 0.1% Chelating Agent by Weight	(17) Radionuclide (10CFR20.311)	(18) Activity ☐ Curies ☒ Millicuries (10CFR20.311)	(19) D.O.T. Sub-Type (Ll, Ac, LSA, etc.)	(20) Special Nuclear Material (Grams)	(21) Source Material (Kilograms)	(22) Waste Form Class 10CFR 61.55	(23) Stability Class (See Note #3) 10CFR 61.56	Radiation Levels mR/HR (24) Disposal Container Surface	[redacted]	(26) Disposal Container At 1 Meter	(27) Transport Index	(28) Fissile Class	(29) D.O.T. Label 49CFR172.444
84-2	4x4x4	69	2230	Solid	2	NA	METAL	NA	Co 60	0.01	A1	NA	.0303	A	U	0.08	[redacted]	0.05	.1	NA	Radioactive – EXEMPTED PER
	WOOD																				Radioactive – 49 CFR 173.421
	BOX																				Radioactive –
																					Radioactive –
																					Radioactive –
																					Radioactive –
																					Radioactive –
																					Radioactive –
																					Radioactive –
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																					Radioactive –
1		69	2230	(30) PAGE TOTALS						0.01		[illegible]	.0303								

NOTE #1 - Waste Description Codes

2. Dry Solid
3. Solidified Liquid
4. Biological
7. Filter Media
8. Dewatered Resins
9. Solidified Resins
10. Absorbed Aqueous Liquid
11. Absorbed Organic Liquid
12. Scintillation (or organic) Liquid in Vials in Absorbent
13. Aqueous Liquid in Vials in Absorbent
14. Animal Carcasses in Absorbent
*99. Other

NOTE #2 - Solidified or Absorbent Media Codes

2. Speedi-Dry
3. Celatom (MP-78)
4. Floor Dry/Super Fine
5. Hi Dri
6. Florco or Florco X
7. Instant-Dri
8. Safe-T-Sorb
9. Oil-Dri (Safe n Dri)
10. Zonolite, Grades 2, 3, 4
11. Dow Media
12. Cement
13. Asphalt
14. Delaware Custom Media
15. Envirostone
16. Krolite
*99. Other

NOTE #3 - NRC Stability Class Code

S - Stable
U - Unstable

* ANY USE OF "OTHER" AS A DESCRIPTION MUST INCLUDE A WRITTEN AND SIGNED EXPLANATION ATTACHED TO THIS MANIFEST.

CUSTOMER COPY

GENERATOR NUMBER CAD 009 - 495 - 5102

RECEIVED JUL 10 1984

REV. 1/84

RADIOACTIVE WASTE SHIPMENT & DISPOSAL MANIFEST

US ECOLOGY, INC.

EXECUTIVE OFFICE: (502) 426-7160
P.O. BOX 7246 • LOUISVILLE, KENTUCKY 40207

PAGE 1 OF _____ USE THIS NO. ON ALL CONTINUATION PAGES → 48960

(1) GENERATOR NAME California Polytechnic State University
ADDRESS San Luis Obispo, CA
CITY San Luis Obispo STATE Calif ZIP 93407
CONTACT Thomas Shell PHONE 805-546-2281
USER PERMIT # 8-2519 SHIPMENT # SLO #1

(2) BILL DISPOSAL CHARGES TO BROKER
NAME _____ PURCHASE ORDER # _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____

(3) AGENT/BROKER Southwest Nuclear Co.
BROKER'S US ECOLOGY # CAB 9.9 DO.1 92226
ADDRESS 7066-A Commerce Circle
CITY Pleasanton STATE CA ZIP 94566
CONTACT T. Dias PHONE 415-462-3350
BROKER SHIPMENT # _____ BROKER USER PERMIT # _____
Thomas P. Dias 6-14-84
Broker's Authorized Signature (Acknowledging Waste Receipt) Date

(4) CONSIGNED TO:
☒ P.O. BOX 638 Hanford Reservation Richland, WA 99352 509-377-2411
☐ P.O. BOX 578 HWY 95, 12 m. So. of Beatty, NV 89003 702-553-2203
☐ OTHER
CONTACT _____
ADDRESS _____
CITY _____ STATE _____
PHONE _____

(5) CARRIER AWC SHIPPING DATE 6-14-84
CARRIER EPA # (If any) _____
ADDRESS 4335 W. Tropicana
CITY Las Vegas STATE NV ZIP 89103
PHONE 702-871-7733
CASK TYPE N/A CASK SURFACE EXPOSURE RATE N/A mR/hr

TOTAL FOR EACH CLASS		PROPER SHIPPING NAME & HAZARD CLASS (PER 49 CFR 172.101)	ID NUMBER
# OF PACKAGES	WEIGHT (Pounds)		
[redacted]			UN2908
			UN2910
			UN2912
			UN2913
			UN2915
			UN2910
			UN2977
			UN2911
			UN2978
			UN3180
			UN2916

(7) SHIPMENT TOTALS (DO NOT WRITE IN SHADED AREAS)

VOLUME (cu ft)	TOTAL # OF PACKAGES	SOURCE MATERIAL (kgs)	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	PLUTONIUM	TOTAL
6 cu ft	1	.0503				

ACTIVITY

ACTIVITY TOTALS: ☐ Curies ☒ Millicuries (10CFR20.311)	TRITIUM	C-14	Tc-99	I-129	ALL ISOTOPES
					0.01

(8) THIS IS TO CERTIFY THAT THE HEREIN-NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND ARE IN COMPLIANCE WITH ALL REQUIREMENTS APPLICABLE AT THE DESIGNATED DISPOSAL SITE, AND THAT THE MATERIALS ARE CLASSIFIED AND DESCRIBED IN ACCORDANCE WITH THE REQUIREMENTS OF 10CFR, PART 61 AND PART 20.311 OR EQUIVALENT STATE REGULATIONS.

James H Keelan Supervisor of Instructional Support 6/13/84
Authorized Signature Title Date

TERMS AND CONDITIONS

A. TITLE: Upon inspection and acceptance at the disposal site by US Ecology and all appropriate regulatory authorities, title to the Waste which conforms to Company's representations herein shall thereupon transfer from the Customer and be vested in US Ecology.

B. WASTE PRODUCTS: Customer represents and warrants that data set forth in this Radioactive Waste Shipment & Disposal Manifest is true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and the designated facility license.

C. INDEMNIFICATION: Customer agrees to indemnify US Ecology, its officers, employees and agents against all loss and liability whatsoever if such loss or liability results from the failure of the Waste to conform in all material respects to the data supplied on the Radioactive Waste Shipment & Disposal Manifest or this shipment fails to meet the standards prescribed by the Department of Transportation or any other governmental agency having jurisdiction over such matters.

FOR US ECOLOGY'S USE ONLY

TYPE OF CONTAINER	CONTAINER VOLUME CU. FT.	# OF PKGS.	CU. FT. PER CONTAINER TYPE
[redacted]			
OVERPACK			
55			
30			
5			
OTHER			
[redacted]			
1st SIZE			
2nd SIZE			
3rd SIZE			
[redacted]			
OTHER			
OTHER			
SHIPMENT TOTALS			

LOAD EVALUATION

CHECK ALL THAT APPLY TO THIS LOAD; DESCRIBE INADEQUACIES IN COMMENT SECTION:

☐ Manifest Waste Description Inadequate
☐ Contamination or Leakage Detected
☐ Unexpected Exposure Rates Detected
☐ No Violations Detected on this Load
☐ Bracing Inadequate
☐ Labels, Markings, etc. Inadequate
☐ Container Integrity Inadequate
☐ Other

DESCRIBE THE EXTENT OF ANY VIOLATION CHECKED ABOVE AND THE REMEDIAL ACTION TAKEN:

☐ CHECK HERE IF A SUPPLEMENTAL REPORT IS ATTACHED

BURIAL DATA

CONTAINER SEPARATION: ☐,☐,☐
(Code all that apply to this load.)
CODES: Bin, soil (Shift) ... 1; dry waste (Shift) ... 2;
10Ft. between upright containers (Cores) ... 3;
10Ft. soil (Cladding apprx 1% by volume) ... 4;
Other ... 5; No requirement ... 9;

DISCRETE BURIAL DEPTH FOR EACH WASTE CATEGORY WITHIN THIS MANIFEST				
WASTE CATEGORY	Mixed Fuels	CLASS A	CLASS B	CLASS C
DEPTH IN FEET				

Date Received _____
Date Disposed _____
Trench No. _____
☐ This material meets licensed limits.
☐ This material was disposed of in accordance with license.
AUTHORIZED INITIALS:

[redacted]

BATES #

CUSTOMER COPY

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
SAN LUIS OBISPO, CALIFORNIA 93407
(805) 546-0111

The Final Decommissioning Report For The AGN-201 Reactor

Submitted To:

United States Nuclear
Regulatory Commission

The AGN-201 Reactor and associated equipment is located in the north portion of the Mechanical Engineering building, No. 40 at California Polytechnic State University, San Luis Obispo, Ca.

The structure is composed of cement floors and 10 inch concrete block walls, steel and glass.

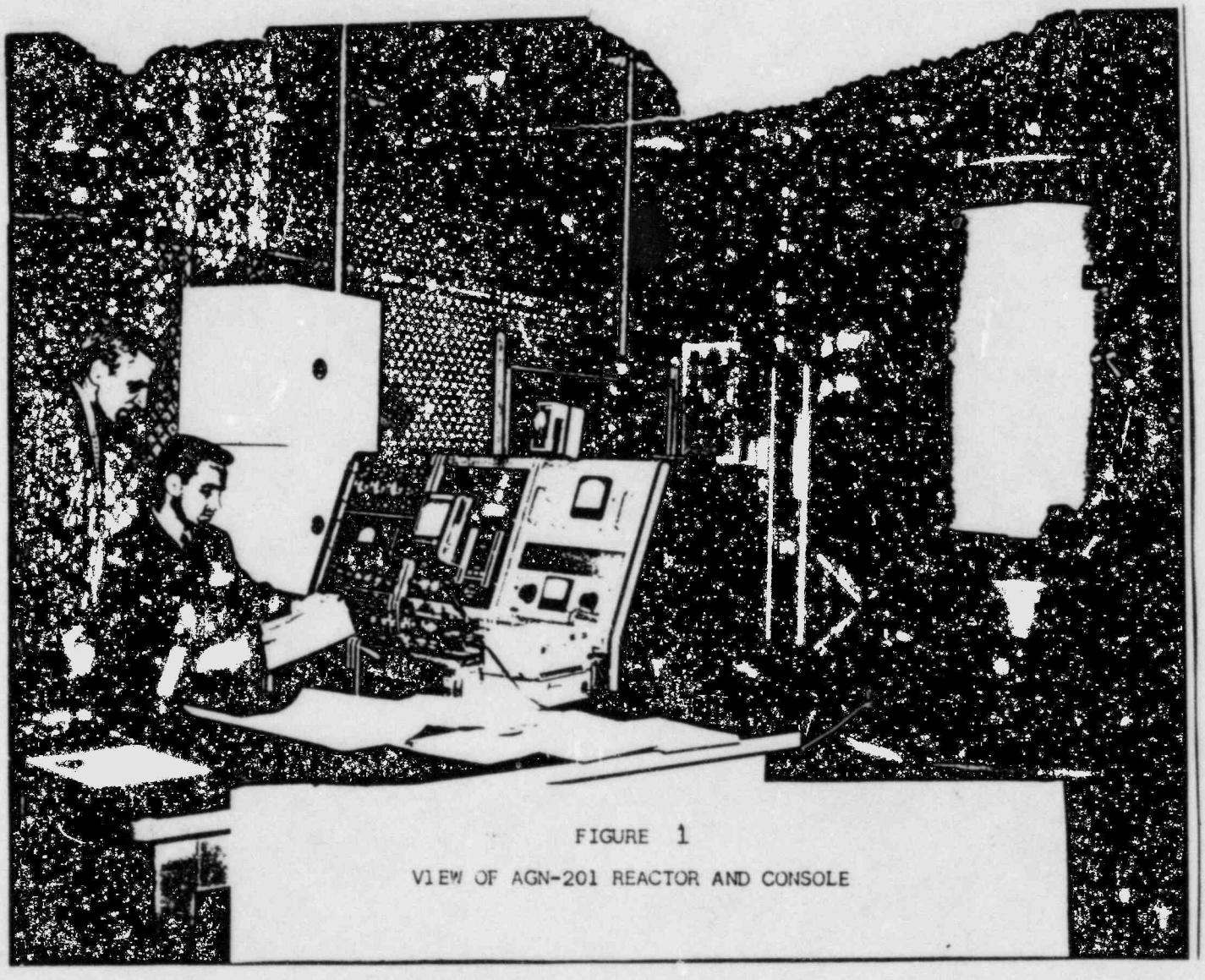
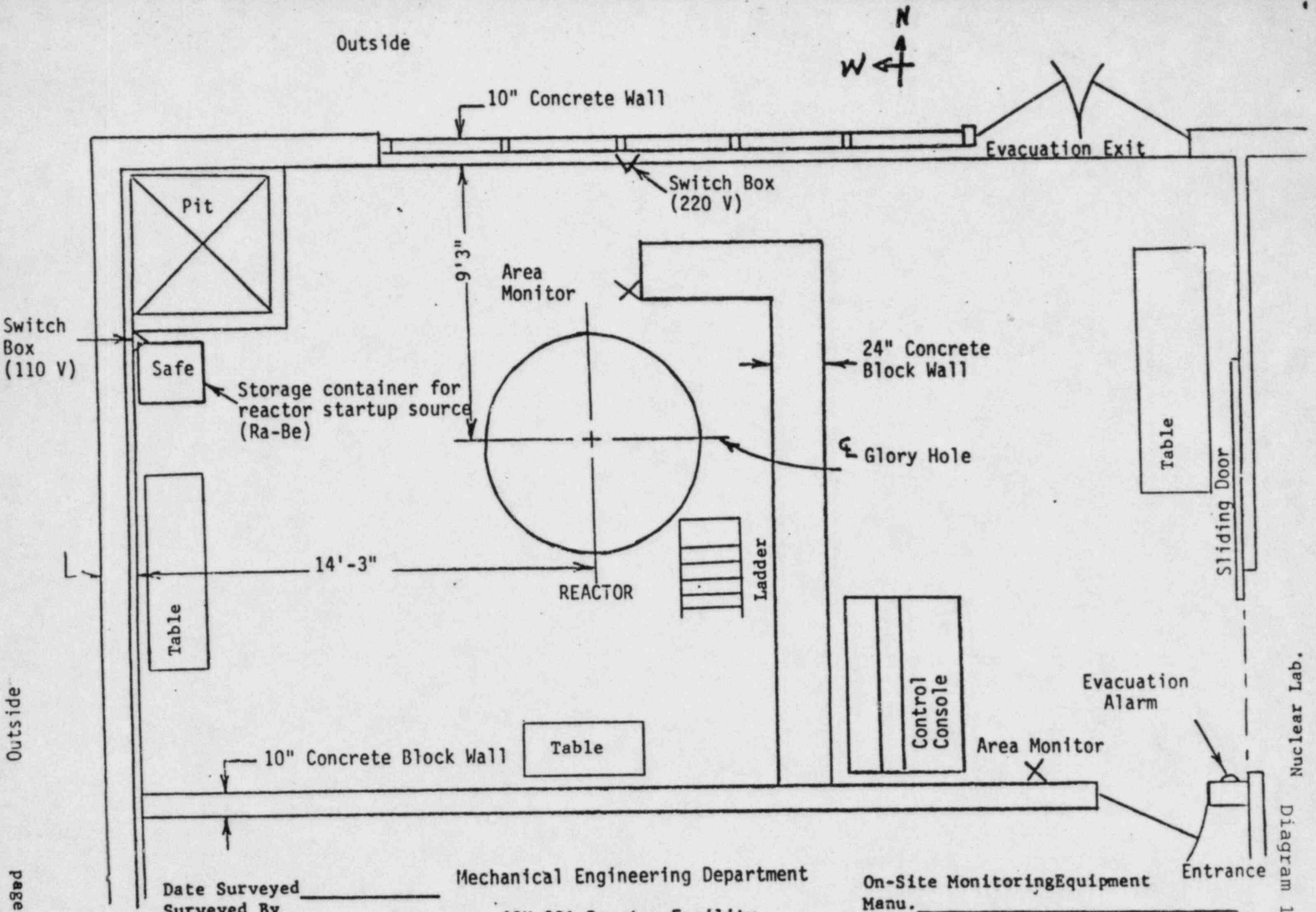


FIGURE 1

VIEW OF AGN-201 REACTOR AND CONSOLE

Figure 1 illustrates a typical set-up of the AGN-201 Reactor and console.

Diagram 1 illustrates the location of the reactor and associated equipment within the Mechanical Engineering building.



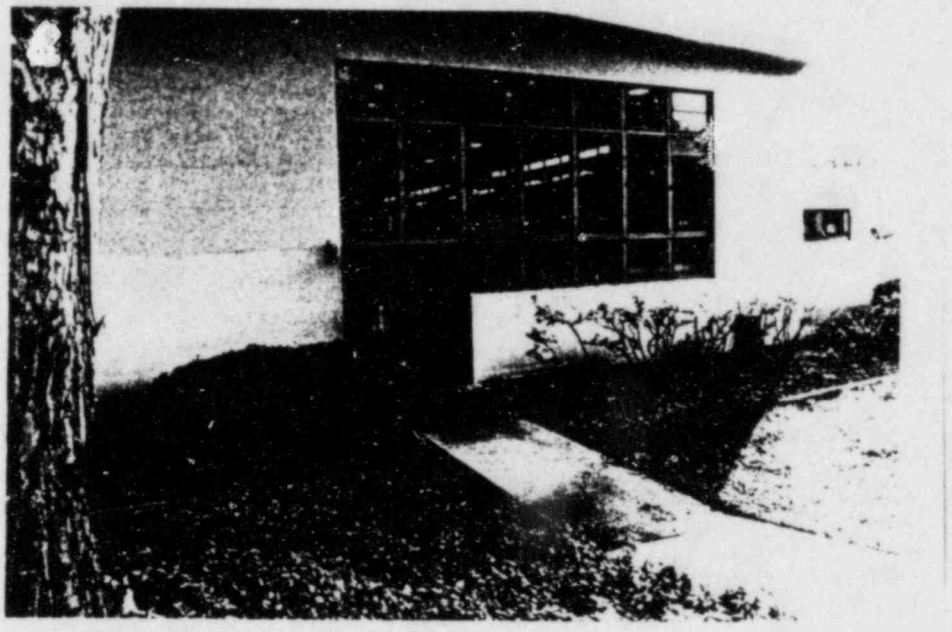
Mechanical Engineering Department

AGN-201 Reactor Facility

Date Surveyed_____
Surveyed By_____
Signature_____

Equipment used for survey:
Manu._____
Model_____SN_____
Comments:

On-Site MonitoringEquipment
Manu._____
Model_____SN_____
Operational Yes No
Manu._____
Model_____SN_____
Operational Yes No



The above picture illustrates the view of the reactor facility and the north wall of the Mechanical Engineering building.

Through the Reactor Safeguard Advisory Committee and the Radiation Safety Officer the fuel of the AGN-201 Reactor was packaged and shipped to the

Dept. of Energy
Oakridge Y-12 plant
Oakridge Operations
Oakridge, Tn.

on April 15, 1983.

To reduce residual contamination or activity to as low as practicable the final phase for removal, packaging and disposal of the remaining reactor components, located in the Mechanical Engineering reactor facility was as follows:

Cal Poly obtained the services of AWC, Inc. a licensed contractor to remove and ship the remaining components of the reactor containing low-level radioactive materials. (See isotopic composition amounts in disposal plan for residual activity in AGN-201 reactor, Attachment 1 and Attachment 2. The contract between AWC, Inc. and California Polytechnic State University, Attachment 3, the proposal furnished by AWC, Inc.)

During the week of June 11, 1984, AWC, Inc. removed, packaged and transported the remaining parts of the AGN-201 Reactor. (See Attachment 4).

The remaining components of the AGN-201 have been shipped by AWC, Inc. for disposal (see Attachment 5).

ATTACHMENT 1

Isotopic Composition, Amounts and Disposal Plan for Residual Activity of AGN-201 Reactor

California Polytechnic State University

Docket No. 50-394

January 6, 1984

A.Z. Rosen, Acting Radiation Safety Officer

Introduction

Following the gamma surveys reported as of July 20, 1983, evaluations of residual contamination and/or activation were carried out. Two components, both shown in Figure 2 of the report of July 20 which were adjacent to the fuel tank have been found to be the source of the radiation levels reported.

1 The graphite liner
2 The steel tank supporting the thermal column

The third group of components of the reactor which were found to have a small residual activity were 4 stainless steel spacers (incorrectly specified as graphite) which supported the fuel in the control rod assemblies.

Analysis of graphite liner

A sample of mass 20.4 g was recovered from the section of the interior cylindrical surface before the area survey showed 35 μR/hr. (See June 20 report - measurement number 14.) This sample was evaluated for gamma energies and activity using an intrinsic germanium detector system. Assuming that the sample taken was representative of the entire graphite liner, we deterrined the following radio-nuclides and activities for the 415 kg hollow graphite cylinder:

Radionuclide	Specific activity (pCi/g)	Total activity (μCi)
Eu-152	3.8 ± .5	1.6
Co-60	11.6 r 1.0	4.8

The total activity assumes that the activity found in the sample near the region of maximum survey result was representative of the total activity in the entire grapite reflector.

Analysis of thermal column tank

Following dissassembly of the thermal column tank, it was found that all the activation resided in the bottom - 1" - thick by - 33" - diameter steel plate. This was evaluated by using a calibrated NaI scintillation counter system moved over the area of the plate. The results of this analysis showed that the maximum activity in the plate was 3 μCi of Co-60.

Analysis of stainless steel spacers

We utilized the highest reading spacer as representative of the four spacers, and obtained the following results by gamma counting on the intrinsic germanium detector against known standards in comparable geometry:

Radionuclide	Individual Spacer Activity (pCi)	Total Activity (μCi)
Cs-137	382 ± 46	1.6×10^{-3}
Co-60	18000 ± 220	8×10^{-2}

Disposal

ATTACHMENT 2

AWC INCORPORATED
NUCLEAR SERVICES

4335 W. Tropicana
Las Vegas, Nevada 89103

Telephone (702) 871-7733
Telecopy (702) 871-1182

February 13, 1984

Mr. Thomas A. Schell, R.S.O.
Radiation Safety Office
Cal-Poly
San Luis Obispo, CA 93407

Dear Tom:

AWC, Inc. is pleased to submit the enclosed proposal for the removal, packaging, and disposal of the AGN-201 research reactor presently located in the Mechanical Engineering Laboratory at Cal-Poly. The proposal provides the details of the proposed scope of work which should be completed within a three week period. The cost of these services will be based on actual time and expenses but have been estimated to be less than $45,908.00.

Also, at your request, we have included the option of keeping the AGN-201 reactor vessel in-place within the Reactor Laboratory but disposing of the other contaminated waste such as the graphite liner, thermal column tank, and the stainless steel spacers. This Option would be completed within a one week period and would cost about $12,543.00.

AWC, Inc. looks forward to the opportunity of providing Cal-Poly with the proposed services. If you have any questions on this proposal or on any other services we may be able to provide, please call me directly at (702) 871-7733.

Sincerely,

Bill

James W. (Bill) Ayres,
President

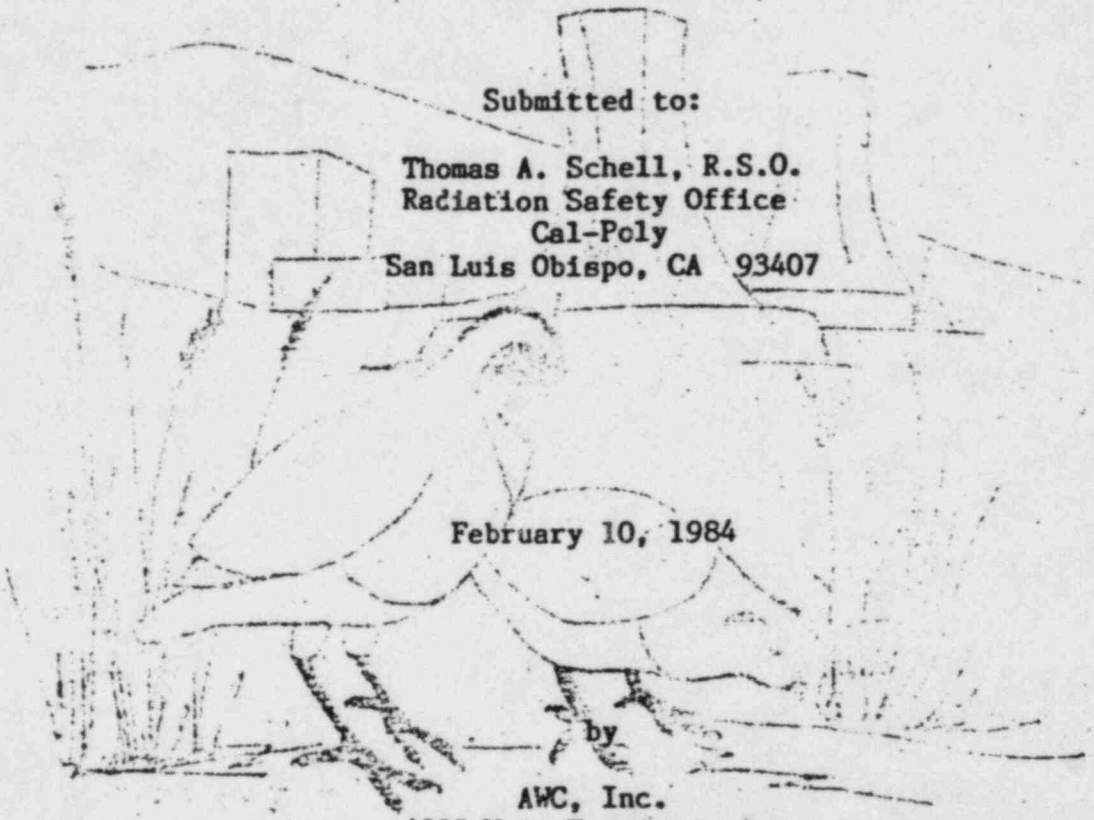
Enclosures: AWC Proposal
AWC Radioactive Materials License

PROPOSAL FOR:

PACKAGING AND DISPOSAL

OF THE

AGN-201 RESEARCH REACTOR



Submitted to:

Thomas A. Schell, R.S.O.
Radiation Safety Office
Cal-Poly
San Luis Obispo, CA 93407

February 10, 1984

by

AWC, Inc.
4335 West Tropicana Ave.
Las Vegas, NV 89103

(702) 871-7733

AWC INCORPORATED

PROPOSAL FOR:
PACKAGING AND DISPOSAL OF THE AGN-201 RESEARCH REACTOR AT CAL-POLY

INTRODUCTION

Cal-Poly of San Luis Obispo has a small research reactor, the AGN-201 which is to be packaged and disposed of as radioactive waste materials. The reactor is presently located in the Mechanical Engineering Laboratory, behind a concrete block wall and concrete shield wall. All uranium fuel has been removed so that only residual contamination and/or activation products remain on the reactor vessel, graphite liner, thermal column tank, and stainless steel spacers.

PURPOSE OF PROPOSAL

AWC, Inc. will provide qualified and experienced personnel to remove and to properly package and dispose of the reactor vessel, graphite liner, thermal column tank, and stainless steel spacers. Any other contaminated equipment, such as the control-rod drive mechanisms and lead bricks used in the reactor, will also be radiologically surveyed and disposed of as radioactive waste as necessary.

SCOPE OF WORK

AWC, Inc. proposes to complete the following work efforts:

1. Removal of Reactor Vessel - In order to remove the reactor vessel

from the North End of the Mechanical Engineering Laboratory, the existing 5 ton overhead crane will be used. Cal-Poly is to furnish and maintain the 5 ton overhead crane. Also, Cal-Poly will provide an electrician to isolate all electrical power from the reactor vessel and the control console.

Concrete shield blocks (2'x2'x3'), about 25 each, must be moved out of the way to gain access to the reactor vessel. The 5 ton overhead crane and a fork lift (e.g. electric fork lift for use indoors) will be used to move these concrete shield bolcks. These concrete blocks are not contaminated and will be moved outside the building and stored in the Equipment Yard for disposition by Cal-Poly. Part of the concrete block wall (8"x8"x16") which separates the Reactor Laboratory from the main Mechanical Engineering Laboratory area will probably have to be removed to permit the movement of the reactor vessel. At this time, it is anticipated that the reactor vessel will be removed intact; but pending height limitations of the overhead crane, the steel tank support stand may be cut and removed from the reactor vessel itself. The reactor vessel will then be packaged to meet U.S. Department of Transportation (DOT) specifications for packages of radioactive materials.

2. Removal of Associated Equipment - In addition, the graphite liner, thermal column tank, and the stainless steel spacers (4 each) will be packaged in approved DOT specification containers. Other equipment such as lead bricks, control-rod drive mechanisms (4 each) and other equipment used for the reactor will be radiologically surveyed, packaged and disposed of as radioactive waste materials, as necessary. All other equipment determined to be non-radioactive will be left in the Reactor Laboratory area for disposition by Cal-Poly.

3. Disposal of Radioactive Waste - AWC, Inc. will provide the required DOT specification containers for all radioactive waste and will properly package such wastes. AWC will make arrangements for the

loading and transport of all radioactive wastes. Disposal will be completed at U.S. Ecology's Richland Disposal Site, Washington. Cal-Poly will obtain a State of Washington "User's Permit" which permits disposal of radioactive wastes in Washington. Also, Cal-Poly will obtain a "Generator's Number" from U.S. Ecology, which is required for the disposal of radioactive wastes at the Richland Disposal Site.

4. AWC, Inc. Health Physics Services - AWC, Inc. will provide experienced Health Physicists to perform the following services as needed: radiation surveys, contamination surveys, on-the-spot monitoring of demolition work, and airborne radioactivity monitoring. All AWC, Inc. personnel will wear whole-body dosimetry badges. AWC, Inc. will provide anti-contamination clothing (e.g., coveralls, booties, gloves, hoods), and respiratory protection devices (e.g., half-face respirator masks), as necessary.

AWC, Inc.'s Health Physicist will coordinate all radiation protection activities and work activities with Mr. Thomas Shell, Cal-Poly's Radiation Safety Officer, in order to ensure that all personnel exposures are kept as low as reasonable achievable (ALARA). Disruption of normal teaching activities within the Mechanical Engineering Laboratory will be kept to a minimum by coordinating AWC's work activities and by working during non-teaching hours such as late in the day or on the weekends.

COST ESTIMATES

AWC, Inc. will complete the removal, packaging, and disposal of the AGN-201 research reactor based on reimbursement for the actual time and materials as follows:

1. Labor Estimate - It is estimated that a four man Rad Waste Disposal Team will be required to complete this work effort within a three week time period. The AWC Disposal Team work effort is based on an 8-hour work day. In order to expedite job completion, longer working days may be used, and the Disposal Team may work during the weekends.

- Supervisor @ $450.00 per day for 15 days = $6,750.00
- Decontamination Specialist @ $350.00 per day for 15 days = $5,250.00
- Health Physics Technician @ $350.00 per day for 15 days = $5,250.00
- Rad Waste Technician @ $375.00 per pay for 15 days = $5,625.00

TOTAL: $22,875.00

2. Travel Time and Expenses - One day travel time from Las Vegas, NV to Cal-Poly at San Luis Obispo, CA and one day travel time for return trip will be required for each of the Disposal Team members. Round-trip airfare is estimated at $300.00 per person. Also, a rental car will be needed for Disposal Team personnel to travel in and around San Luis Obispo during the three week work period.

TOTAL: $5,150.00

3. Per Diem Rate - A Per Diem Rate of $75.00 per day per person will be charged.

TOTAL: $5,700.00

4. AWC, Inc. Furnished Equipment - AWC, Inc. will provide radiation detectors, scaler, air sampler, and anti-contamination clothing as necessary based on actual usage rental charges as follows. Also, every effort will be made to minimize the number of waste containers as well as the overall waste volume; however, a container for each waste item has been included for the purpose of these estimates.

- portable beta/gamma radiation detectors (e.g., pancake probe), two detectors will be needed @ $25.00 per week for 3 weeks = $150.00

- portable gamma radiation detector (e.g., micro-R meter) @ $25.00 per week for 3 weeks = $75.00

- portable alpha radiation detector (e.g., PAC-4G) @ $25.00 per week for 3 weeks = $75.00

- gas flow proportional detector and scaler (for counting alpha and beta swipe samples) @ $35.00 per week for 3 weeks = $105.00

- low-volume air sampler @ $35.00 per week for 3 weeks = $105.00

- electric forklift (for use indoors) for moving concrete shield blocks, wall rubble, reacotr vessel and associated equipment @ $120.00 per day for 13 days = $1,560.00 (Use of Cal-Poly furnished forklift would eliminate this expense.)

- mobile crane to move reactor vessel from Mechanical Engineering Building onto transport vehicle (but only if needed) @ $200.00 per day for one day = $200.00

- miscellaneous equipment and supplies such as DOT Specification Containers for radioactive waste = $1,000.00

TOTAL: $3,270.00

5. RadWaste Transport and Disposal Fees - The costs of transport and disposal fees, as estimated below, for the radioactive waste associated with the disposal of the AGN-201 reactor vessel and equipment will be the direct responsibility of Cal-Poly. -Truck transport from San Luis Obispo, CA to Richland Disposal Site, WA = $2,200.00

- Disposal Fee (reactor vessel, graphite liner, thermal column tank, stainless steel spacers, lead bricks, etc.) @ $18.92 per cu. ft. for 330 cu. ft. = $6,243.30. (This disposal fee of $18.92 is set by U. S. Ecology and is currently in effect; but fee is subject to change and may be higher at actual time of waste disposal.)

- There is a U. S. Ecology surcharge for Heavy Objects of $172.70 plus 9 cents per lb. above 10,000 lbs. Since the reactor vessel weighs 13,300 lbs, this surcharge would be about $469.70 = $469.70.

TOTAL: $8,912.70

6. Total Estimated Cost =

- Actual costs to be reimbursable to AWC, Inc. will be less than $36,995.00

- Actual costs for transport and disposal of radioactive waste (to be paid directly by Cal-Poly) will be about $8,912.70.

- TOTAL ESTIMATED COST = $45,907.70.

OPTION: KEEPING REACTOR VESSEL BUT LIMITED RADIOACTIVE WASTE DISPOSAL

In the event Cal-Poly decides to keep the AGN-201 reactor vessel in-place in the Reactor Laboratory but desires to dispose of the other equipment (e.g., thermal column tank, stainless steel spacers, and graphite liner), the following costs estimates apply:

1. Labor Estimate - It is estimated that a three man Rad Waste Disposal Team will be required to complete this work within a one week

time period.

- Supervisor @ $450.00 per day for 5 days = $2,250.00
- Health Physics Technician @ $350.00 per day for 5 days = $1,750.00
- RadWaste Technician @ $375.00 per day for 5 days = $1,875.00

TOTAL: $5,875.00

2. Travel Time and Expenses - One day travel time from Las Vegas, NV to Cal-Poly at San Luis Obispo, CA and one day travel time for return trip will be required for each of the Disposal Team members. Roundtrip airfare is estimated at $300.00 per person. Also, a rental car will be needed for the Disposal Team personnel to travel in and around San Luis Obispo during the one week period.

TOTAL: $3,550.00

3. Per Diem Rate - A Per Diem Rate of $75.00 per day for each person will be charged.

TOTAL: $1,575.00

4. AWC, Inc. Furnished Equipment - AWC, Inc. will provide radiation detectors, scaler, air sampler, and anti-contamination clothing as necessary based in actual usage rental charges as follows. Also, every effort will be made to minimize the number of waste containers as well as the overall waste volume; however, a container for each waste item has been included for the purpose of these estimates.

- Miscellaneous equipment and supplies such as DOT Specification Containers for radioactive waste - $600.00

- Portable beta/gamma radiation detectors (e.g., pancake probe), two detectors will be needed, @ $25.00 per week for one week = $50.00

- Portable gamma radiation detector (e.g., micro R meter) @ $25.00 per week for one week = $25.00

- Portable alpha radiation detector (e.g., PAC -4G) @ $25.00 per week for one week = $25.00

- Gas flow proportional detector and scaler (for counting alpha and beta swipe samples) @ $35.00 per week for one week = $35.00

- Low-volume air sampler @ $35.00 per week for one week = $35.00

TOTAL: $770.00

5. RadWaste Transport and Disposal Fees - The costs of transport and disposal fees, as estimated below, for only the disposal of the thermal column tank, graphite liner, and stainless steel spacers will be the direct responsibility of Cal-Poly.

- Disposal Fee @ $18.92 per cu. ft. for 25 cu. ft. = $473.00

- Truck transport from San Luis Obispo, CA to Richland Disposal Site, WA = $300.00

TOTAL: $773.00

6. Total Estimated Cost -

- Actual costs to be reimbursable to AWC, Inc. will be less than $11,770.00

- Actual costs for transport and disposal of radioactive waste (to be paid directly by Cal-Poly) will be about $773.00

- TOTAL ESTIMATED COSTS = $12,543.00

RELEASE OF REACTOR LABORATORY FOR "UNRESTRICTED USE"

In the event additional Health Physics services will be required by Cal-Poly in order to complete the necessary radiological surveys of the Reactor Laboratory in order to obtain the NRC's approval for the "unrestricted use" of the area after the reactor vessel has been disposed of, AWC, Inc. will be pleased to provide the personnel or equipment at the rates as quoted above. Such arrangements for additional services may be made at any time and at the convenience of Cal-Poly.

AWC, INC. QUALIFICATIONS

AWC, Inc. has extensive experience in the planning, management, and execution of projects comparable to the work effort required by Cal-Poly, San Luis Obispo for the removal and disposal of the AGN-201 research reactor. AWC, Inc. is a core organization of technical experts with practical experience in the health physics, industrial hygiene, and safety professions. AWC, Inc. has provided professional consulting services to numerous Federal, State, and industrial organizations in the areas of: decontamination and decommissioning; sealed radioactive source disposal; and the handling, packaging and disposing of both low-level and high-level radioactive wastes. AWC, Inc. has recently completed decontamination and decommissioning projects in full compliance with requirements of both the U.S. Nuclear Regulatory Commission (NRC) and the State of California.

AWC, Inc. has a proven record for providing safe, and cost effective programs for the handling, packaging, transport, and disposal of a variety of radioactive waste materials including: the low power research reactor at the University of Iowa in Ames, sealed sources, high-radiation calibration sources, contaminated equipment, large volumes of contaminated soils; all ranging from low-level Type A Quantities to Large Quantities of radioactive materials. As a firm Company policy, AWC, Inc. guarantees compliance with

all State and Federal radiation protection regulations, and compliance with all U.S. Department of Transportation (DOT) regulations regarding the packaging and transportation of radioactive materials.

AWC, Inc. can accomplish the project under the following licenses and permits.

1- Radioactive Material License (License No. 00-16-0112-01, expiration date November 30, 1988) with the Nevada State Board of Health which permits AWC, Inc. to handle, receive, transport and dispose of sources and waste materials. AWC, Inc. will receive "reciprocity" with the State of California and the U.S. NRC to complete all required work at Cal-Poly under its own license; therefore, no ammendments to Cal-Poly's radioactive materials license will be required. A copy of AWC, Inc.'s Radioactive Material License is enclosed.

2. Radioactive waste generator permit with U.S. Ecology; Richland, Washington, Generator #NVR 99-001-6271, User Permit #350 which permits AWC, Inc. to dispose of radioactive sources and waste materials at the Richland Burial Site.

3. Low Level Radioactive Waste (Permit #1350, expiration date January 31, 1985) issued by the State of Washington Department of Social and Health Services, which permits AWC, Inc. to dispose of radioactive sources and waste materials in the State of Washington.

4. ICC authority to transport radioactive materials within the continental United States (Docket No. MC-151069 Sub 6-ITA).

SCHEDULING OF AWC, INC. SERVICES

AWC, Inc. is prepared to provide services for the removal, packaging, and disposal of the AGN-201 reactor vessel and associated equipment upon five (5) working days notice from Cal-Poly. A purchase order must be received by AWC, Inc. prior to initiation of actual services. Arrangements for the scheduling of these services may be made through Greg Eadie at (702) 871-7733. This proposal will be valid for the next 90 day period.

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
SAN LUIS OBISPO, CALIFORNIA 93407
(805) 546-0111

AWC Nuclear Services, Inc.
4335 W. Tropicana
Las Vegas, Nevada 89103

April 17, 1984

Gentlemen:

The following information is directed to your attention regarding your proposal of February 10, 1984, for the packaging and disposal of AGN-201 research reactor and your letter of February 13, 1984.

Enclosed please find Standard Agreement number 156 for the disposal of contaminated waste components of the AGN-201 research reactor.

Please sign the original and all copies of the agreement. Return the copies to this office and retain the original for your files.

Prior to scheduling the work, please contact Thomas Schell, Cal Poly State University, Radiation Safety Officer at (805) 546-2281 to determine starting date and details of the disposal.

Should you have any further questions, please contact me at (805) 546-2231.

Sincerely,

Randall Stoskopf

Randall Stoskopf
Purchasing Supervisor

STANDARD AGREEMENT — APPROVED BY THE ATTORNEY GENERAL

DEPARTMENT COPY

STATE OF CALIFORNIA
STD. 2 (REV. 6/81)

☐ CONTRACTOR
☐ STATE AGENCY
☐ DEPT. OF GEN. SER.
☐ CONTROLLER
☐
☐
☐

THIS AGREEMENT, made and entered into this 12th day of April, 19 84, in the State of California, by and between State of California, through its duly elected or appointed, qualified and acting AFFIRMATIVE ACTION EMPLOYER

TITLE OF OFFICER ACTING FOR STATE	AGENCY	NUMBER
Director of Business Affairs	The California State University Calif. Polytechnic State Univ., San Luis Obispo	SA #156

hereafter called the State, and

AWC NUCLEAR SERVICES, INC.

hereafter called the Contractor.

WITNESSETH: That the Contractor for and in consideration of the covenants, conditions, agreements, and stipulations of the State hereinafter expressed, does hereby agree to furnish to the State services and materials, as follows:

(Set forth service to be rendered by Contractor, amount to be paid Contractor, time for performance or completion, and attach plans and specifications, if any.)

Contractor agrees to dispose of contaiminated waste components of the AGN-201 research reactor located in the Mechanical Engineering Lab (Building #40) on the campus of California Polytechnic State University, San Luis Obispo.

Components to be packaged, removed and disposed of shall consist of the graphite liner, thermal column tank and the stainless steel spacers (leaving the containment vessel) as referenced in Exhibit "A", attached.

Work shall be completed within one (1) week and shall be coordinated with Thomas Schell, California Polytechnic Radiation Safety Officer and Robert Adamson, Mechanical Engineering Department.

Total amount payable on this agreement shall not exceed $12,543.00.

Fair Employment Practices Addendum is made a part of this agreement by attachment.

The provisions on the reverse side hereof constitute a part of this agreement.

IN WITNESS WHEREOF, this agreement has been executed by the parties hereto, upon the date first above written.

STATE OF CALIFORNIA	CONTRACTOR
AGENCY: The California State University Calif. Polytechnic State Univ., San Luis Obispo	CONTRACTOR (IF OTHER THAN AN INDIVIDUAL, STATE WHETHER A CORPORATION, PARTNERSHIP, ETC.): AWC NUCLEAR SERVICES, INC.
BY (AUTHORIZED SIGNATURE): ▶	BY (AUTHORIZED SIGNATURE): ▶
TITLE: James R. Landreth Director of Business Affairs	TITLE:
CONTINUED ON ___ SHEETS, EACH BEARING NAME OF CONTRACTOR	ADDRESS: 4335 W. Tropicana, Las Vegas, Nevada 89103

Department of General Services Use Only

AMOUNT ENCUMBERED: $12,543.00	PROGRAM/CATEGORY (CODE AND TITLE): Dispose contaiminated waste		FUND TITLE: General	
UNENCUMBERED BALANCE: $	(OPTIONAL USE): Public Safety/R. Brug - T.Schell - R. Adamson			
ADJ. INCREASING ENCUMBRANCE: $	ITEM: 6610-001-001	CHAPTER: 324	STATUTE:	FISCAL YEAR: 1983-84
ADJ. DECREASING ENCUMBRANCE: $	OBJECT OF EXPENDITURE (CODE AND TITLE): Public Safety/1-11630-4500			

I hereby certify upon my own personal knowledge that budgeted funds are available for the period and purpose of the expenditure stated above. T.B.A. NO. | B.R. NO.

SIGNATURE OF ACCOUNTING OFFICER: ▶ | DATE

I hereby certify that all conditions for exemption set forth in State Administrative Manual Section 1209 have been complied with and this document is exempt from review by the Department of Finance.

SIGNATURE OF OFFICER SIGNING ON BEHALF OF THE AGENCY: ▶ | DATE

State of California

California Polytechnic State University
San Luis Obispo, California 93407

Memorandum

To : J.R. Landreth
Director of Business Affairs

Date : February 24, 1984

File No.:

Copies : T. Schell

From : R.C. Brug R.C.Brug
Director of Public Safety

Subject: DISPOSAL OF REMAINING RADIOACTIVE PIECES OF THE AGN-201 REACTOR LOCATED IN THE MECHANICAL ENGINEERING DEPARTMENT

Attached is a memo from Thomas Schell, Radiation Safety Officer, as well as a proposal from A.W.C. Incorporated - Nuclear Services for the removal, packaging and disposal of the AGN-201 research reactor. As you know, phase one of the project included the removal of the fuel and shipping for disposal which has been completed.

In reviewing the proposal, please note the cost for total disposal is $45,908. This cost, as stated by T. Schell, is prohibitive in view of the budget situation. I agree that the option to dispose of the graphite liner, the thermal column tank and the stainless steel spacers (leaving the containment vessel) is more realistic (cost, $12,543).

Future work could be done on the containment vessel, if it is found to be absent of radiation. Perhaps it could be cut up as scrap.

I believe that it would be in the best interest of the University to utilize a professional vendor such as A.W.C. Incorporated for the project. All project members are trained, the most sophisticated equipment is available, and they take full responsibility for the removal, packaging, shipping and disposal.

Please let me know your feelings on this matter. It is important that prompt action be taken to remove the reactor and its contents from the University.

T. Schell is available to answer any questions about the proposal or the technique itself. If the decision is to contract for the project, I would recommend that Tom coordinate the program from the University's standpoint.

RCB:da

Attachments

of California

California Polytechnic State University
San Luis Obispo, California 93407

Memorandum

To : Richard Brug, Director of Public Safety

Date : February 20, 1984

File No.:

Copies :

From : Thomas Schell, Radiation Safety Officer

Subject: Disposal of the remaining radioactive pieces of the AGN-201 reactor located in the Mechanical Engineering Department.

After reviewing a proposal submitted by AWC inc. It appears that the disposal of the entire containment vessel and related parts would be cost prohibitive. However, the proposal contains an option, which would be to dispose of the graphite liner, the thermal column tank, and the stainless steel spacers and leaving the stainless steel containment vessel. It appears that the option cost analysis is more realistic than the disposal of the entire containment vessel. Please find attached a copy of the proposal submitted by AWC inc. for your review. I respectfully request any comments or recommendations you may have concerning this final phase of disposal.

Sincerely,

Thomas A. Schell

Thomas A. Schell, RSO

ATTACHMENT 4

AWC INCORPORATED
NUCLEAR SERVICES

4335 W. Tropicana
Las Vegas, Nevada 89103

Telephone (702) 871-7733
Telecopy (702) 871-1182

June 19, 1984

Tom Schell
Radiation Safety Officer
Cal Poly
San Luis Obispo, CA 93407

Dear Tom:

We were pleased to be of service to you for the removal, packaging, and disposal of the various components of the AGN-201 reactor during the week of June 11 to 14, 1984.

In addition to the components as originally contracted for, several items of the core tank were cut out and disposed of as radioactive waste. Included among the items packaged and shipped out for disposal were:

- o thermal column tank
- o graphite liner
- o stainless steel spacers - 4 each
- o steel tank for holding spacers
- o steel plate with rods for spacers
- o bottom steel plate of core tank
  and about 2/3 rds of core tank cylinder

The lead shields, water tank and tank supports were thoroughly surveyed for both fixed and removable contamination. No radiation levels in excess of background levels were measured. No removable contamination in excess of levels set forth the NRC's "Guidelines for Decontamination of Facilities and Equipment" were found (See Attached Swipe Surveys Records). Therefore, we believe that the reactor room facility and all remaining equipment meet the "unrestricted use" criteria; however, as agreed, you should complete a more formal final radiological survey, and issue a final report for the NRC's review and approval.

If we can be of further assistance to you in the areas of Health Physics, Industrial Hygiene, and Safety, please contact me.

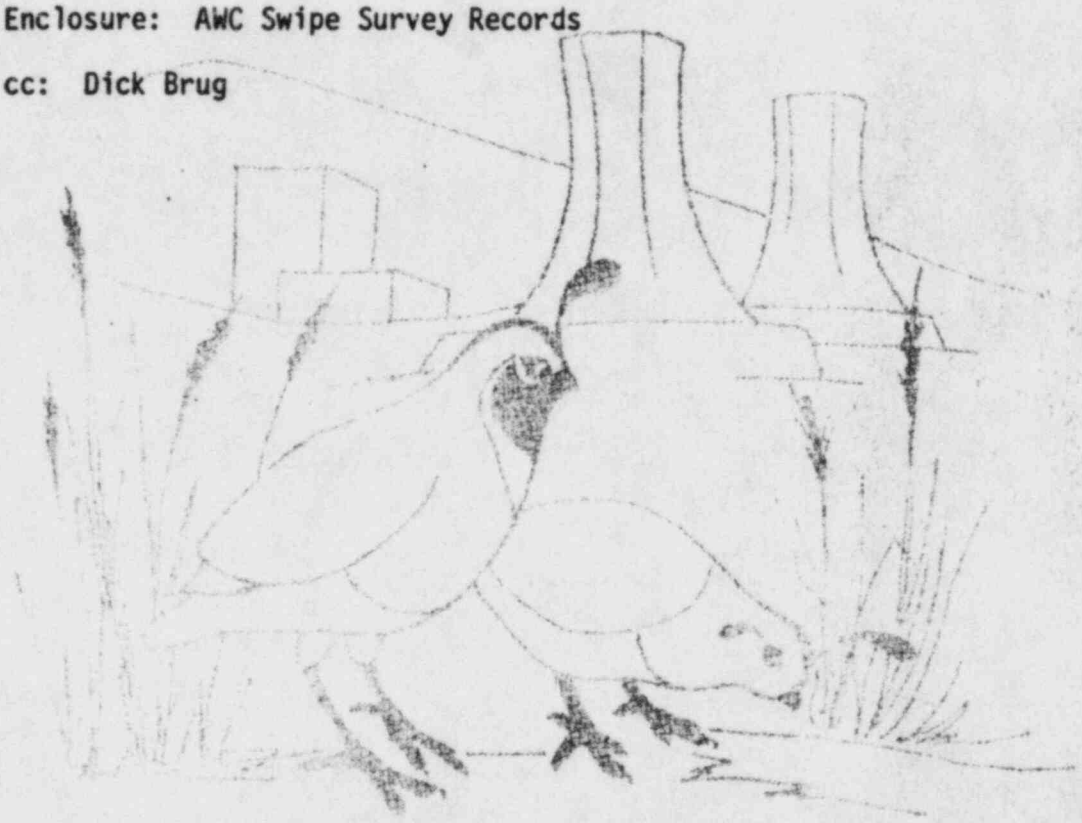
Sincerely

Bill

James W. "Bill" Ayres
President
AWC, Inc.

Enclosure: AWC Swipe Survey Records

cc: Dick Brug



AWC INCORPORATED

2484 South Highland Drive
Las Vegas, Nevada 89103

Instrument ~~Gas~~ Flow Prop. Counter

Serial # 01

6/11/84 to 6/13/84

pp 1

WIPE SAMPLE LOG

Jeff Eadie
R L Walters
D. Haze

Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	BY	REMARKS
1	Thermal Column Tank		1 min	122	105	17	2.5 / 0.5	1.43		
2	inside			97		0		0		
3				113		8		20		
4				120		15		38		
5				95		0		0		
6	Thermal Column Tank			111		6		15		
7	outside			91		0		0		
8				99		0		0		
9				114		9		23		
10				105		0		0		
11	Graphite			100		0		0		
12				94		0		0		
13				91		0		0		
14				87		0		0		
15				101		0		0		
16				107		2		5		
17	Rod Tank			103		0		0		
18				96		0		0		
19				110		5		13		
20				92		0		0		
21	Rods			95		0		0		
22				155		50		125		
23				105		0		0		

DPM = (CPM - Bkg CPM) Eff. Factor

TECHNICIAN

3084 South Highland Drive
Las Vegas, Nevada 89103

Instrument _____

Serial # _____

(2)

WIPE SAMPLE LOG

Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	BY	REMARKS
24	Rods		1 min	140	105	35	2.5 0.5	1 88		
25	Rod Box Inside			92		0		0		
26	Floor Vessel			92		0		0		
27	Ramp			115		10		25		
28				95		0		0		
29				92		0		0		
30	Passage Way			114		9		23		
31				92		0		0		
32				107		2		5		
33	Floor Control			103		0		0		
34	Side			85		0		0		
35				111		6		15		
36				108		3		8		
37				102		0		0		
38				99		0		0		
39				85		0		0		
40				112		7		18		
41	Hallway			112		7		18		
42	"			89		0		0		
43	Lid Thermal Column Tank			103		0		0		
44	Rod Plunger			112		7		18		
45				89		0		0		
46				88		0		0		

DPM = (CPM - Bkg CPM) Eff. Factor

3084 South Highland Drive
Las Vegas, Nevada 89103

Instrument _____

Serial # _____

(3)

WIPE SAMPLE LOG

	Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	B Y	REMARKS
	47	Rod Plungers		1 min	98	105	0	2.5	0		
	48	Flow through shield			82		0		0		
	49	Gas Detector			106		1		3		
	50	CAN TOP			104		0		0		
	51	Top Lead Ring			109		4		10		
TOP 1 2 3 4 Body	52	Inside top lead ring			82		0		0		
	53	Container around 1st ring			99		0		0		
	54	Bottom 2nd Ring			99		0		0		
	55	Bottom 3rd Ring			108		3		8		
	56	Bottom 4th Ring			102		0		0		
	57	Bottom Plate			104		0		0		
	58	#1 Vessel Piece			95	97	0		0		Vessel cut to Remove
	59	inside			95		0		0		Hot plate cut into
	60	↓			90		0		0		3 pieces
	61	↓			83		0		0		
	62	outside			90		0		0		
	63	↓			85		0		0		
	64	↓			102		5		13		0
	65	#2 inside			79		0		0		
	66	↓			108		11		28		
	67	↓			109		12		30		
	68	↓			90		0		0		
	69	outside		↓	110	13		↓	33		

DPM = (CPM - Bkg CPM) Eff. Factor

TECHNICIAN

[illegible], Inc.
3084 South Highland Drive
Las Vegas, Nevada 89103

Instrument _____

Serial # _____

(4)

WIPE SAMPLE LOG

Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	By	REMARKS
70	# Vessel 2		1 min.	103	97	6	2.5	15		
71	Base of vessel			98		1		3		
72	inside			92		0		0		
73				96		0		0		
74				100		3		8		
75				99		2		5		
76				93		0		0		
77	outside			90		0		0		
78				95		0		0		
79				97		0		0		
80				99		2		5		
81				94		0		0		
82	AIR FILTER 41 cu. ft.			105	97	8		20		7.8×10^{-12} μCi/cc MPC (Co-60) = 9×10^{-9}
83	Floor By			92		0		0		
84	Console			75		0		0		
85				93		0		0		
86	floor outside inside door			98		1		3		
87	"			116		19		48		0
88				98		1		3		
89				95		0		0		
90				97		0		0		
91				100		3		8		
92				109		12		30		

DPM = (CPM - Bkg CPM) Eff. Factor

3684 South Highland Drive
Las Vegas, Nevada 89103

Instrument _____

Serial # _____

(5)

WIPE SAMPLE LOG

BO

Sample No.	Location or Description	Sample: Gross Cnts	Sample: Count Time	Sample: Gross CPM	Bkg CPM	Net CPM	Eff. Factor	DPM	B γ	REMARKS
93	Water tank outer wall		1min	91	97	0	0.5	0		
94	Tubes			110		13		33		
95	Tubes			105		0		0		
96	Tubes			101		9		23		
97	Floor behind console			97		0		0		
98	Top of filing cabinet			90		0		0		
99	Floor by water tank			97		0		0		
100	Floor by water tank			108		11		28		
101	base of tank			94		0		0		
102	floor by tank			109		12		30		
103	inside tank.			105		8		20		

DPM = (CPM - Bkg CPM) Eff. Factor

TECHNICIAN

State of California

California Polytechnic State University
San Luis Obispo, California 93407

Memorandum

To : J.R. Landreth
Director of Business Affairs

Date : 25 June 1984

File No.:

Copies : T. Schell

From : R.C. Brug RCBrug
Director of Public Safety

Subject: CAMPUS REACTOR REMOVAL PROGRAM

As you know, all radioactive materials from the reactor have been removed and transported to Washington state for disposal. The consultants did additional work to remove all radioactive materials which will save additional work in the future.

I have contacted Mr. Emile Garcia of the N.R.C. and indicated that our final report will be completed and sent the middle of July. When he receives it, he will schedule a final inspection by his office. If the inspection proves positive, as I feel it will, the remaining apparatus can be scraped on campus.

I have received the report from Gregg Eadie of A.W.C. Inc., the group who did the work. This information will be incorporated in the final report.

Hopefully, Tom Schell will be back to complete the report. I will keep you posted on our progress. All who worked on the project did a great job. All safety precautions were taken tests made, and procedures followed which made for a smooth removal.

RCB:da

AWC INCORPORATED
NUCLEAR SERVICES

4335 W. Tropicana
Las Vegas, Nevada 89103

Telephone (702) 871-7733
Telecopy (702) 871-1182

July 6, 1984

Tom Schell
Radiation Safety Officer
Cal Poly
San Luis Obispo, CA 93407

Dear Tom:

Enclosed is the "Radioactive Waste Shipment & Disposal Manifest" for the AGN-201 reactor components which were packaged and taken to Southwest Nuclear Co., Pleasanton, California for ultimate disposal at U.S. Ecology's Richland, Washington Disposal Site.

If we can be of further service to you, please let me know.

Sincerely,

Gregory G. Eadie

Gregory G. Eadie

cc: Dick Brug
Enclosure: Radwaste Manifest

GENERATOR NUMBER CAD 009 - 449.5 - 5102

(1) GENERATOR NAME: CALIFORNIA POLYTECHNIC State University
ADDRESS: SAN LUIS OBISPO, CA
CITY: SAN LUIS OBISPO STATE: Calif ZIP: 93407
CONTACT: Thomas Shell PHONE: 805-546-2281
USER PERMIT #: B-2519 SHIPMENT #: 560-1

(2) BILL DISPOSAL CHARGES TO: BROKER
NAME: PURCHASE ORDER #:
ADDRESS:
CITY: STATE: ZIP:

REV. 1/84

RADIOACTIVE WASTE SHIPMENT & DISPOSAL MANIFEST

US ECOLOGY, INC.

EXECUTIVE OFFICE: (502) 426-7160
P.O. BOX 7246 • LOUISVILLE, KENTUCKY 40207

RECEIVED JUL 10 1984

PAGE 1 OF

USE THIS NO. ON ALL CONTINUATION PAGES → 48960

(3) AGENT/BROKER: Southwest Nuclear Co.
BROKER'S US ECOLOGY #: CAR 9.9 DO.1 9226
ADDRESS: 7066-A Commerce Circle
CITY: Pleasanton STATE: CA ZIP: 94566
CONTACT: T. Dias PHONE: 415-462-3580
BROKER SHIPMENT #: BROKER USER PERMIT #:
Thomas P. Dias 6-14-84
Broker's Authorized Signature Acknowledging Waste Receipt Date

(4) CONSIGNED TO:
☒ P.O. BOX 638, Hanford Reservation, Richland, WA 99352, 509-377-2411
☐ P.O. BOX 578, HWY 95, 12 m. So. of Beatty, NV 89003, 702-553-2203
☐ OTHER:
CONTACT:
ADDRESS:
CITY: STATE:
PHONE:

(5) CARRIER: AWC SHIPPING DATE: 6-14-84
CARRIER EPA # (if any):
ADDRESS: 4335 W. TROPICANA
CITY: LAS VEGAS STATE: NV. ZIP: 89103
PHONE: 702-871-7733
CASK TYPE: N/A CASK SURFACE EXPOSURE RATE: N/A mR/hr

TOTAL FOR EACH CLASS # OF PACKAGES	TOTAL FOR EACH CLASS WEIGHT (Pounds)	PROPER SHIPPING NAME & HAZARD CLASS (PER 49 CFR 172.101)	ID NUMBER
[redacted]			UN2908
			UN2910
			UN2911
			UN2912
			UN2913
			UN2915
			UN2916
			UN2917
			UN2978
			UN2980
			UN2978

SHIPMENT TOTALS (DO NOT WRITE IN SHADED AREAS)

(7) VOLUME (cu ft)	TOTAL # OF PACKAGES	SOURCE MATERIAL (kgs)	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	PLUTONIUM	TOTAL
4cuft	1	.0303				

ACTIVITY

ACTIVITY TOTALS:	TRITIUM	C-14	Tc-99	I-129	ALL ISOTOPES
☐ Curies					
Millicuries ☒ (10CFR20.311)					0.01

(8) THIS IS TO CERTIFY THAT THE HEREIN-NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED, AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND ARE IN COMPLIANCE WITH ALL REQUIREMENTS APPLICABLE AT THE DESIGNATED DISPOSAL SITE, AND THAT THE MATERIALS ARE CLASSIFIED AND DESCRIBED IN ACCORDANCE WITH THE REQUIREMENTS OF NCRP, PART 61 AND PART 20.311 OR EQUIVALENT STATE REGULATIONS.

James A Vaclavik Supervisor of Institutional Support 6/13/84
Authorized Signature Title Date

TERMS AND CONDITIONS

A. TITLE: Upon inspection and acceptance at the disposal site by US Ecology and all appropriate regulatory authorities, title to the Waste which conforms to Company's representations herein shall thereupon transfer from the Customer and be vested in US Ecology.

B. WASTE PRODUCTS: Customer represents and warrants that data set forth in this Radioactive Waste Shipment & Disposal Manifest is true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and the designated facility license.

C. INDEMNIFICATION: Customer agrees to indemnify US Ecology, its officers, employees and agents against all loss and liability whatsoever if such loss or liability results from the failure of the Waste to conform in all material respects to the data supplied on the Radioactive Waste Shipment & Disposal Manifest or this shipment fails to meet the standards prescribed by the Department of Transportation or any other governmental agency having jurisdiction over such matters.

FOR US ECOLOGY'S USE ONLY

TYPE OF CONTAINER	CONTAINER VOLUME CU. FT.	# OF PKGS.	CU. FT. PER CONTAINER TYPE
[redacted]			
OVERPACK			
55			
30			
5			
OTHER			
[redacted]			
1st SIZE			
2nd SIZE			
3rd SIZE			
[redacted]			
OTHER			
OTHER			
SHIPMENT TOTALS			

LOAD EVALUATION

CHECK ALL THAT APPLY TO THIS LOAD. DESCRIBE INADEQUACIES IN COMMENT SECTION:

- ☐ Manifest Waste Description Inadequate
- ☐ Contamination or Leakage Detected
- ☐ Unexpected Exposure Rates Detected
- ☐ No Violations Detected on this Load
- ☐ Bracing Inadequate
- ☐ Labels, Markings, etc. Inadequate
- ☐ Container Integrity Inadequate
- ☐ Other

DESCRIBE THE EXTENT OF ANY VIOLATION CHECKED ABOVE AND THE REMEDIAL ACTION TAKEN:

☐ CHECK HERE IF A SUPPLEMENTAL REPORT IS ATTACHED

BURIAL DATA

CONTAINER SEPARATION: L, L, L

(Code all that apply to this load.)

CODES: 0= soil (DWM) ... 1, 4*= waste (DWM) ... 2

10*= between upright containers (Burial) ... 3

15*= soil (Dictating agent 1% by volume) ... 4

Other ... 5; No requirement ... 6

WASTE DESCRIPTION	HAZARD RATING	CLASS A	CLASS B	CLASS C
DEPTH IN PIT				

Date Received:

Date Disposed:

Trench No.:

☐ This material meets licensed limits.
☐ This material was disposed of in accordance with license.

AUTHORIZED INITIALS:

US ECOLOGY INVOICE #:
US ECOLOGY STATION #:
US ECOLOGY MANIFEST #:
US ECOLOGY RECEIPT #:

BATES #

CUSTOMER COPY

GENERATOR NO. CAD 09-445-5102

GENERATOR NAME: California Polytechnic State Univ.

AGENT/BROKER: AWC, Inc.

US ECOLOGY, INC.

CONTINUATION SHEET

REV. 1/84

RECEIVED JUL 1 0 1984

MANIFEST # 48960

PAGE 2 OF 2

[illegible]	Container Type	Container Volume (cu ft)	Container Weight (pounds)	Physical Form	Waste Description	Solidification or Absorbent Media	Chemical Form/ Chelating Agent (10CFR20.311)	[illegible]	Radionuclide (10CFR20.311)	Activity ☐ Curies ☒ Millicuries (10CFR20.311)	D.O.T. Sub-Type	[illegible]	[illegible]	Waste Class	Stability	Radiation Levels mR/HR: Container Surface	[redacted]	Radiation Levels mR/HR: At 1 Meter	Transport Index	Fissile Class	D.O.T. Label
84-1	4x4x4	69	2220	SOLID	2	NA	METAL	NA	Co 60	0.01	A1	NA	.0303	A	U	0.08	[redacted]	0.05	.1	NA	Radioactive - EXEMPTED PER
	WOOD																				Radioactive - 49 CFR 173.421
	BOX																				Radioactive -

1		69	2220	PAGE TOTALS						0.01		.0	.0303

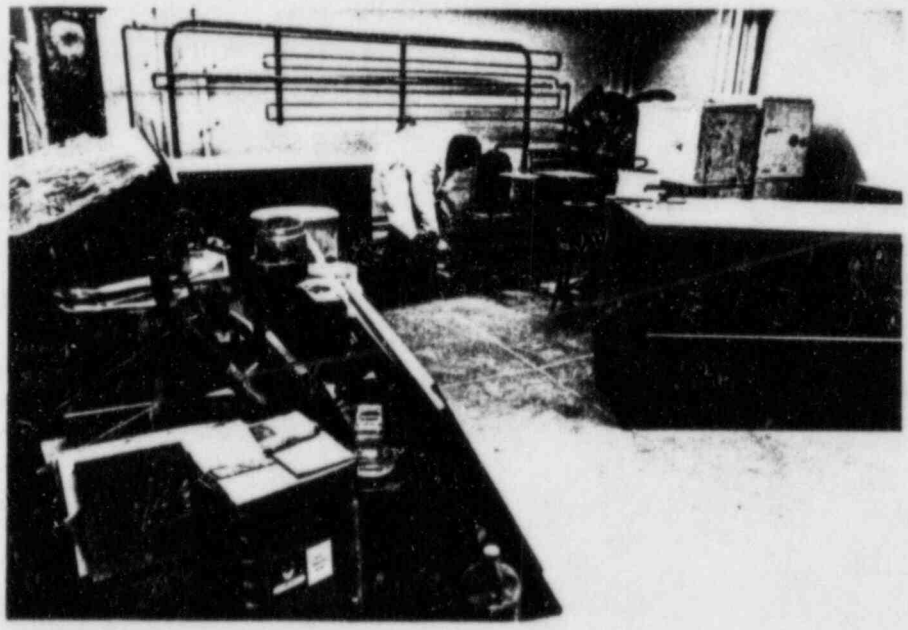
CUSTOMER COPY

Referencing the United States Nuclear Regulatory Guide 1.86, termination of operating licenses for Nuclear Reactors, a final survey was performed at the reactor facility located at Cal Poly. The survey was divided into 2 subunits.

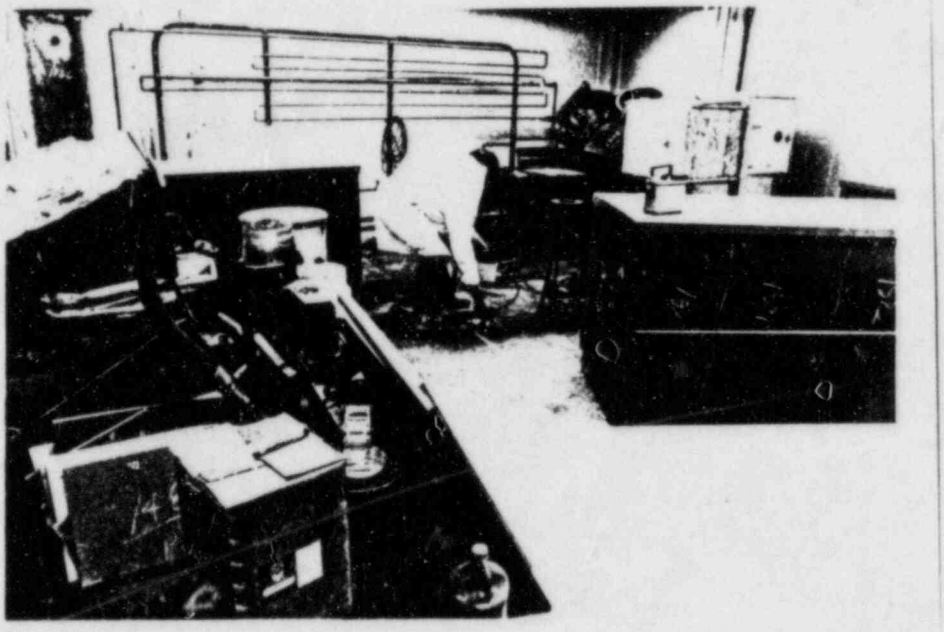
Number 1, Lower surfaces comprised of floor surfaces, wall surfaces up to the height of 2 meters, any other surface easily accessible to the surveyor standing on the floor, and all associated equipment and materials located in the reactor facility.

Number 2,Upper surfaces, ceiling surfaces and wall surfaces more than 2 meters above the floor, all surfaces not discussed in 1 demonstrated on the rectangular grid system diagram are illustrated in the walls and ceiling diagrams, attached.

The floors and lower walls were divided by a rectangular grid system and were physically marked off by chalk lines. The 74 blocks each measured approximately 1.5 x 1.5 meters. The surface area within the grid system was surveyed for beta gamma radiation levels and direct alpha levels.



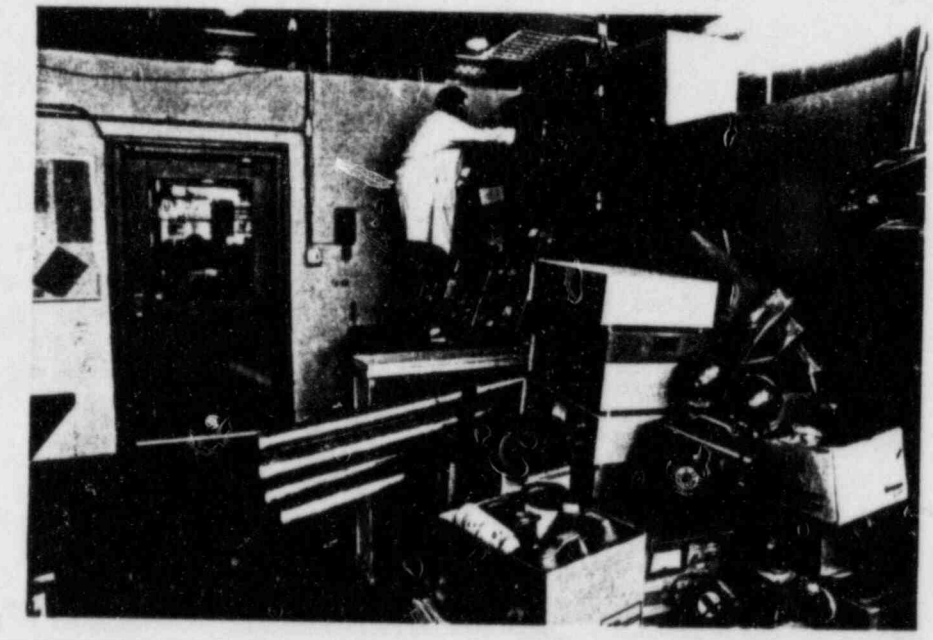
The above picture demonstrates the procedure used for surface surveying with the Ludlum micro-R meter.

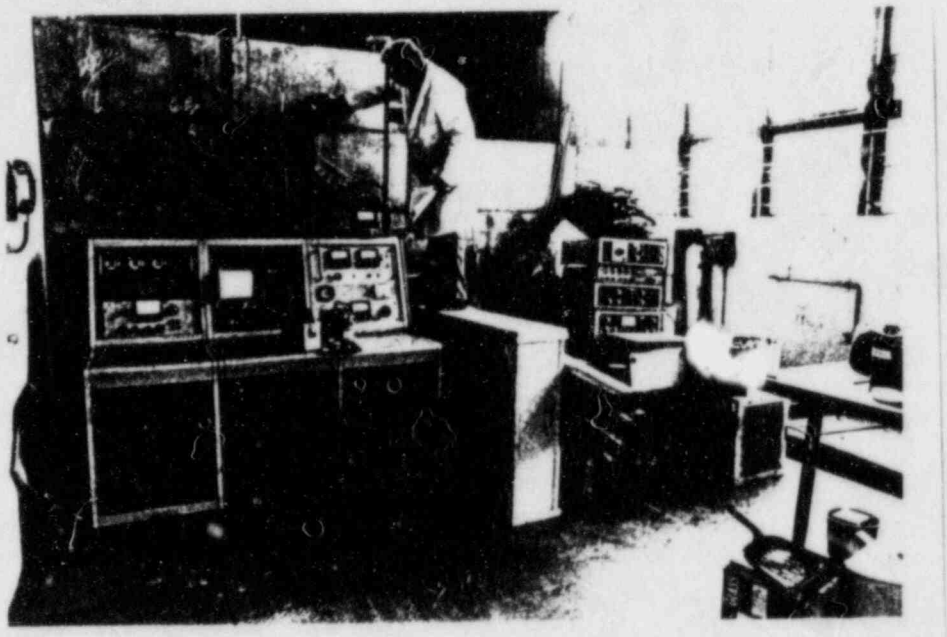


The above picture demonstrates the grid system procedure used with the Eberline PRS for surface surveying.

At the start of the survey a designated floor area was surveyed and used to stack movable objects after they were surveyed. Each object was surveyed with the Ludlum Model 12-S micro R meter and the Eberline Model HP-210 G.M. pancake probe.

Upon completion of a physical survey of each object a smear survey was taken and the objects labeled for reference. Smear surveys were taken at five locations within the 1.5 x 1.5 surface grid. Four smears were taken in the four quadrants of the grid and one taken in the center of the grid square.

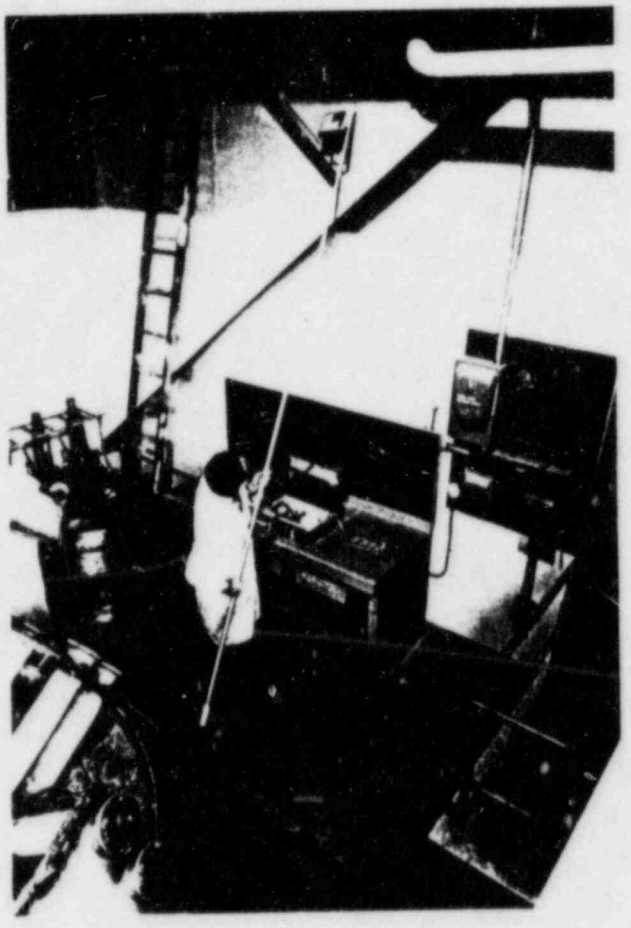


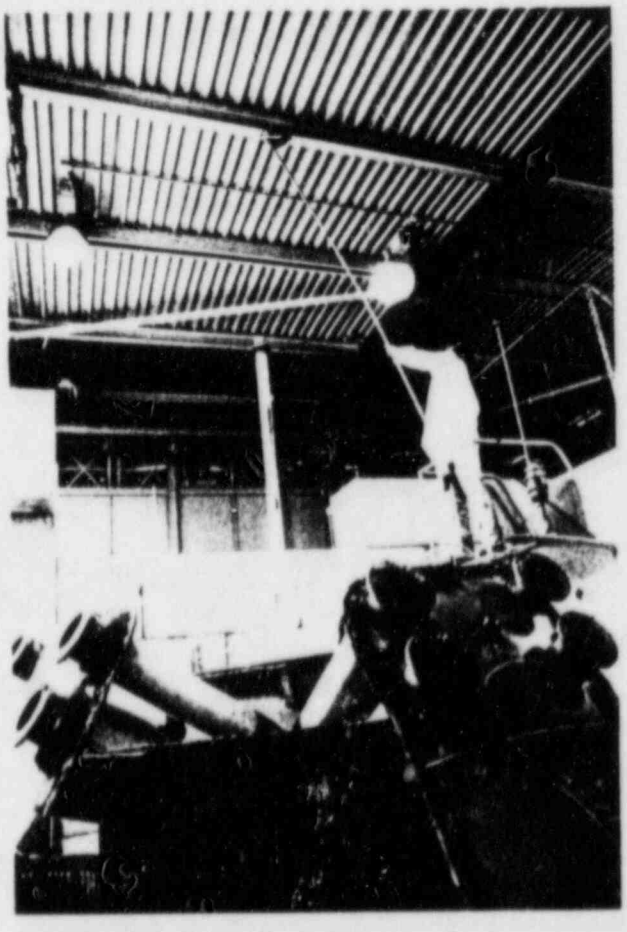


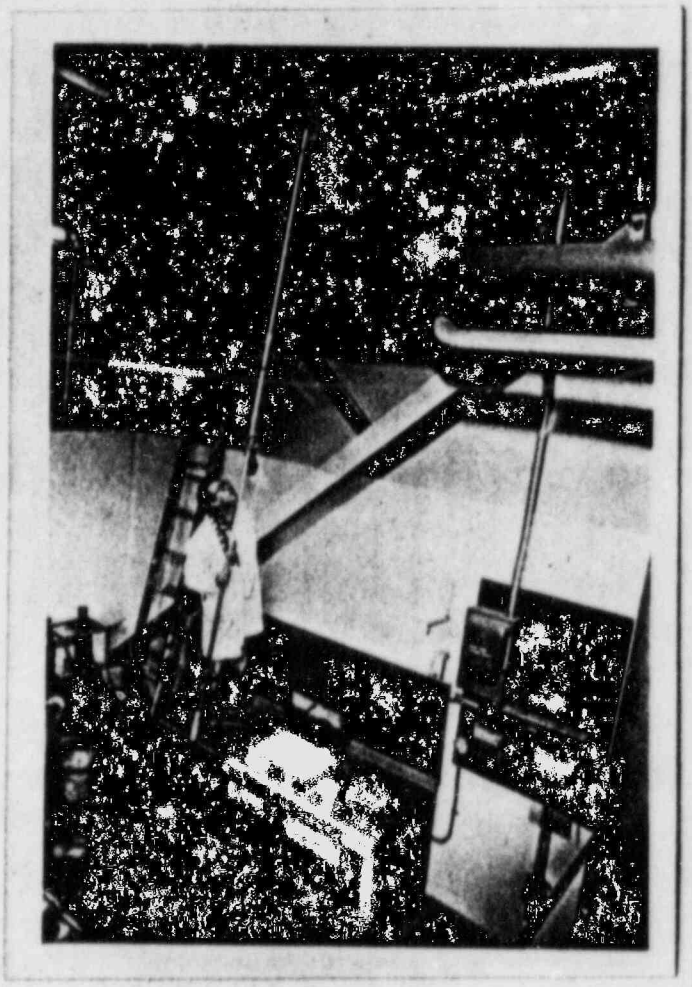
The 3 pictures illustrate the procedure used to survey wall surfaces up to a height of 2 meters.

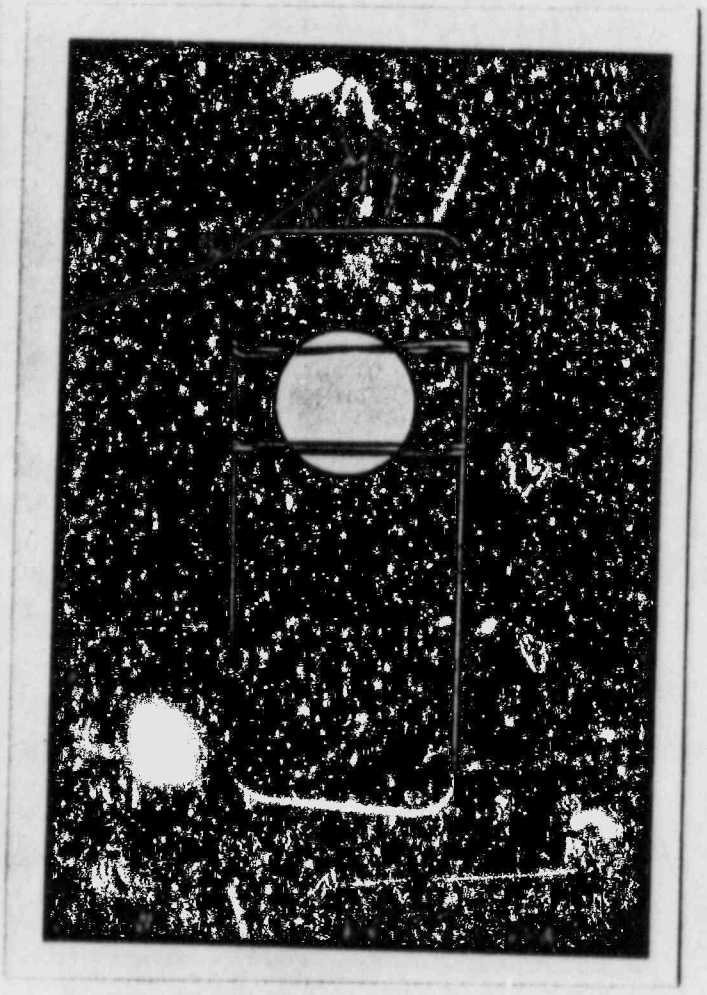
The surface area was surveyed first with a Ludlum micro-R meter, then surveyed with the Eberline PRS-1 and HP 210 G.M. probe. 5 smears were taken of the surface areas inside the grid square and the area was marked with chalk indicating the number of smear samples.

The upper surfaces, ceiling surfaces and wall surfaces more than 2 meters above the floor were surveyed by hand held instruments where applicable. Those surface areas not accessible due to various conditions were surveyed with the instruments attached to an extension pole, as illustrated in the following 3 pictures.

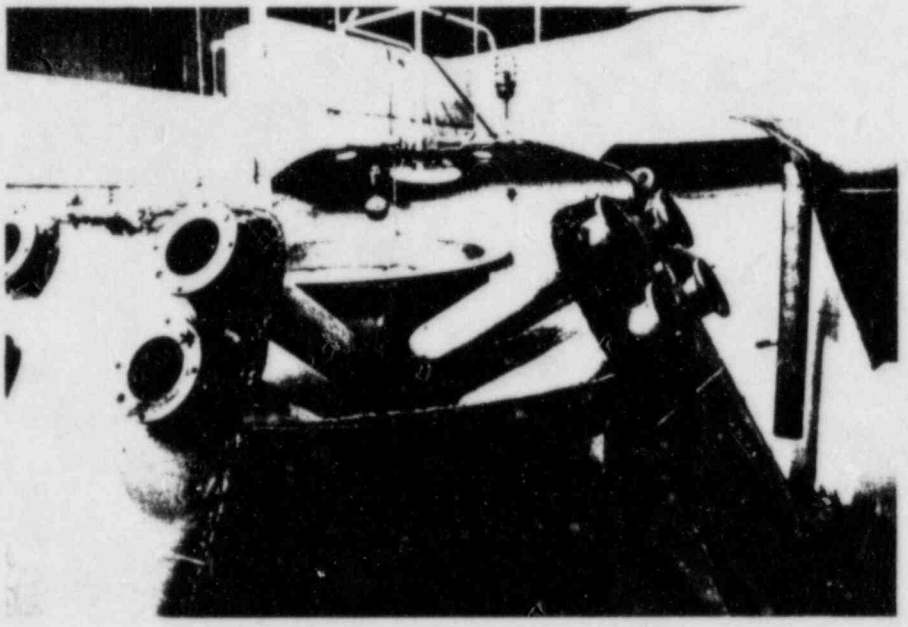


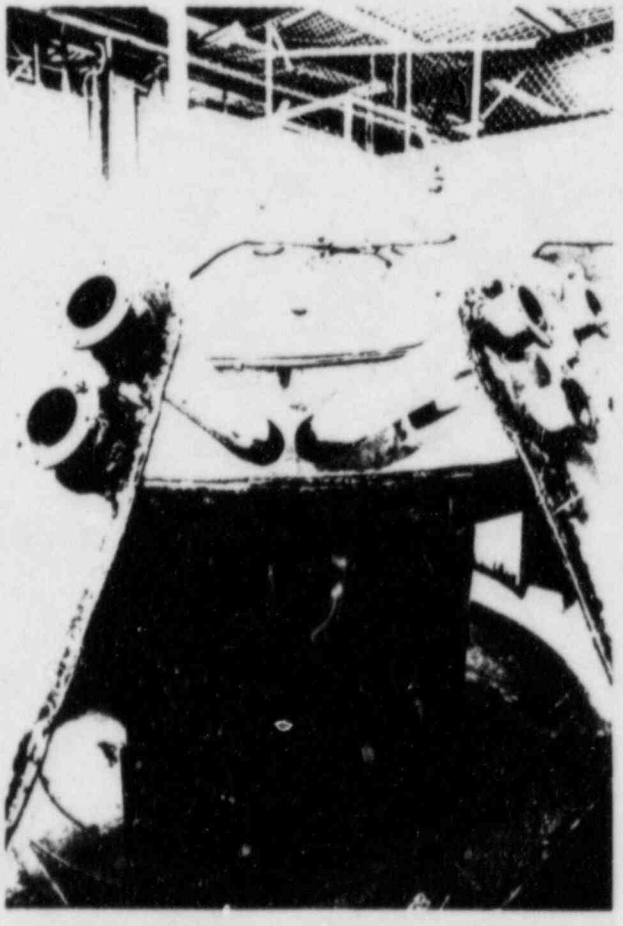


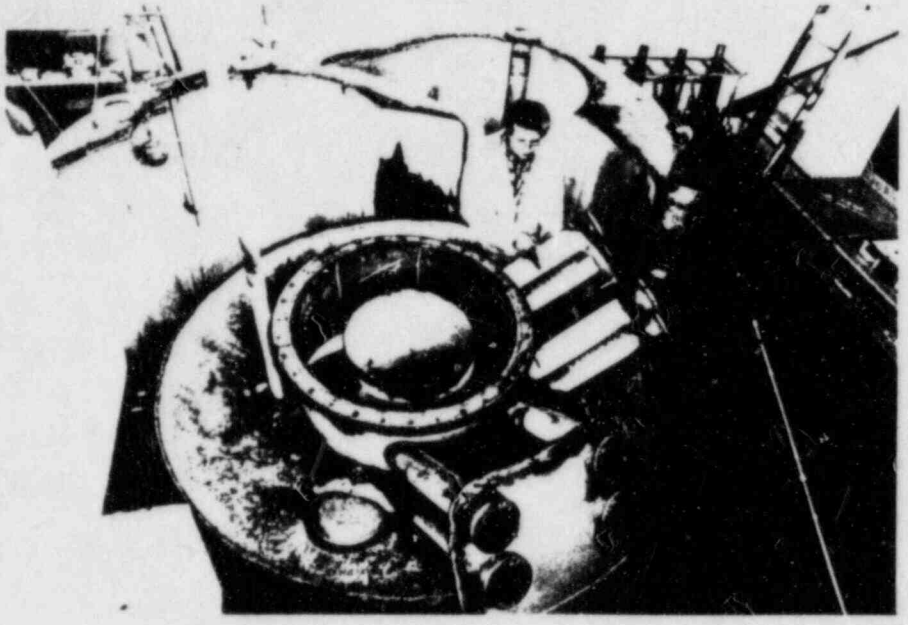




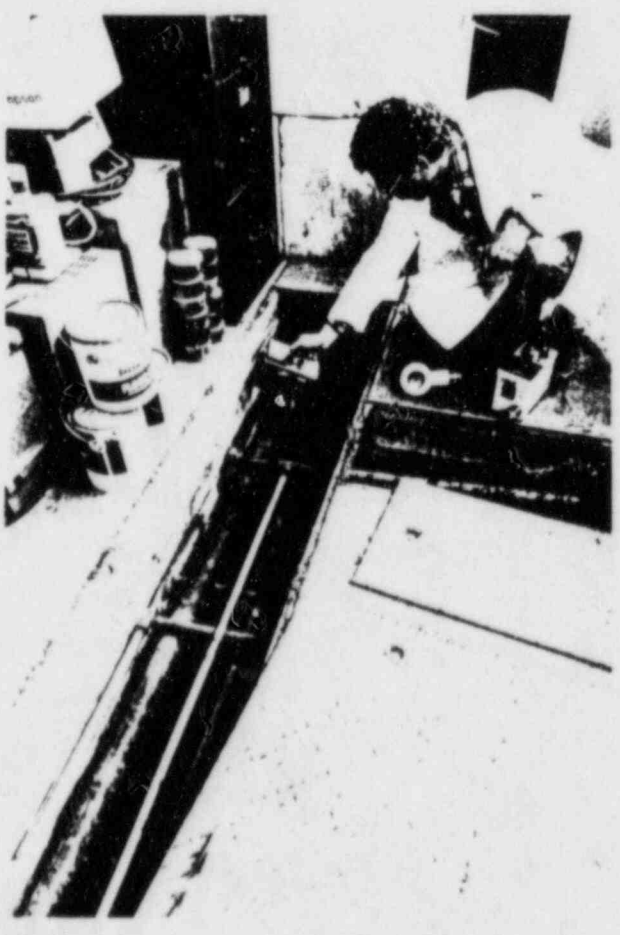
The above pictures illustrate the method used for obtaining smear samples of hard to reach surfaces utilizing a window washer and a Whatman 2" diameter paper filter.

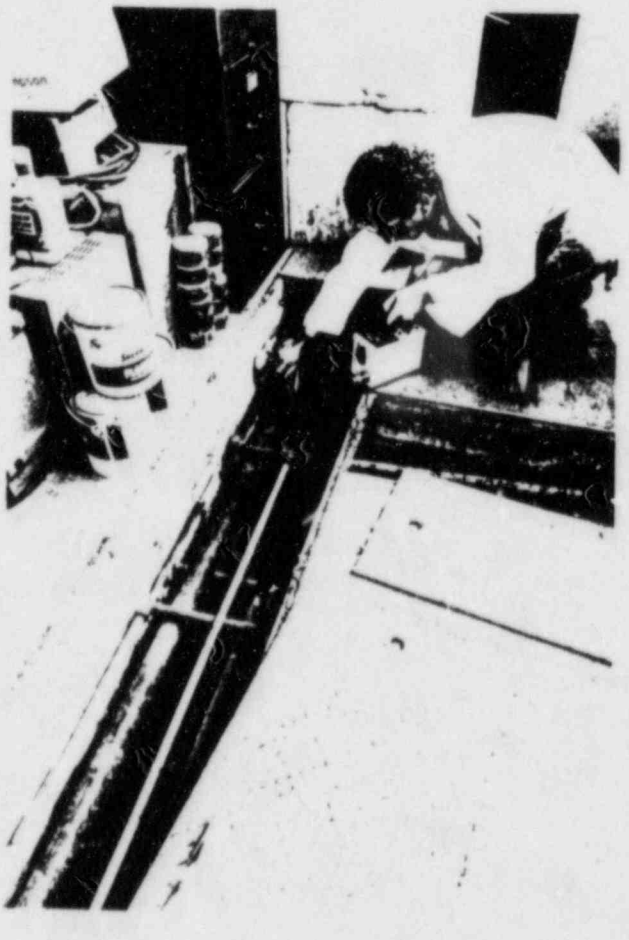






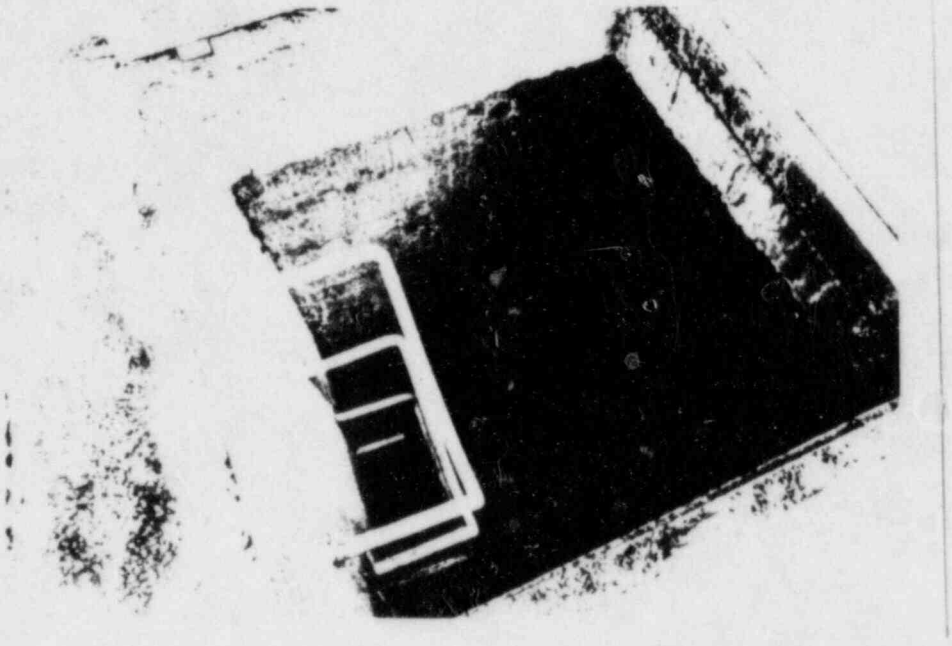
The 3 pictures illustrate the remainder of the AGN-201 reactor after removal of the steel tank for holding spacers, steel plate with rods for spacers, and bottom steel plate of the core tank. The remaining parts of the reactor were marked off with chalk and each section surveyed for gross beta gamma and direct alpha levels. Smears were taken of the marked off sections and accessible openings of piping.





The pictures illustrate piping and pipe chases surveyed.

Along with smear samples taken of the surface areas, water samples and soil samples were taken for analysis.



The picture illustrates a sump located on the outside of the Mechanical Engineering building, located at the Northwest corner and is in common with the inside sump illustrated by the pictures.

both sump areas were surveyed and soil and water samples taken for analysis. (See attached Lab report form Art Rosen, Phd. and printouts).

All smears were counted in a Harshaw Gas Flow proportional counter. A gas of 10% methane and 90% argon and windows with a thickness of 1.28 mg/cm^2 were utilized. 3,147 smear samples were counted. One smear sample indicated contamination on a small 1" diameter washer which was removed from the facility and will be disposed of through the normal radioactive waste disposal program at Cal Poly. All other smear samples counted showed background or less than background. (Hex washer sample #584, see surface contamination monitoring records for details).

All gamma readings taken with the Ludlum micro R meter indicated ±3 micro R from background readings of 9 micro R per hour. Indicator readings shown by the Eberline Model PRS-1 and model HP 210 GM probe in counts per minute at contact or a few millimeters from the surface showed no detectable activity above background. A supportive survey was performed on the reactor parts utilizing the Eberline model PRS-1 and a ZnS alpha crystal model AC-3 showing no detectable activity. Soil and water samples were analyzed by the Physics department using a Germanium detection system showing comparable data to normal environmental samples. (For details consult the attached laboratory report and printout).

Upon evaluating the survey data it appears that there is no residual contamination or radioactive material remaining in the reactor facility.

Thomas A. Schell
Radiation Safety Officer
Cal Poly State University

Tom

Here are the analyses of the "Soil" - Sump & Pipe Clam & "Water" - Sump & Pipe Clam

The only very slight abnormality with respect to "normal" collection sites is a slight excess of Cs-137 (Chinese bomb test origin) ~~—~~ We always get some in soil - upper limit 0.16 pCi/g - This sample was .24 ± .06 pCi/g The excess of K-40 is probably due to vegetable matter in the sump.

Please give me a call if any questions.

Art R.

P.S. Would you complete your check in & wipes on the Cs-137 source?

****

NOTICE OF ABNORMAL NUCLIDE ACTIVITY

Comparison to soil from sediment collection site

RUN I.D.:.....S5G01 LIVETIME:..... 1:0:0

THE Th-234 PEAK AT 92.6 (kev) IS LOW, .441	+or- .432	pCi/g	✓	OK
THE Pb-212 PEAK AT 238.6 (kev) IS LOW, .355	+or- .062	pCi/g	✓	OK
THE Pb-214 PEAK AT 352 (kev) IS LOW, .282	+or- .061	pCi/g	✓	OK
THE Ac-228 PEAK AT 911.1 (kev) IS LOW, .28	+or- .121	pCi/g	✓	OK
THE Tl-208 PEAK AT 2614.5 (kev) IS LOW, .129	+or- .055	pCi/g	✓	OK
THE Cs-137 PEAK AT 661.6 (kev) IS HIGH, .242	+or- .056	pCi/g	[illegible]	
THE K-40 PEAK AT 1460.8 (kev) IS HIGH, 15.946	+or- 1.305	pCi/g	[illegible]	

Ac-228 S.N. PEAK AT 338.481 (kev) IS DETECTED. .233 +or- .152 pCi/g
Bi-214 S.N. PEAK AT 609.607 (kev) IS DETECTED. .311 +or- .077 pCi/g

END

****

Radionuclide Analysis Program

Spectrum I.D. S5G01

85-01-02-11:07

S5G01 2479 ME SOIL-SUMP & PIPE CHASE

Collection Start Date. . 84-12-10-14:00 Count Start Date . . . 84-12-14-13:02
Collection Stop Date . . 84-12-10-14:00

Clock Time . . . . . 3601 s Live time . . . . . 3600 s

Reactor . . . . . 1 MCA Select Code 11
Library Name . . . . . GSOIL1 Sample Volume . . . . . 604.5000 g
Geometry code . . . . . 450M-0 Detector Number 1
Operator's Initials . . . . . MNM Yield 1.0000

Energy(kev)= .53+ 1.000*Ch+ 0.000E+00*Ch^2+ 0.000E+00*Ch^3 on 84-12-14-09:02

EFF=1/[1.133E-02*En^(-3.104E+00)+ 1.578E+02*En^(9.728E-01)] on 84-08-06-09:24

where En=Energy in Mev.

Peak Search Parameters

Peak Sensitivity . . . . . 3.00 Maximum Channels per Peak. . . . 10.00
Peak Termination Fraction . . . 1.010 Library Resolution 1.50

APPLIED PHYSICAL TECHNOLOGY, INC.
Radionuclide Analysis Program

Initial Peak Search

Peak #	Energy (keV)	Address Channel	Net Counts	Error Counts 1.96 s	CL Counts 2.33 s	Channels In Peak	Isotope	Flag
1	62.89	62.39	51	33	29	3	Th-234	Below CL
2	75.82	75.32	267	61	44	6	Pb-XRAY	
2	75.82	75.32	267	61	44	6	Pb-XRAY	Mult. ID
3	185.77	185.33	87	37	29	5	U-235	
3	185.77	185.33	87	37	29	5	Ra-226	Mult. ID
4	238.86	238.44	349	56	33	8	Pb-212	
5	295.04	294.64	60	27	21	4	Pb-214	
6	338.48	338.10	40	26	20	5	Ac-228	Below CL
7	351.81	351.43	146	32	18	5	Pb-214	
8	462.71	462.38	33	21	15	5	Ac-228	Below CL
9	510.47	510.16	70	22	13	5	ANNIHIL	
9	510.47	510.16	70	22	13	5	Co-58	Mult. ID
9	510.47	510.16	70	22	13	5	Ru-106	Mult. ID
10	583.14	582.86	84	26	16	7	Tl-208	
11	609.61	609.34	117	29	15	8	Bi-214	
12	661.63	661.39	163	29	12	6	Cs-137	
13	726.78	726.57	23	14	10	3	Bi-212	Below CL
14	797.67	797.49	25	23	15	10	-	Below CL
15	911.33	911.20	45	19	13	4	Ac-228	
16	968.62	968.51	27	14	9	3	Ac-228	
17	1120.62	1120.58	25	18	13	6	Bi-214	Below CL
18	1460.41	1460.52	597	49	8	8	K-40	
19	2612.60	2613.21	26	11	4	7	-	No ID

Tl-208

****

NOTICE OF ABNORMAL NUCLIDE ACTIVITY

Compare To water from nearest collection site

RUN I.D.:.....S4A01 LIVETIME:..... 3:0:24

THE Pb-214 PEAK AT 352.6 (kev) IS LOW, -4.736 +or- 7.734 pCi/l OK
THE Tl-208 PEAK AT 2614.5 (kev) IS LOW, 1.916 +or- 4.543 pCi/l OK!

BKG

THE Cd-114 PEAK AT 558.2 (kev) IS HIGH, 4.646 +or- 2.466 pCi/l OK!

Pb-212 S.N. PEAK AT 238.554 (kev) IS DETECTED. 8.03 +or- 4.558 pCi/l

END

****

California Polytechnic State University
Radioanalytical Facility, Physics Department

Radionuclide Analysis Program

Spectrum I.D. S4A01

85-01-01-15:42

S4A01 2479 ME SUMP AND PIPE CHASE

Collection Start Date. . 84-12-10-14:30 Count Start Date . . . 84-12-14-13:02
Collection Stop Date . . 84-12-10-14:30

Clock Time . . . . . 10824 s Live time . . . . . 10824 s

Reactor . . . . . 1 MCA Select Code 1
Library Name . . . . . GSEN13 Sample Volume . . . . . 3.9000 l
Geometry code . . . . . 4LMB-0 Detector Number 1
Operator's Initials . . . . . AZR Yield 1.0000

Energy(kev)= .53+ 1.000*Ch+ 0.000E+00*Ch^2+ 0.000E+00*Ch^3 on 84-12-14-09:02

EFF=1/[2.493E-02*En^(-3.281E+00)+ 4.444E+02*En^(8.683E-01)] on 84-08-06-12:39

where En=Energy in Mev.

Peak Search Parameters

Peak Sensitivity . . . . . 3.50 Maximum Channels per Peak. . . . 15.00
Peak Termination Fraction . . . 1.010 Library Resolution 2.00

APPLIED PHYSICAL TECHNOLOGY, INC.
Radionuclide Analysis Program

Initial Peak Search

Peak #	Energy (keV)	Address Channel	Net Counts	Error Counts 1.96 s	CL Counts 2.33 s	Channels In Peak	Isotope	Flag
1	92.30	91.81	80	34	27	4	Th-234	
2	185.82	185.37	50	23	18	3	U-235	
2	185.82	185.37	50	23	18	3	Ra-226	Mult. ID
3	238.55	238.13	41	23	18	4	Pb-212	Below CL
4	510.91	510.60	91	24	12	6	ANNIHIL	
4	510.91	510.60	91	24	12	6	Co-58	Mult. ID
4	510.91	510.60	91	24	12	6	Ru-106	Mult. ID
5	558.65	558.37	27	14	9	5	Cd-114	
6	595.84	595.57	14	11	8	3	Ge-74	Below CL
7	1084.06	1084.00	12	13	7	12	-	Below CL
8	1103.48	1103.43	10	8	5	4	-	Below CL
9	1495.25	1495.38	7	6	3	3	-	Below CL
10	1801.07	1801.33	5	5	2	3	-	Below CL
11	2222.05	2222.49	31	14	6	9	Doubt RF	

EQUIPMENT USED FOR RADIATION SURVEY

The Eberline mo. PRS-1 #493 and H.P. 210 probe in the straight scaler mode with the speaker on, was used to do surface surveys. If any increase in counts per minute were suspected while surveying the PRS-1 was switched to the rate scale and an integrated reading was obtained.

With the unit on Rate Scale and 1.74 assigned as an efficiency factor to the integration circuit, background was read as a mean average of 41 cpm and integration efficiencies demonstrated as follows:

Th-230 #CS-11 $\bar{x}$ 24440 dpm; Reading = 4046 cpm-62cpm = 3984 cpm
3984 cpm / 24440 dpm = 16.3% of 2π

Sr-90 #P-142 $\bar{x}$ 8600 dpm; Reading = 4670 cpm - 62 cpm = 4608 cpm
4608 cpm / 8600 dpm = 53.58% of 2π

Co-60 #P-141 $\bar{x}$ 3595 dpm; Reading = 1800 cpm-62cpm = 1738 cpm
1738 cpm / 3595 dpm = 50.42% of 2π

With the model AC-3 alpha probe and the PRS-1 in the rate mode; 2.98 assigned to the integration circuit, the integration efficiencies demonstrated was as follows:

Am-241 #P-36 $\bar{x}$ 188000 α/min; Reading = 187583 cpm - 0 cpm B.G.
187583 cpm - 188000 α/min = 99.78% of 2π

The Ludlum was standardized in a Lead Cave which has been measured at 3.5 R/hr. This measurement was obtained by the Physics department using T.L.D. monitoring (Bulbs). For Calibration of the model 12S see attached Calibration records.

LUDLUM MODEL 12S MICRO R METER

1. GENERAL: The Ludlum Model 12S Micro R Meter utilizes an internally mounted 1" x 1" Na(Tl) scintillator which offers optimum performance in counting low level gamma radiation. The instrument is designed to be completely self-contained and utilizes two "D" size batteries for power. The instrument is suitable for operation in detecting gamma radiation from radioactive isotopes.

   The instrument will respond to radiation from x-ray machines and pulsed radiation sources, but special techniques must be used to determine maximum time instrument reading when exposed to this type of radiation.

   This instrument is the choice for rapid surveys of very low level radiation., It is very sensitive to gamma energy. When it is exposed to low energy gamma predominantly, the reading will be high. Readings can be corrected by referring to energy independent instruments such as ion chambers.

   Four range scales are provided to select the most desirable range in the 0 to 3000 Micro R/Hr spectrum. The meter face has one scale, 0 to 3 Micro R/Hr with X1, X10, X100 and X1000 range multipliers.

   The instrument is capable of using either standard carbon zinc batteries or the nickel cadmium rechargeable batteries. However, the Model 12S does not include circuitry for recharging batteries. The BAT test scale is provided to check the status of the batteries when the range selector switch is moved from OFF to BAT position.

   All controls, including a calibration potentiometer for each range, are located on the front panel. The two "D" cell batteries are located in an isolated compartment and easily changed from the front panel. The meter is housed in a rugged, 2-piece, aluminum bezel with a gasket seal.

2. SPECIFICATIONS

   LINEARITY is plus or minus 5% full scale.

   HIGH VOLTAGE can be varied from 400 to 1500 volts DC and is electronically regulated to within $\pm$ 1%.

   CALIBRATION STABILITY is less than 5% variance to battery end-point.

   BATTERY LIFE exceeds 100 hours when using standard flashlight "D" cells.

   AUDIO OUTPUT consists of a built-in unimorph speaker with an ON-OFF switch provided on the front panel.

2., continued

COUNTING RANGES are derived from a 3-Micro R/Hr scale with four range multipliers of X1000, X100, X10 and X1.

METER is a 50 micro-amp, 2 1/2 inch scale, pivot-and-jewel suspension.

DETECTOR consists of an RCA 6199, coupled to a 1" x 1" NaI(Tl) scintillator, mounted inside the instrument housing.

FINISH of the istrument is of drawn-and-cast aluminum fabrication with brown, epoxy paint and silk-screened nomenclature.

SIZE is 6.4 inches by 3.5 inches by 7.0 inches (H x W x L exclusive of handle).

WEIGHT is 4.5 pounds.

3. DESCRIPTION OF CONTROLS AND FUNCTIONS

Range Multiplier Selector Switch is a 6-position switch marked OFF, BAT, X1000, X100, X10, X1. Turning the range selector switch from OFF to BAT position provides the operator a battery check of the instrument. A BAT check scale on the meter provides a visual means of checking the battery-charge status. Moving the range selector switch to one of the range multiplier positions (X1000, X100, X10, X1) provides the operator with an overall range of 0 to 3000 Micro R/Hr. Multiply the scale reading by the multiplier for determining the actual scale reading.

AUDIO ON-OFF Toggle Switch in the ON position operates the unimorph speaker, located on the left side of the instrument. The frequency of the clicks is relative to the rate of the incoming pulses. The higher the rate is, the higher the audio frequency. The audio should be turned OFF when not required to reduce battery drain.

Fast-Slow Toggle Switch provides meter response. Selecting the "F" position of the toggle switch provides 90% of full scale meter deflection of 3 seconds. In "S" position, 90% of full scale meter deflection takes 11 seconds. Set on "F" for fast response and large meter deviation. "S" position should be used for slow response and damped meter deviation.

RES Button, when depressed, provides a rapid means to drive the meter to zero.

Hand Probe, Model HP-210

GENERAL DESCRIPTION

The Model HP-210 Hand Probe is a rugged, sensitive detector for monitoring beta (β) radiation. This hand probe offers a G-M tube with a thin mica window, a large open area protected by a sturdy wire screen which allows useful sensitivities for β energies down to about 40 keV. The probe is also alpha sensitive. It is ideal for contamination control when used as a personnel frisker, or to monitor tables, floors, equipment, etc. The high-density tungsten shield makes it possible to monitor for low levels of β radiation in a gamma field. When monitoring in a low level radiation field, an optional aluminum probe housing may be used in place of the tungsten shield for considerable weight reduction.

The Model HP-210 Hand Probe may be used on any Eberline +900 V portable instrument or laboratory monitor.

SPECIFICATIONS

OPERATING VOLTAGE: 900 ±50 V.

PLATEAU LENGTH: 100 V minimum.

PLATEAU SLOPE: 0.1%/V maximum.

DEAD TIME: 50 μseconds maximum.

TEMPERATURE RANGE: -30°C to +75°C.

LIFE: Unaffected by operation.

MICA WINDOW THICKNESS: 1.4 to 2.0 mg/cm^2.

MICA WINDOW SIZE: 1-3/4 inch (4.45 cm) dia., 2.4 inch^2 (15.5 cm^2) area.

SERIES RESISTOR (in probe): 3.3 MΩ.

GAMMA SENSITIVITY (^{137}Cs into window): Approximately 3600 counts per minute (cpm) per mR/h.

SHIELDING RATIO (front to back ^{60}Co): Approximately 4:1.

*BETA EFFICIENCY (1 inch dia. source):

^{90}Sr-^{90}Y (E_{max} 0.54 - 2.2 MeV): Approximately 45% of 2π emission rate.
^{99}Tc (E_{max} 0.29 MeV): Approximately 30% of 2π emission rate.
^{14}C (E_{max} 0.15 MeV): Approximately 10% of 2π emission rate.

ALPHA SENSITIVITY: 3 MeV or higher at mica window.

CONNECTOR: BNC series coaxial.

SIZE: 6-1/2 inches long x 3-1/2 inches wide x 3-7/8 inches high (16.5 x 8.9 x 9.8 cm).

WEIGHT: 4-1/4 pounds (1.9 kg) with shield, 1-1/2 pounds (0.7 kg) without shield.

SHIELD: High density tungsten.

*All efficiencies with screen in place. Removal of screen will increase given efficiencies by approximately 40%.

Model SH-4A continued on the following page.

eberline P.O. Box 2108, Santa Fe, New Mexico 87501 (505) 471-3232 TWX: 910-985-0678

September 1980

B. SPECIFICATIONS

Active Area: 9.1 inch^2 (59 cm^2) within 5-3/4 inch x 2 inch (14.6 x 5.1 cm) sampling area.

Window Thickness: 1.5 mg/cm^2 aluminized plastic film.

Efficiency: From a 1 inch dia. source or from 59 cm^2 of a large area distributed ^{239}Pu source, 2π geometry.

-7 window: 28% minimum, 31% typical.

-8 window: 18% minimum, 20% typical.

Sensitivity: From a large area ^{239}Pu source.

-7 window: Typically 2 x 10^7 cpm (counts per minute) per μCi/cm^2 (9 cpm per disintegration per minute/cm^2).

-8 window: Typically 1.3 x 10^7 cpm per μCi/cm^2 (5.9 cpm per dpm/cm^2).

Uniformity: No single reading from a 1 inch dia. ^{239}Pu source deviates more than ±12% from the average reading.

Plateau: With 1 inch dia. ^{239}Pu source, typically 200 V long.

Scintillator: ZnS(Ag) powder embedded in tape.

Operating Voltage: Optimum voltage depends on phototube characteristics, cable length, input impedance and sensitivity of counter. Maximum voltage is +1600 V.

Operating Current: 110 MΩ dynode string yields nominal 10 μA drain at 1100 V.

Temperature Range: -40°F to +140°F (-40°C to 60°C).

Connector: Special Eberline waterproof connector (CJ-1). Mating connector is Eberline Model CP-1.

Size: Approximately 11-1/2 inches long x 2-3/4 inches wide x 3-1/4 inches high (29.2 x 7 x 8.3 cm).

Weight: 1 pound 6 ounces (0.62 kg).

Copy to
Department Rad Safety
Date Sent

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Calibration of Radiation Monitoring and Survey Instruments

Form 3
Rev 2-84

Date 8-22-84 Calibrated by T. Schell

Instrument: Type Ludlum Name Micro R meter

Manufacturer/Model no. ~~Fitle~~ Ludlum Measurements /125

Probe: Manu./Model no. Internal Thickness — mg/cm²

Department Public Safety Serial no. 16062 Inv. no. 043981

Batteries required 2-D cells

Batteries replaced (date) 8-22-84 or checked (date)

Calibration Source

Source Number	PS-1	P-26	
Isotope	Cs-137	CO-60	
Activity or emission rate	120 mCi	.426 mCi	
As of (date)	4-16-84	1-1-79	
Half life, τ	360 mo.	5.263 yr	
Time elapsed, t (months)	4 mo.		
Present Activity	120 mCi.	0.203 mCi	
Intensity or emission rate	109.5 mR/h @ 60 cm	0.268 mR/hr @ 100 cm	

Calibration

Source No.	Distance d(cm)	Scale Range Setting	Scale range from:	to:	~~Time Const~~ Attenuator	Reading	Calculated* µR/hr	Per Cent Reading (+) or (-)
PS-1	400	X1000	0	3	NO	2.5	2464	+1.5
	200	X1000	0	3	yes	1.0	988	+1.2
	400	X 100	0	3	yes	2.4	247	-2.8
	600	X 100	0	3	yes	1.1	110	—
P-26	300	X10	0	3	NO	3.0	29.8	+.67
	500	X10	0	3	NO	1.1	10.7	+2.8
	330	X10	0	3	NO	2.2	21.88	

*Method of Calculation Background .007 mr/hr

	X1 Scale Standardized in Lead Cave
	@ 3 µR/hr.

Calibration checked and verified:

8-22-84 Radiation Safety Officer

Copy to _____

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Department _____

Date Sent _____

Form 3
Rev 2-84

Calibration of Radiation Monitoring and Survey Instruments

Date 7-6-84 Calibrated by T. Schell & Art Rosen

Instrument: Type Ludlum Name Micro R Meter

Manufacturer/Model no. Ludlum 125

Probe: Manu./Model no. — Thickness — mg_2/cm

Department Rad. Safety Serial no. 16062 Inv. no. 043981

Batteries required 2-D Cells

Batteries replaced (date) 7-6-84 or checked (date) _____

Calibration Source

Source Number	P-26		
Isotope	Co-60		
Activity or emission rate	5 mCi		
As of (date)	4-11-60		
Half life, τ	63.176		
Time elapsed, t (months)	291.0		
Present Activity	.2055 mCi		
Intensity or emission rate	.2712 6 mR/hr @ 1m		

Calibration

Source No. P-26	Distance d(cm)	Scale Range Setting	Scale range from:	to:		Reading mR/hr.	Calculated* mR/hr	Per Cent Reading (+) or (-)
	40	X1000	0	3		1.6	1695.4	-5.63
	70	X1000	0	3		.5	553.6	-9.68
	100	X100	0	3		2.7	271.3	-0.48
	200	X100	0	3		.7	67.8	+3.24
	400	X10	0	3		1.7	16.9	+0.59
▼	500	X10	0	3		1.1	10.9	+0.92

*Method of Calculation

Background .007 mr/hr

	X1 scale standardized in Lead Cave
	@ 3 mR/hr.

Calibration checked and verified:

7-1-84 Thomas A. Schell

HARSHAW

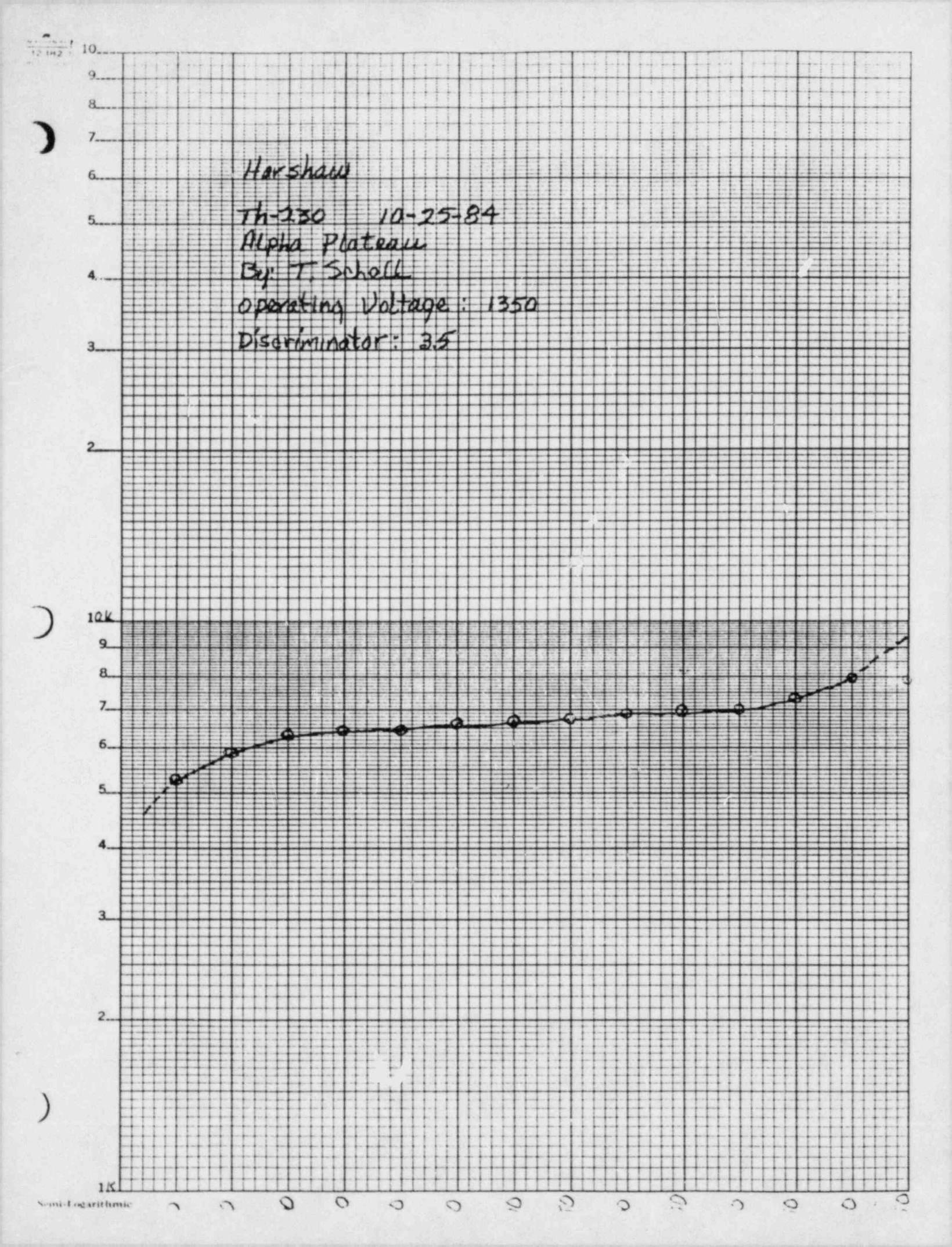
Efficiency Factors

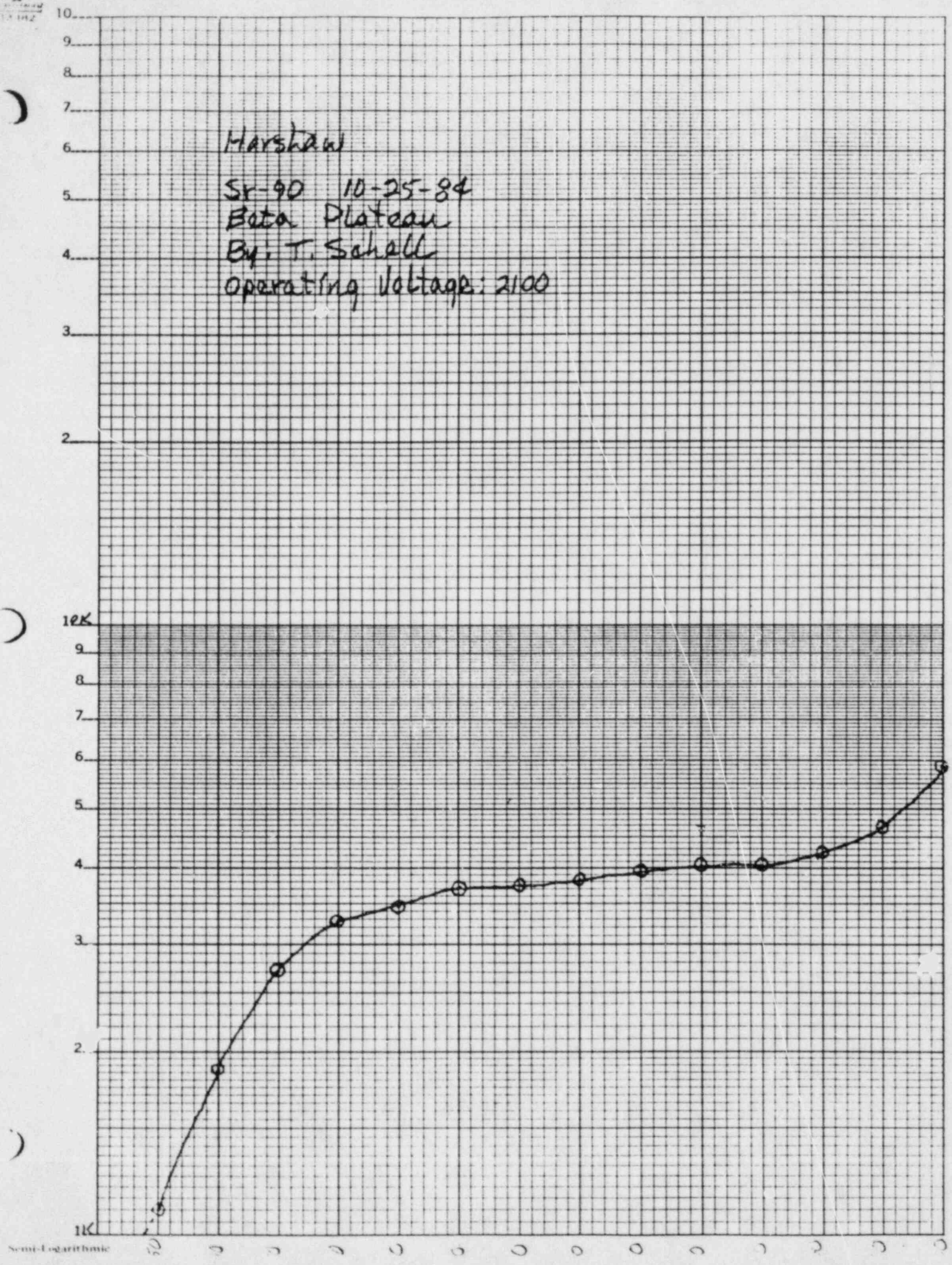
Source #	$\alpha_{\beta\gamma}$	d.p.m.	Measured c.p.m.	B.G. c.p.m.	Eff. Factor	Date	Name
Uranium Standard P-76	α	20400	5629	0	3.62	2/21/84	T. Schell
Sr-90 P-142	β	8694	3889	25	2.25	2/21/84	T. Schell
Co-60 P-141	γ	3790	978	25	4.44	2/21/84	T. Schell
Th-230 CS-11	α	24440	6760	0	3.615	3/3/84	T. Schell
Sr-90 P-142	β	8687	3833	19	2.27	3/3/84	T. Schell
Co-60 P-141	γ	3773	824	16	4.6	3/3/84	T. Schell
Th-230 CS-11	α	24440	6732	7	3.6	4/2/84	T. Schell
Sr-90 P-142	β	8660	3714	19	2.3	4/2/84	T. Schell
Co-60 P-141	γ	3714	812	20	4.6	4/2/84	T. Schell
Th-230 CS-11	α	24440	6740	0	3.6	5/7/84	T. Schell
Sr-90 P-142	β	8648	3826	19	2.3	5/7/84	T. Schell
Co-60 P-141	γ	3686	860	21	4.3	5/7/84	T. Schell
Th-230 CS-11	α	24440	6720	0	3.6	6/4/84	T. Schell
Sr-90 P-142	β	8632	3750	18	2.3	6/4/84	T. Schell
Co-60 P-141	γ	3649	835	23	4.4	6/4/84	T. Schell
Th-230 CS-11	α	24440	6752	0	3.6	7/3/84	T. Schell
Sr-90 P-142	β	8614	3780	19	2.3	7/3/84	T. Schell
Co-60 P-141	γ	3611	862	22	4.2	7/3/84	T. Schell
Th-230 CS-11	α	24440	6540	0	3.7	8/1/84	T. Schell
Sr-90 P-142	β	8578	3569	20	2.4	8/1/84	T. Schell
Co-60 P-141	γ	3531	769	20	4.6	8/1/84	T. Schell

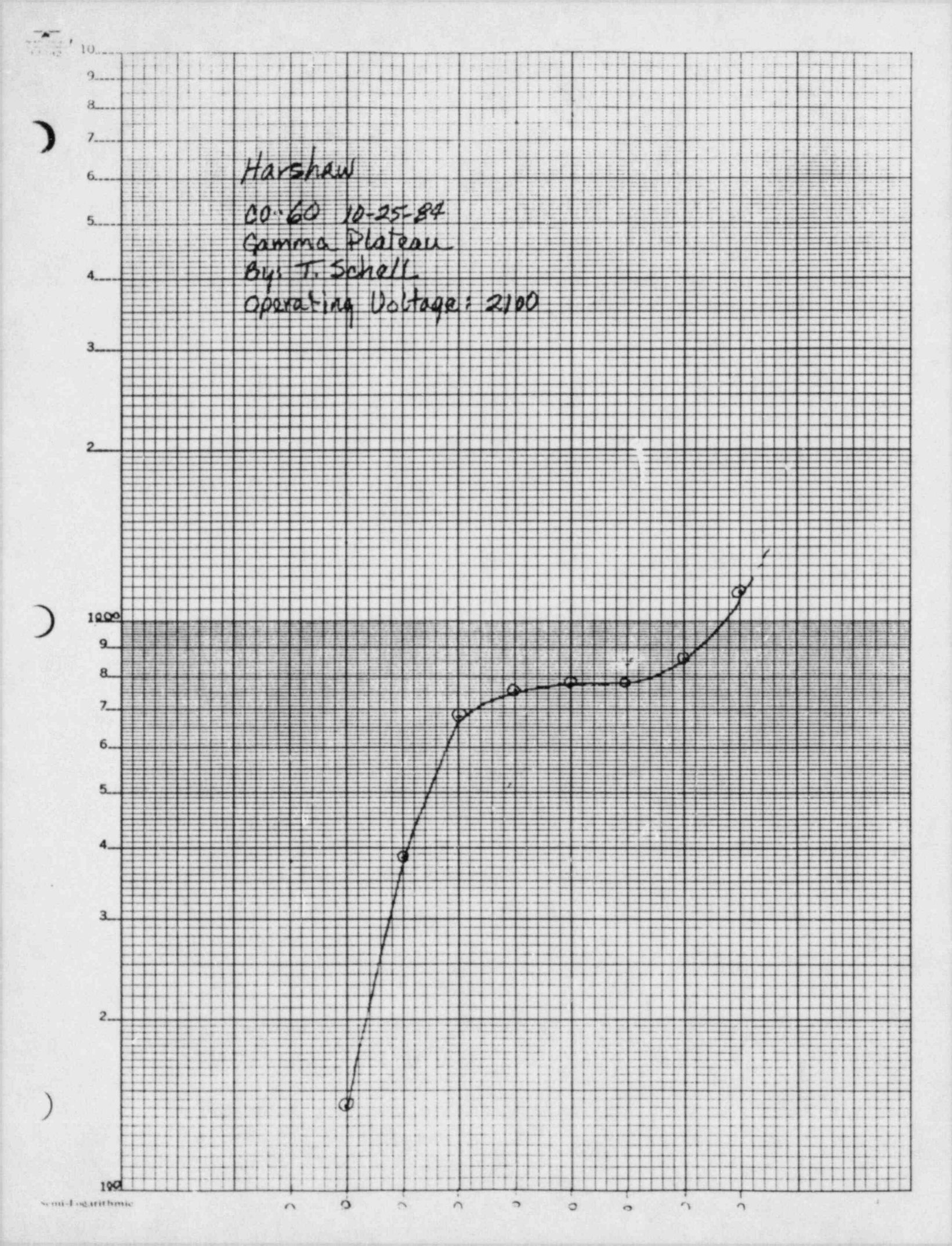
HARSHAW

Efficiency Factors

Source #	α_{By}	d.p.m.	Measured c.p.m.	B.G. c.p.m.	Eff. Factor	Date	Name
Th-230 PS-2	α	24440	6562	0	3.7	9-25-84	T. Schell
Sr-90 P-142	β	8566	3986	11	2.1	9-25-84	T. Schell
Co-60 P-141	γ	3505	750	11	4.7	9-25-84	T. Schell
changed windows ↓							
Th-230 PS-2	α	24440	6976	0	3.5	10-25-84	T. Schell
Sr-90 P-142	β	8548	4015	17	2.1	10-25-84	T. Schell
Co-60 P-141	γ	3466	765	17	4.5	10-25-84	T. Schell
Th-230 PS-2	α	24440	6549	0	3.7	11-30-84	C. Donati
Sr-90 P-142	β	8527	3970	16	2.1	11-30-84	C. Donati
Co-60 P-141	γ	3422	765	16	4.5	11-30-84	C. Donati
Th-230 PS-2	α	24440	6942	0	3.5	12-21-84	Ked
Sr-90 P-142	β	8515	4008	17	2.1	12-21-84	Ked
Co-60 P-141	γ	3396	760	17	4.5	12-21-84	Ked
Th-230 PS-2	α	24440	6904	0	3.5	1-23-85	T. Schell
Sr-90 P-142	β	8496	3883	19	2.2	1-23-85	T. Schell
Co-60 P-141	γ	3357	764	19	4.4	1-23-85	T. Schell


Harshaw
Th-230 10-25-84
Alpha Plateau
By: T. Schell
operating Voltage: 1350
Discriminator: 3.5
10K
9
8
7
6
5
4
3
2
1K
Semi-Logarithmic


Marshall
Sr-90 10-25-84
Beta Plateau
By: T. Schell
Operating Voltage: 2100
10
9
8
7
6
5
4
3
2
1K
9
8
7
6
5
4
3
2
1K
Semi-Logarithmic


Harshaw
Co-60 10-25-84
Gamma Plateau
By: T. Schell
Operating Voltage: 2100
10
9
8
7
6
5
4
3
2
1000
9
8
7
6
5
4
3
2
100
Semi-Logarithmic

BACKGROUND READINGS

Eberline Model PRS-1 #493 HP-210 Probe

Control Area	$\bar{x}$	=	41 cpm
Reactor Room Proper	$\bar{x}$	=	42 cpm
Adjacent Lab.	$\bar{x}$	=	40 cpm
Adjacent Large Eg Room	$\bar{x}$	=	38 cpm
Outside of Building	$\bar{x}$	=	39 cpm

Ludlum Micro-R meter S/N 16062

Control Area	$\bar{x}$	=	9 μR/hr
Reactor Room Proper	$\bar{x}$	=	9 μR/hr
Adjacent Lab	$\bar{x}$	=	9 μR/hr
Outside of Building	$\bar{x}$	=	8 μR/hr
Adjacent Large Eg. Room	$\bar{x}$	=	8 μR/hr

EQUIPMENT USED FOR RADIATION SURVEY

1. Ludlum Model 12 S SN 16062 Micro-R meter

2. Eberline Model PRS-1 SN 493
   Probe #1 Model HP-210 G.M.
   Probe #2 ZnS Crystal Model AC-3

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 7-9-84 PAGE

LOCATION Rx room SURVEY DATE 7-9-84 TIME 8:00

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm	
1	6 Cx 1	9.0	NDA	NDA	18	20	—	3.3	—	
					0	0	0	3.6	0	
2	2				20		—		—	
					0		0		0	
3	3				19		—		—	
					0		0		0	
4	4				21		1		3.3	
					0		0		0	
5	5				17		—		—	
					0		0		0	
6	6 C 3				18		—		—	
					0		0		0	
7	4				19		—		—	
					0		0		0	
8	5				17		—		—	
					0		0		0	
9	6 D 4				18		—		—	
					0		0		0	
10	5				20		—		—	
					0		0		0	
11	6 Dx 1				14		—		—	
					0		0		0	
12	2				16		—		—	
					0		0		0	
13	3				11		—		—	
					0		0		0	
14	4				19		—		—	
					0		0		0	
15	5				15		—		—	
					0		0		0	
16	7 C 1				13		—		—	
					0		0		0	
17	2				13		—		—	
					0		0		0	
18	3				16		—		—	
					0		0		0	
19	4				13		—		—	
					0		0		0	
20	5				14		—		—	
					0		0		0	
24	7 D 1				17		—		—	
					0		0		0	
25	2				18		—		—	
					0		0		0	
26	3				17		—		—	
					0		0		0	
27	4				16		—		—	
					0		0		0	
28	5				18		—		—	
					0		0		0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Thomas A Schell

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 7-9-84 PAGE

LOCATION Rx room SURVEY DATE 7-9-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
29	File cabnet top	9.0	NDA	NDA	16 / 0	20 / 0	— / 0	3.3 / 3.6	— / 0
30	right				12 / 0		— / 0		— / 0
31	left				15 / 0		— / 0		— / 0
32	back				18 / 0		— / 0		— / 0
33	bottom				19 / 0		— / 0		— / 0
34	Front				18 / 0		— / 0		— / 0
35	6 Bx 1				17 / 0		— / 0		— / 0
36	2				16 / 0		— / 0		— / 0
37	3				15 / 0		— / 0		— / 0
38	4				14 / 0		— / 0		— / 0
39	5				18 / 0		— / 0		— / 0
40	Bdt 1/2"				19 / 0		— / 0		— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Thomas A Scholl

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-5-84 PAGE

LOCATION Reaction Room SURVEY DATE 7-10-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
41	U-Bolt	9.0	NDA	NDA	14	17	–	3.5	–
					0	0	0	3.7	0
42	R valve handle				15		–		–
					0		0		0
43	Level (red)				18		1		3.5
					0		0		0
44	Flux brush				13		–		–
					0		0		0
45	square washer				12		–		–
					0		0		0
46	bolt				20		3		10.5
					0		0		0
47	eye bolt				10		–		–
					0		0		0
48	bolt				16		–		–
					0		0		0
49	bolt				18		1		3.5
					0		0		0
50	Pipe joint				20		3		10.5
					0		0		0
51	Nut				19		2		7
					0		0		0
52	Nut				10		–		–
					0		0		0
53	Square washer				17		–		–
					0		0		0
54	bolt				16		–		–
					0		0		0
55	bolt				14		–		–
					0		0		0
56	bolt				18		1		3.5
					0		0		0
57	square washer				20		3		10.5
					0		0		0
58	bolt				15		–		–
					0		0		0
59	bolt				16		–		–
					0		0		0
60	bolt				12		–		–
					0		0		0
61	Washer				14		–		–
					0		0		0
62	nut and bolt				13		–		–
					0		0		0
63	bolt and washer				18		1		3.5
					0		0		0
64	24" Extender bolt				13		–		–
					0		0		0
65	↓				13		–		–
					0		0		0
66	↓	▽	▽	▽	18	▽	1	▽	3.5
					0		0		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-5-84 PAGE

LOCATION Reaction Room SURVEY DATE 7-10-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
67	Plastic Tube	9.0	NDA	NDA	13 / 0	17 / 0	— / 0	3.5 / 3.7	— / 0
68	Bolt w/ washer				17 / 0	17 / 0	0 / 0		0 / 0
69	Aluminum Block				15 / 0		— / 0		— / 0
70	24" Extention Rod				13 / 0		— / 0		— / 0
71	Bolt & nut				18 / 0		1 / 0		3.5 / 0
72	Bolt				15 / 0		— / 0		— / 0
73	Bolt(s)				12 / 0		— / 0		— / 0
74	Bolt(s)				17 / 0		0 / 0		0 / 0
75	Bolt(s)				15 / 0		— / 0		— / 0
76	Bolt(s)				11 / 0		— / 0		— / 0
77	Bolt(s)				17 / 0		0 / 0		0 / 0
78	Bolt(s)				17 / 0		0 / 0		0 / 0
79	Nut(s)				17 / 0		0 / 0		0 / 0
80	Bolt(s)				17 / 0		0 / 0		0 / 0
81	Rheostat				13 / 0		— / 0		— / 0
82	Russwin Lock				13 / 0		— / 0		— / 0
83	Lubricant				17 / 0		0 / 0		0 / 0
84	Cross Jig				15 / 0		— / 0		— / 0
85	Graphite rod				15 / 0		— / 0		— / 0
86	Lucite rod				15 / 0		— / 0		— / 0
87	Graphite rod				13 / 0		— / 0		— / 0
88	Teflor rod				11 / 0		— / 0		— / 0
89	Wrapped rod				10 / 0		— / 0		— / 0
90	Nut				16 / 0		— / 0		— / 0
91	Octopus				14 / 0		— / 0		— / 0
92	Gas Valve	↓	↓	↓	15 / 0	↓	— / 0	↓	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-5-84 PAGE

LOCATION Reaction Room SURVEY DATE 7-10-84 TIME 8-5

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
93	Spacer Rod & Locite	9.0	NDA	NDA	17 / 0	17 / 0	0 / 0	3.5 / 3.7	0 / 0
94	Activation Exp. Collection				15 / 0		— / 0		—
95	Graphite spacer				15 / 0		— / 0		— / 0
96	"				17 / 0		0 / 0		0 / 0
97	"				16 / 0		— / 0		—
98	"				14 / 0		— / 0		—
99	"				15 / 0		— / 0		— / 0
100	"				17 / 0		0 / 0		0 / 0
101	"				10 / 0		— / 0		—
102	"				15 / 0		— / 0		—
103	wire leads batch wipe				14 / 0	▽	— / 0		—
104	Holder				16 / 0	K	0 / 0		0 / 0
105	plastic buttons 5				10 / 0		— / 0		—
106	electric cupplers 2				16 / 0		0 / 0		0 / 0
107	Potention meter Pot				16 / 0		0 / 0		0 / 0
108	wooden dowels 7				14 / 0		— / 0		—
109	4 white plastic holders				10 / 0		— / 0		— / 0
110	Plastic rods				13 / 0		— / 0		—
111	iron rods				13 / 0		— / 0		—
112	black elec. cable & roup.				13 / 0		— / 0		—
113	electric wires batch				16 / 0		0 / 0		0 / 0
114					16 / 0		0 / 0		0 / 0
115					10 / 0		— / 0		— / 0
116					16 / 0		0 / 0		0 / 0
117					10 / 0		— / 0		— / 0
118		▷	▽	▽	16 / 0	*	0 / 0	▽	0 / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-6-84 PAGE

LOCATION Reaction Room SURVEY DATE 7-10-84 TIME 8-5

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
119	electric wires	9.0	NOA	NOA	10 / 0	16 / 0	— / 0	3.5 / 3.1	— / 0
120	"				10 / 0		— / 0		— / 0
121	cables w/N Probe				13 / 0		— / 0		— / 0
122	" w/o point				12 / 0		— / 0		— / 0
123	Coax & 4 wire cable				14 / 0		— / 0		— / 0
124	hose				14 / 0		— / 0		— / 0
125	electric plug in				10 / 0		— / 0		— / 0
126	instrument leads				10 / 0		— / 0		— / 0
127	N probe spacers				14 / 0		— / 0		— / 0
128	weight & rope				12 / 0		— / 0		— / 0
129	AL. pipe small 3"				10 / 0		— / 0		— / 0
130	" " 1"				16 / 0		0 / 0		0 / 0
131	Lead sheet				16 / 0		0 / 0		0 / 0
132	1/2" Angle iron				14 / 0		— / 0		— / 0
133	wood flap + hinges	▽	▽	▽	10 / 0		— / 0		— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-6-84 PAGE

LOCATION Reaction Room SURVEY DATE 7-10-84 TIME 8-5

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
134	N Guide tubes plastic (out)	9.0	NOA	NOA	16 / 0	16 / 0	0 / 0	3.5 / 3.7	0 / 0
135	" (in)				12 / 0		- / 0		- / 0
136	" (out)				10 / 0		- / 0		- / 0
137	" (in)				14 / 0		- / 0		- / 0
138	plastic spacers 5				10 / 0		- / 0		- / 0
139	" caps #0 "rings 8				10 / 0		- / 0		- / 0
140	10" Plastic disk				16 / 0		0 / 0		0 / 0
141	battery				10 / 0		- / 0		- / 0
142	"O" ring				14 / 0		- / 0		- / 0
143	bolts 1				16 / 0		0 / 0		0 / 0
144	2	▽	▽	▽	12 / 0		- / 0		- / 0
					/	▽		▽	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-6-84 PAGE

LOCATION Reaction Room SURVEY DATE 7-10-84 TIME 8-5

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
145	box white bottom	9.0	NDA	NDA	14 0	18 0	— 0	3.5 3.7	— 0
146	back				14 0		— 0		— 0
147	front				18 0		0 0		0 0
148	top				12 0		— 0		— 0
149	lft. side				12 0		— 0		— 0
150	right side				18 0		0 0		0 0
151	top of box ch#ool				16 0		— 0		— 0
152	lft. to rt. 1				16 0		— 0		— 0
153	2				12 0		— 0		— 0
154	3				15 0		— 0		— 0
155	4				16 0	▽	— 0		— 0
156	bolt #3				12 0	16 0	— 0		— 0
157	soldering gun				10 0		— 0		— 0
158	eye hooks 2				10 0		— 0		— 0
159	N Probe part				12 0		— 0		— 0
160	wood dowel				12 0		— 0		— 0
161	battery				14 0		— 0		— 0
163	AL. plate				16 0		0 0		0 0
163	Tabacco can				16 0		0 0		0 0
164	fidgers can				16 0		— 0		— 0
165	wire & plug				16 0		0 0		0 0
166	bolt				12 0		— 0		— 0
167	electric box				16 0		0 0		0 0
168	hasp AL				10 0		— 0		— 0
169	drive plate				12 0		— 0		— 0
170	AL Angle	▽	▽	▽	14 0	▽	— 0	▽	— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-7-84 PAGE

LOCATION Reaction Room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α									
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α	β+γ	α	β+γ	α	β+γ	α	β+γ	α	β+γ	α
171	Drive roller rod 2	9.0	NDA	NDA	14	0	16	0	—	0	35	0.7	—	0
172	electric motor				14	0			—	0			—	0
173	sharpening stone				13	0			—	0			—	0
174	tool box shelf insert				14	0			—	0			—	0
175	5/16 box end				10	0			—	0			—	0
176	7/8 " "				14	0			—	0			—	0
177	19/32 open "				12	0			—	0			—	0
178	11/16 " "				12	0			—	0			—	0
179	5/16-3/8 " "				14	0			—	0			—	0
180	1/2 " "				13	0			—	0			—	0
181	11/32 " "				16	0			0	0			0	0
182	role of tape				16	0			0	0			0	0
183	T-hex				14	0			—	0			—	0
184	ring wrench				14	0			—	0			—	0
185	brush				13	0			—	0			—	0
186	tweesers				16	0			0	0			0	0
187	punch				16	0			0	0			0	0
188	screw driver & tape				16	0			0	0			0	0
189	Med. screw driver ph.1.				10	0			—	0			—	0
190	small " " "				14	0			—	0			—	0
191	ink markers				16	0			0	0			0	0
192	CPC lg. screw dr. ph.				14	0			—	0			—	0
193	Med. screw dr. "				12	0			0	0			—	0
194	med. screw dr. orange handle				16	0			0	0			0	0
195	Large "				14	0			—	0			—	0
196	Large Phil S.D.E.	▽	▽	▽	16	0	▽		0	0	▽		0	0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-7-84 PAGE

LOCATION Reaction Room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
197	Craftsman toolbox (in)	9.0	NDA	NDA	10	16	—	35 / 37	—
198	" " (out)				13		—		—
199	7/8 - 13/16 open end wrench				14		—		—
200	13/16 - 13/16 box end "				16		0		0
201	" "				14		—		—
202	3/4 - 5/8 orange open "				16		0		0
203	1/2 - 9/16 yellow " "				16		0		0
204	3/8 - 7/16 box " "				12		—		—
205	201 using wrench				13		—		—
206	Needle nose pliers				14		—		—
207	Bent punch				14		—		—
208	file & handle				12		—		—
209	" "				14		—		—
210	file w/o handle				14		—		—
211	round file & handle				14		—		—
212	" " w/o "				10		—		—
213	drill bit				16		0		0
214	hack saw blade				12		—		—
215	Allen wrench hex				10		—		—
216	3/4 socket				12		—		—
217	plug				14		—		—
218	box of small screws				10		—		—
219	edgeworth can				12		—		—
220	electric cover				14		—		—
221	hose				16		0		0
222	Punch	▽	▽	▽	16	▽	0	▽	0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-7-84 PAGE

LOCATION Reaction Room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
223	hose coupler	9.0	NDA	NDA	14 / 0	16 / 0	— / 0	3.5 / 3.7	— / 0
224	electric switch & Parts (9 Pcs)				16 / 0		0 / 0		0 / 0
225	Angle Iron				14 / 0		— / 0		— / 0
226	3 rubber stoppers				16 / 0		0 / 0		0 / 0
227	washers 6				10 / 0		— / 0		— / 0
228	nail				14 / 0		— / 0		— / 0
229	AL angle				14 / 0		— / 0		— / 0
230	tip of soldering gun				14 / 0		— / 0		— / 0
231	3 small bolts				12 / 0		— / 0		— / 0
232	small clamp				16 / 0		0 / 0		0 / 0
233	battery 7 volt				16 / 0		0 / 0		0 / 0
234	electric plug				14 / 0		— / 0		— / 0
235	3" pipe & plug				10 / 0		— / 0		— / 0
236	Light clamp				16 / 0		0 / 0		0 / 0
237	elec. connector & leads				14 / 0		— / 0		— / 0
238	piece of aluminum				16 / 0		0 / 0		0 / 0
239	Prince Albert can				16 / 0		0 / 0		0 / 0
240	1" pipe				14 / 0		— / 0		— / 0
241	1/4" bicycle chain				16 / 0		0 / 0		0 / 0
242	6 rubber diaphrams				14 / 0		— / 0		— / 0
243	round jig holder				16 / 0		0 / 0		0 / 0
244	2 gaskets				14 / 0		— / 0		— / 0
245	2 rods steel				16 / 0		0 / 0		0 / 0
246	4 caster wheels				16 / 0		0 / 0		0 / 0
247	AL part				12 / 0		— / 0		— / 0
248	AL part	▽	▽	▽	12 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-7-84 PAGE

LOCATION Reaction Room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α										dpm
					Gross cpm		Bkg cpm		Net cpm		Eff.		dpm		
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm		Bkg cpm		Net cpm		Eff.		dpm		
249	Bolt 1/4" LE 1B"	9.0	NDA	NDA	16	0	16	0	0	0	35	3.7	0	0	
250	copper sheet				14	0			—	0			—	0	
251	Al part				14	0			—	0			—	0	
252	miro amp gage				10	0			—	0			—	0	
253	3/4" Lasco pipes white 7				10	0			—	0			—	0	
254	copper discs & glass bottles				16	0			0	0			0	0	
255	copper sheet				10	0			—	0			—	0	
256	wire & plugs				10	0			—	0			—	0	
257	Sheet of Pb				10	0			—	0			—	0	
258	wood dowels 3				16	0			0	0			0	0	
259	Plastic rods				14	0			—	0			—	0	
260	3 bolts				14	0			—	0			—	0	
261	graphite bars 9				16	0			0	0			0	0	
262	5" plastic discs				13	0			—	0			—	0	
263	petrie dish				12	0			—	0			—	0	
264	elec. plug				14	0			—	0			—	0	
265	"C" clamp				10	0			—	0			—	0	
266	Iron rod 1/4"				14	0			—	0			—	0	
267	pieces of plastic & metal				16	0			0	0			0	0	
268	box of rivets				16	0			0	0			0	0	
269	2 boxs of filter paper				10	0			—	0			—	0	
270	glass jar				14	0			—	0			—	0	
271	plastic bottle thinner				10	0			—	0			—	0	
272	elec. pot				12	0			—	0			—	0	
273	elec. wires & leads				16	0			0	0			0	0	
274	Plastic rod 1/2" x 4"				16	0			0	0			0	0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-10-84 PAGE

LOCATION Reaction Room SURVEY DATE 7-23-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α						
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
274	elect. wire & connectors	9.0	NDA	NDA	13 0	16 0	— 0	3.5 3.7	— 0		
275	Lasco pipe				13 0		— 0		— 0		
276	"				14 0		— 0		— 0		
277	wood slat				13 0		— 0		— 0		
278	plastic rod				14 0		— 0		— 0		
279	fiber glass tube				16 0		0 0		0 0		
280	1/4" plastic rod				14 0		— 0		— 0		
281	3/4" plastic rod				13 0		— 0		— 0		
282	plastic rods & tube				10 0		— 0		— 0		
283	box; plastic sheet & tubes				10 0		— 0		— 0		
284	conduit 3'				13 0		— 0		— 0		
285	wood box 2"x2"x4"				16 0		0 0		0 0		
286	Plexaglass				10 0		— 0		— 0		
287	"				13 0		— 0		— 0		
288	"				16 0		0 0		0 0		
289	Oscilloscope				16 0		0 0		0 0		
290	TA scaler				16 0		0 0		0 0		
291	TA Area monitor #163733				14 0		— 0		— 0		
292	↓				10 0		— 0		— 0		
293					10 0		— 0		— 0		
294	↓				16 0		0 0		0 0		
295	Loader alarm				10 0		— 0		— 0		
296	Power Supply #36099				10 0		— 0		— 0		
297	↓				14 0		— 0		— 0		
298					16 0		0 0		0 0		
299	↓	↓	↓	↓	13 0	↓	— 0	↓	— 0		

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-10-84 PAGE

LOCATION Rx room SURVEY DATE 7-23-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
300	Power supply #36099	9.0	NDA	NDA	12 0	16 0	— 0	3.5 3.7	— 0
301	Log rate meter Rm-40 #338				10 0		— 0		— 0
302	↓				16 0		0 0		0 0
303					10 0		— 0		— 0
304	Oscillograph				10 0		— 0		— 0
305					16 0		0 0		0 0
306					14 0		— 0		— 0
307					10 0		— 0		— 0
308	↓				10 0		— 0		— 0
309	geiger tube in can				14 0		— 0		— 0
310	plastic spacers 1				10 0		— 0		— 0
311	2				16 0		0 0		0 0
312	3				14 0		0 0		0 0
313	4				13 0		— 0		— 0
314	wood spacer				13 0		— 0		— 0
315	brushes 2				12 0		— 0		— 0
316	paper sac @ tubes				14 0		— 0		— 0
317	swith box				16 0		0 0		0 0
318	volt meter 36104				16 0		0 0		0 0
319	Sack of lead filter				10 0		— 0		— 0
320	half & half can (in)				16 0		0 0		0 0
321	" (out)				14 0		— 0		— 0
322	unused graphite blocks				16 0		0 0		0 0
323	"				14 0		— 0		— 0
324	"				14 0		— 0		— 0
325	↓	▽	▽	▽	12 0	▽	— 0	▽	— 0

INSTRUMENTS;

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-10-84 PAGE

LOCATION Rx room SURVEY DATE 7-23-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
326	unused graphite blocks	9.0	NDA	NDA	14 / 0	16 / 0	– / 0	3.5 / 3.7	– / 0	
327	↓				16 / 0		0 / 0		0 / 0	
328					16 / 0		0 / 0		0 / 0	
329					14 / 0		– / 0		– / 0	
330					10 / 0		– / 0		– / 0	
331	plastic spacers				16 / 0		0 / 0		0 / 0	
332	↓				10 / 0		– / 0		– / 0	
333	sanding block & paper (5)				13 / 0		– / 0		– / 0	
334	N Tube holder monitor				14 / 0		– / 0		– / 0	
335	wood spacer				14 / 0		– / 0		– / 0	
336	N probe & box				10 / 0		– / 0		– / 0	
337	u.s. gage 0-15				14 / 0		– / 0		– / 0	
338	tracer lab sample holder				14 / 0		– / 0		– / 0	
341	elect. volt switch box				14 / 0		– / 0		– / 0	
340	control box				14 / 0		– / 0		– / 0	
342	plastic spacers 1				16 / 0		0 / 0		0 / 0	
343	↓ 2				13 / 0		– / 0		– / 0	
344	3				14 / 0		– / 0		– / 0	
345	↓ 4				16 / 0		0 / 0		0 / 0	
346	Alarm module				16 / 0		0 / 0		0 / 0	
347	↓				16 / 0		0 / 0		0 / 0	
348	Power Supply 36+00 top				13 / 0		– / 0		– / 0	
349	• front				10 / 0		– / 0		– / 0	
350	right				16 / 0		0 / 0		0 / 0	
351	left				14 / 0		– / 0		– / 0	
352	↓ back				14 / 0		– / 0		– / 0	
339					16 / 0		0 / 0		0 / 0	

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-10-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
353	Power Supply 36100 bot.	9.0	NDA	NDA	12 0	16 0	— 0	35 3.7	— 0
354	T.A. linear rate meter 36107 (Frt)				14 0		— 0		— 0
355	back				16 0		0 0		0 0
356	rt. side				14 0		— 0		— 0
357	lft. side				12 0		— 0		— 0
358	bottom				14 0		— 0		— 0
359	top				12 0		— 0		— 0
368	Berkeley Scaler #36105 Frt.				14 0		— 0		— 0
359	back				15 0		— 0		— 0
360	rt.				16 0		0 0		0 0
361	Lft				12 0		— 0		— 0
362	bottom				10 0		— 0		— 0
363	top				12 0		— 0		— 0
364	Tracerlab rate meter 36108 frt				14 0		— 0		— 0
365	back				14 0		— 0		— 0
366	right				16 0		0 0		0 0
367	left				10 0		— 0		— 0
368	bottom				12 0		— 0		— 0
369	(in) top				12 0		— 0		— 0
370	TEN Rate meter 25931 Front				16 0		0 0		0 0
371	top				10 0		— 0		— 0
372	bot.				12 0		— 0		— 0
373	rt.				12 0		— 0		— 0
374	Lft.				16 0		0 0		0 0
375	cover 1				10 0		— 0		— 0
376	2	▽	▽	▽	16 0	▽	0 0	▽	0 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-11-84 PAGE _____

LOCATION Rx room SURVEY DATE 7-23-84 TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
377	Sack of Pb Filler	9.0	NDA	NDA	14 / 0	16 / 0	— / 0	3.5 / 3.7	— / 0	
378	wire connector				14 / 0		— / 0		— / 0	
379	Iron plug				14 / 0		— / 0		— / 0	
380	Plastic spacers				12 / 0		— / 0		— / 0	
381	Larger plastic spacers				14 / 0		— / 0		— / 0	
382					14 / 0		— / 0		— / 0	
383					16 / 0		0 / 0		0 / 0	
384					10 / 0		— / 0		— / 0	
385					16 / 0		0 / 0		0 / 0	
386	↓				14 / 0		— / 0		— / 0	
387	Aluminum Cap				12 / 0		— / 0		— / 0	
388	metal cover				14 / 0		— / 0		— / 0	
389	light fixture				14 / 0		— / 0		— / 0	
390	swith box - elec.				10 / 0		— / 0		— / 0	
391	small guage				14 / 0		— / 0		— / 0	
392	flash Light cover				12 / 0		— / 0		— / 0	
393	AL. metal tube				10 / 0		— / 0		— / 0	
394	"				10 / 0		— / 0		— / 0	
395	"				12 / 0		— / 0		— / 0	
396	rubber tubing				16 / 0		0 / 0		0 / 0	
397	elec. wire				16 / 0		0 / 0		0 / 0	
398	(AL) metal tube				12 / 0		— / 0		— / 0	
399	steel bar				14 / 0		— / 0		— / 0	
400	small valve + copper tube				14 / 0		— / 0		— / 0	
401	" " + "T"				14 / 0		— / 0		— / 0	
402	AL metal tube	↓	↓	↓	16 / 0	↓	0 / 0	↓	0 / 0	

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm)Eff.

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CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-11-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
403	NaI crystal	9.0	NOA	NOA	16 / 0	16 / 0	0 / 0	3 / 3.7	0 / 0
404	adapt A buzzer				13 / 0		— / 0		— / 0
405	pulley				14 / 0		— / 0		— / 0
406	"				16 / 0		0 / 0		0 / 0
407	plastic spacer				16 / 0		0 / 0		0 / 0
408	burgess bolt				16 / 0		0 / 0		0 / 0
409	swith & wire				13 / 0		— / 0		— / 0
410	Rudolph's nose				14 / 0		— / 0		— / 0
411	Dune buggy				13 / 0		— / 0		— / 0
412	Al cover				16 / 0		0 / 0		0 / 0
413	Al dosed tube				14 / 0		— / 0		— / 0
414	" " " w/Iron				14 / 0		— / 0		— / 0
415	Al tube				16 / 0		0 / 0		0 / 0
416	Al open tube				10 / 0		— / 0		— / 0
417	1/4" rod				14 / 0		— / 0		— / 0
418	1/2" "				16 / 0		0 / 0		0 / 0
419	3/8" "				16 / 0		0 / 0		0 / 0
420	Air pump part				14 / 0		— / 0		— / 0
421	Air pump housing				16 / 0		0 / 0		0 / 0
422	copper sheet				12 / 0		— / 0		— / 0
423	tube bass				12 / 0		— / 0		— / 0
424	wooden dowel				14 / 0		— / 0		— / 0
425	Newton probe				16 / 0		0 / 0		0 / 0
426	" " "				16 / 0		0 / 0		0 / 0
427	graphite spacer				10 / 0		— / 0		— / 0
428	" "	▽	▽	▽	14 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

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CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-11-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
429	Pipe	9.0	NOA	NOA	10	16	—	3.3 3.7	—
					0	0	0		0
430	H.V. terminal switch				14		—		—
					0		0		0
431	Al box (outside)				10		—		—
					0		0		0
432	" (inside)				14		—		—
					0		0		0
433	Gass flow pressure gage				16		—		—
					0		0		0
434	Volt meter & central box				16		0		0
					0		0		0
435	"				14		—		—
					0		0		0
436	Mallay cap				16		0		0
					0		0		0
437	circuit board sealed				14		—		—
					0		0		0
438	" " "				16		0		0
					0		0		0
139	sealed tube of foil + parts				16		0		0
					0		0		0
440	gasket "piers"				14		—		—
					0		0		0
441	light				16		0		0
					0		0		0
442	buzzl				14		—		—
					0		0		0
443	buzzer central box				14		—		—
					0		0		0
444	Cd plate				12		—		—
					0		0		0
445	plastic rod w/string				16		0		0
					0		0		0
446	Pipe				16		0		0
					0		0		0
447	box				10		—		—
					0		0		0
448	pipe				16		0		0
					0		0		0
449	"				10		—		—
					0		0		0
450	cap				16		0		0
					0		0		0
451	pump mount				12		—		—
					0		0		0
452	pump housing				10		—		—
					0		0		0
433	parts on level indicators				10		—		—
					0		0		0
454	bottom of mount	▽	▽	▽	10	▽	—	▽	—
					0		0		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

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CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-12-84 PAGE _____

LOCATION Rx room SURVEY DATE _____ TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α									
455	Rust-Oleum can	9.0	NDA	NDA	14	0	16	0	—	0	3.5	3.7	— 0
456	Raid can				14	0			—	0			— 0
457	Kem-Glo can				10	0			—	0			— 0
458	Restone jug (empty)				14	0			—	0			— 0
459	"				14	0			—	0			— 0
460	empty Sherwin Williams can				16	0			0	0			0 0
461	Lead Disk				16	0			0	0			0 0
462					14	0			—	0			— 0
463					12	0			—	0			— 0
464					16	0			0	0			0 0
465					10	0			—	0			— 0
466					16	0			0	0			0 0
467					14	0			—	0			— 0
468					10	0			—	0			— 0
469					16	0			0	0			0 0
470					16	0			0	0			0 0
471	lead Disk				14	0			—	0			— 0
472	Squibb mineral oil				12	0			—	0			— 0
473	100% alcohol				10	0			—	0			— 0
474	finger nail polish				14	0			—	0			— 0
475	grease				14	0			—	0			— 0
476	mercury				16	0			0	0			0 0
477	edgeworth can (empty)				12	0			—	0			— 0
478	" " (stuff in it)				14	0			—	0			— 0
479	Sherwin Williams paint				10	0			—	0			— 0
480	SW Paint	↓	↓	↓	16	0	↓		0	0	↓		0 0

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm) Eff.

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CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-12-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α									
					Gross cpm		Bkg cpm		Net cpm		Eff.		dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm		Bkg cpm		Net cpm		Eff.		dpm	
481	sherwin-Williams	9.0	NDA	NDA	12	0	16	0	—	0	3.5	3.7	—	0
482	wood block & bolt				16	0				0				0
483	torn paper Alarm				16	0				0				0
484	↓				12	0				0				0
485					14	0				0				0
486					14	0				0				0
487	monitors panel				12	0				0				0
488	"U" clamp				16	0				0				0
489	Ohen				16	0				0				0
490	metal Plate				16	0				0				0
491	↓				14	0				0				0
492					16	0				0				0
493					14	0				0				0
494					14	0				0				0
495	metal holder				16	0				0				0
496	"				14	0				0				0
497	metal plate & bolts				16	0				0				0
498	T.L. probe				16	0				0				0
499	" " & stand				16	0				0				0
500	probe & light box				10	0				0				0
501	"				14	0				0				0
502	"				12	0				0				0
503	Probe				13	0				0				0
504	"				16	0				0				0
505	" & stand				14	0				0				0
506	Al plate				14	0				0				0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

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CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-12-84 PAGE _____

LOCATION Rx room SURVEY DATE _____ TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
507	Tracer lab rate meter	9.0	NDA	NDA	14 / 0	16	— / 0	3.5 / 3.7	— / 0
508	Plexaglass Sq.				13 / 0		— / 0		— / 0
509	"				10 / 0		— / 0		— / 0

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm)Eff.

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CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-13-84 PAGE _____

LOCATION Rx room SURVEY DATE _____ TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
510	J.E. Powder supply #36103 (top)	9.0	NDA	NDA	11	17	—	35	—
						0	0	37	0
511	" Front				14		—		—
					0		0		0
512	" right				7		—		—
					0		0		0
513	" left				14		—		—
					0		0		0
514	" Bottom				15		—		—
					0		0		0
515	" Back				5		—		—
					0		0		0
516	Metal cover				12		—		—
					0		0		0
517	Tracer Lab scaler #35165 (top)				13		—		—
					0		0		0
518	" Front				10		—		—
					0		0		0
519	" right				13		—		—
					0		0		0
520	" left				12		—		—
					0		0		0
521	" bottom				17		—		—
					0		0		0
522	" back				14		—		—
					0		0		0
523	Nuclear supples #25926 (top)				11		—		—
					0		0		0
524	" Front				13		—		—
					0		0		0
525	" right				16		—		—
					0		0		0
526	" left				16		—		—
					0		0		0
527	" bottom				17		0		0
					0		0		0
528	" back				14		—		—
					0		0		0
529	T.A. scaler #32176 top				15		—		—
					0		0		0
530	" Front				17		—		—
					0		0		0
531	" ~~right~~ bottom				13		—		—
					0		0		0
532	" right (left)				9		—		—
					0		0		0
533	T.A. scaler #32176				14		—		—
					0		0		0
534	Nuclear Chicago #26604				14		—		—
					0		0		0
535	" Front	▽	▽	▽	12	▽	—	▽	—
					0		0		0

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-13-84 PAGE _____

LOCATION Rx room SURVEY DATE _____ TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
536	Nuclear Chicago #26604(b+)	9.0	NDA	NDA	8 / 0	17 / 0	— / 0	3.5 / 3.7	— / 0
537	" right+				12 / 0		— / 0		— / 0
538	" left+				7 / 0		— / 0		— / 0
539	" back				13 / 0		— / 0		— / 0
540	Nuclear Chicago #26606(β)				17 / 0		0 / 0		0 / 0
541	" Front				17 / 0		0 / 0		0 / 0
542	" bottom				17 / 0		0 / 0		0 / 0
543	" right				13 / 0		6 / 0		— / 0
544	" left				15 / 0		— / 0		— / 0
545	back				16 / 0		— / 0		— / 0
546	top				16 / 0		— / 0		— / 0
547	wood Dowels				15 / 0		— / 0		— / 0
548	"				17 / 0		0 / 0		0 / 0
549	"				18 / 0		1 / 0		3.5 / 0
550	"				17 / 0		0 / 0		0 / 0
551	"				9 / 0		— / 0		— / 0
552	"				12 / 0		— / 0		— / 0
553	"				10 / 0		— / 0		— / 0
554	"				13 / 0		— / 0		— / 0
555	AL Shoot				17 / 0		0 / 0		0 / 0
556	tal - sheet				13 / 0		— / 0		— / 0
557	cover Plate Th. sealer				15 / 0		— / 0		— / 0
558	"				16 / 0		— / 0		— / 0
559	rubber hose				17 / 0		0 / 0		0 / 0
560	elect. coire				9 / 0		— / 0		— / 0
561	F.D. Decreaser	▽	▽	▽	12 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm)Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-13-84 PAGE

LOCATION Rx room SURVEY DATE 7-31-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

Sample Number	Objects Monitored	uR/hr	READINGS cpm @ contact (less Bkg) β + γ	READINGS cpm @ contact (less Bkg) α	REMOVABLE β+γ Gross cpm	REMOVABLE β+γ Bkg cpm	REMOVABLE β+γ Net cpm	REMOVABLE β+γ Eff.	REMOVABLE β+γ dpm	REMOVABLE α Gross cpm	REMOVABLE α Bkg cpm	REMOVABLE α Net cpm	REMOVABLE α Eff.	REMOVABLE α dpm
562	Ash tray	9.0	NDA	NDA	13	17	—	3.5 3.9	—	0	0	0		0
563	wood extension				12		0		—	0		0		0
564	1/4" Bolts 3				16		—		0	0		0		0
565	wood Block				11		—		0	0		0		0
566	1" Nut				17		0		0	0		0		0
567	1/2" Bolt				12		—		0	0		0		0
568	Hack saw blade				17		0		0	0		0		0
569	"O" rings				18		1		0	0		0		3.5
570	electric wires				13		—		0	0		0		0
571	plastic cap				8		—		0	0		0		0
572	scotch tap dispen.				17		0		0	0		0		0
573	battery				13		—		0	0		0		0
574	felt tip markers				10		—		0	0		0		0
575	Rubber cement glue				16		—		0	0		0		0
577	bottle shatter in box				16		—		0	0		0		0
576	1/4" steel rod				18		1		0	0		0		3.5
578	small tube				14		—		0	0		0		0
579	1/2" Bolts				16		—		0	0		0		0
580	Nails				13		—		0	0		0		0
581	1/4" Bolt 3" long				17		0		0	0		0		0
582	Metal yellow spot				18		1		0	0		0		3.5
583	Plastic dowl				14		—		0	0		0		0
584	washer Hex middle		1334	327	28				0	0		0		0
585	lock washer				16		—		0	0		0		0
586	1/4" nuts & washer				12				0	0		0		0
587	Red ash tray				14		—		0	0		0		0

INSTRUMENTS:

COMMENTS: Physical count w/ Harshaw α = 43

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-13-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α		
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm	
588	Foil Ash tray	9.0	NDA	NDA	16	17	—	3.5	—	
					0	0	0	3.7	0	
589	elec. wire & connectors				15		—		—	
					0		0		0	
590	elec. box N.C.				13		—		—	
					0		0		0	
591	wire connector				14		—		—	
					0		0		0	
592	"				9		—		—	
					0		0		0	
593	Bottle rubber cement				17		0		0	
					0		0		0	
594	"				14		—		—	
					0		0		0	
595	Stamps				13		—		—	
					0		0		0	
596	Large paper holder				15		—		—	
					0		0		0	
597	KOH-I-NOOR INK Box Bottle				10		—		—	
					0		0		0	
598	Higgins ink bottles				11		—		—	
					0		0		0	
599	Typewriter cleaner & box				15		—		—	
					0		0		0	
600	Tuck tape & keys				14		—		—	
					0		0		0	
601	metal dish				18		1		35	
					0		0		0	
602	stamps				17		0		0	
					0		0		0	
603	Plastic Calender holder				16		—		—	
					0		0		0	
604	Drafting pen				14		—		—	
					0		0		0	
605	Ink bottle				14		—		—	
					0		0		0	
606	Box of Gummed paper reinforcements				16		—		—	
					0		0		0	
607	Note Pad & Holder				17		0		0	
					0		0		0	
608	Box of Gum. paper reinforcements				14		—		—	
					0		0		0	
609	Universal cylinder gage in box				17		0		0	
					0		0		0	
610	" " " box				16		—		—	
					0		0		0	
611	Capacitor discharger				9		—		—	
					0		0		0	
612	Box				13		—		—	
					0		0		0	
613	Metal Rod	▽	▽	▽	18	▽	1	▽	35	
					0		0		0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-14-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOV/BLE β+γ			α	
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
614	wood GM tube	9.0	NDA	NDA	16 0	17 0	— 0	3.5 3.7	— 0
615	elec. wire & copper end				16 0		— 0		— 0
616	Nuclear Supplies #2726				15 0		— 0		— 0
617	" " GM Probe				11 0		— 0		— 0
618	(in) A Frisker meter				18 0		1 0		35 0
619	" Front				17 0		0 0		0 0
620	" bottom				13 0		— 0		— 0
621	" right				15 0		— 0		— 0
622	" left				17 0		0 0		0 0
623	" back				16 0		— 0		— 0
624	elec. wire & connectors				13 0		— 0		— 0
625	"				17 0		0 0		0 0
626	(out) AL 4" dia. tubes				12 0		← 0		— 0
627	"				14 0		— 0		— 0
628	"				17 0		0 0		0 0
629	"				11 0		— 0		— 0
630	"				14 0		— 0		— 0
631	"				12 0		— 0		— 0
632	"				17 0		0 0		0 0
633	"				17 0		0 0		0 0
634	Sec. A, green table				10 0		— 0		— 0
635	" A2				10 0		— 0		— 0
636	" A3				11 0		— 0		— 0
637	B1 green table				13 0		— 0		— 0
638	B2 green table				12 0		— 0		— 0
639	B3 green table	▽	▽	▽	17 0	▽	0 0	▽	0 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-14-84 PAGE _____

LOCATION Rx room SURVEY DATE 8-1-84 TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
640	C_1	9.0	NOA	NOA	11 / 0	17 / 0	— / 0	3.5 / 3.7	— / 0	
641	C_2				15 / 0		— / 0		— / 0	
642	C_3				14 / 0		— / 0		— / 0	
643	D_1				16 / 0		— / 0		— / 0	
644	D_2				16 / 0		— / 0		— / 0	
645	D_3				13 / 0		— / 0		— / 0	
646	Roll of paper charts				12 / 0		— / 0		— / 0	
647	Lead brick				14 / 0		— / 0		— / 0	
648	"				16 / 0		— / 0		— / 0	
649	wrench				13 / 0		— / 0		— / 0	
650	Box				17 / 0		0 / 0		0 / 0	
651	Steel Bar				13 / 0		— / 0		— / 0	
652	Mirror				13 / 0		— / 0		— / 0	
653	Drill Bit				16 / 0		— / 0		— / 0	
654	Al tube				13 / 0		— / 0		— / 0	
655	tube and fitting				15 / 0		— / 0		— / 0	
656	Plate w/ Handles				17 / 0		0 / 0		0 / 0	
657	Door				13 / 0		— / 0		— / 0	
658	Door				14 / 0		— / 0		— / 0	
659	Nut				14 / 0		— / 0		— / 0	
660	Steel plate				15 / 0		— / 0		— / 0	
661	Steel bar				13 / 0		— / 0		— / 0	
662	Bolt				17 / 0		0 / 0		0 / 0	
663	Can				14 / 0		— / 0		— / 0	
664	Brick				17 / 0		0 / 0		0 / 0	
665	mouse trap	▽	▽	▽	9 / 0	▽	— / 0	▽	— / 0	

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm)Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-14-84 PAGE

LOCATION Rx room SURVEY DATE 8-1-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
666	Rope (in bag w/mouse trap)	9.0	NDA	NDA	10	17	—	3.5	—
					0	0	0	3.7	0
667	Nuclear Chicago scaler #26605 (top)				14		—		—
					0		0		0
668	" Front				8		—		—
					0		0		0
669	" bottom				10		—		—
					0		0		0
670	" right				14		—		—
					0		0		0
671	" Left				14		—		—
					0		0		0
672	" back				14		—		—
					0		0		0
673	TEN Scaler #25925 (top)				13		—		—
					0		0		0
674	" Front				16		—		—
					0		0		0
675	" bottom				18		1		3.5
					0		0		0
676	" right				13		—		—
					0		0		0
677	" left				17		0		0
					0		0		0
678	" back				17		0		0
					0		0		0
679	Lead Brick				13		—		—
					0		0		0
680	"				14		—		—
					0		0		0
681	inter com. box				16		—		—
					0		0		0
682	Nuclear Supplies time clocks				14		—		—
					0		0		0
683	"				13		—		—
					0		0		0
684	Reactor Facility Sign Front				13		—		—
					0		0		0
685	" Back				16		—		—
					0		0		0
686	graphite cylendrical piece				15		—		—
					0		0		0
687	Nuclear Supplies counting chamber (in)				12		—		—
					0		0		0
688	" (out)				13		—		—
					0		0		0
689	Tracey Lab Scaler (top)				14		—		—
					0		0		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-17-84 PAGE

LOCATION Rx room SURVEY DATE 8-1-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
690	Tracer Lab scaler (Front)				11 / 0	17 / 0	– / 0	3.5 / 3.7	– / 0
691	" bottom				15 / 0		– / 0		– / 0
692	" right				10 / 0		– / 0		– / 0
693	" Left				16 / 0		– / 0		– / 0
694	" back				11 / 0		– / 0		– / 0
695	9C 1				14 / 0		– / 0		– / 0
696	2				11 / 0		– / 0		– / 0
697	3				11 / 0		– / 0		– / 0
698	4				13 / 0		– / 0		– / 0
699	5				14 / 0		– / 0		– / 0
700	9Cx 1				9 / 0		– / 0		– / 0
701	2				9 / 0		– / 0		– / 0
702	3				14 / 0		– / 0		– / 0
703	4				8 / 0		– / 0		– / 0
704	5				14 / 0		– / 0		– / 0
705	9D 1				15 / 0		– / 0		– / 0
706	4				8 / 0		– / 0		– / 0
707	Empty gas bottle (metal)				9 / 0		– / 0		– / 0
708	wipe survey holder (key wipe)				10 / 0		– / 0		– / 0
709	" " "				14 / 0		– / 0		– / 0
710	5"x5" Aspesotase sheet				14 / 0		– / 0		– / 0
711	heat Lamp holder (in)				16 / 0		– / 0		– / 0
712	" (out)				13 / 0		– / 0		– / 0
713	H. P. Probe & elect. (wire & conn.)				11 / 0		– / 0		– / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-17-84 PAGE

LOCATION Rx room SURVEY DATE 8-3-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
714	H.P. Voltmeter (top)				10 0	17 0	— 0	35 3.7	— 0
715	" Front				13 0		— 0		— 0
716	" bottom				16 0		— 0		— 0
717	" right				11 0		— 0		— 0
718	" Left				16 0		— 0		— 0
719	" back				12 0		— 0		— 0
720	Piece of Plexaglass				16 0		— 0		— 0
721	Pb cave cover (top)				14 0		— 0		— 0
722	" bottom				11 0		— 0		— 0
723	" side				13 0		— 0		— 0
724	Piece of Plexaglass				16 0		— 0		— 0
725	Hex wrench				17 0		0 0		0 0
726	head rotary wrench				18 0		1 0		35 0
727	glass baker				13 0		— 0		— 0
728	" "				15 0		— 0		— 0
729	wood dowel				15 0		— 0		— 0
730	metal plate				15 0		— 0		— 0
731	"				16 0		— 0		— 0
732	Say bolt Visometer #31315 (top)				16 0		— 0		— 0
733	" Front				16 0		— 0		— 0
734	" bottom				16 0		— 0		— 0
735	" right				16 0		— 0		— 0
736	" Left				17 0		0 0		0 0
737	" back				16 0		— 0		— 0
738	Plug bolt				10 0	▽	— 0	▽	— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-17-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
739	Lid to Planchett counter	9.0	NDA	NDA	14 / 0	17 / 0	— / 0	3.5 / 5.7	— / 0
740	Planchett counter (top)				11 / 6		— / 0		— / 0
741	" bottom				13 / 0		— / 0		— / 0
742	" inside				16 / 0		— / 0		— / 0
743	scintillation detector #36096				14 / 0		— / 0		— / 0
744	electric wires				17 / 0		0 / 0		0 / 0
745	syringe + box				13 / 0		— / 0		— / 0
746	bag of syringes				14 / 0		— / 0		— / 0
747	Rotar Pointer				17 / 0		0 / 0		0 / 0
748	metal covers				16 / 0		— / 0		— / 0
749	Rope				15 / 0		— / 0		— / 0
750	Plastic caps				16 / 0		— / 0		— / 0
751	Glass test tube				13 / 0		— / 0		— / 0
752	Rubber Tubing				16 / 0		— / 0		— / 0
753	Plexaglass Shield				16 / 0		— / 0		— / 0
754	Glass Syringe				15 / 0		— / 0		— / 0
755	Plastic Cover				12 / 0		— / 0		— / 0
756	electric box cover				17 / 0		0 / 0		0 / 0
757	" " "				14 / 0		— / 0		— / 0
758	copper plate				15 / 0		— / 0		— / 0
759	Small piece of partical board				16 / 0		— / 0		— / 0
760	3 brass screws				15 / 0		— / 0		— / 0
761	2- 4" bolts				14 / 0		— / 0		— / 0
762	1/4" bolts				15 / 0		— / 0		— / 0
763	washers				17 / 0		0 / 0		0 / 0
764	3/8" Nuts	▽	▽	▽	15 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-18-84 PAGE

LOCATION Rx room SURVEY DATE 8-3-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
765	¼" & ⅛" Nuts	9.0	NDA	NDA	13	17	—	3.5	—
					0	0	0	3.7	0
766	Plastic bottle				17		0		0
					0		0		0
767	"T" Plate				13		—		—
					0		0		0
768	Al Shims				14		—		—
					0		0		0
769	Rubber washers				14		—		—
					0		0		0
770	metal adapter (larger)				16		—		—
					0		0		0
771	" (smaller)				13		—		—
					0		0		0
772	Paint Sterrer (wood)				16		—		—
					0		0		0
773	Hose Clamp				15		—		—
					0		0		0
774	" "				14		—		—
					0		0		0
775	" "				15		—		—
					0		0		0
776	Pb cap				16		—		—
					0		0		0
777	Test tube clamp				11		—		—
					0		0		0
778	bubble glass				12		—		—
					0		0		0
779	rubber washer				13		—		—
					0		0		0
780	copper fitting				14		—		—
					0		0		0
781	2 fuses				14		—		—
					0		0		0
782	4 brass fittings				15		—		—
					0		0		0
783	5 brass Fittings (for tubing)				16		—		—
					0		0		0
784	Brass " "				12		—		—
					0		0		0
785	combination Fittings				14		—		—
					0		0		0
786	Brass reducer				11		—		—
					0		0		0
787	3 "T"s & stop cocks				17		0		0
					0		0		0
788	7 stoppers				12		—		—
					0		0		0
789	6 - "O" rings				17		0		0
					0		0		0
790	10- metal tags	▽	▽	▽	11	▽	—	▽	—
					0		0		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-18-84 PAGE

LOCATION Rx room SURVEY DATE 8-3-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
791	Small washers & screws	9.0	NDA	NDA	13 / 0	17 / 0	— / 0	35 / x1	— / 0
792	Metal tray inside				13 / 0		— / 0		— / 0
793	metal tray outside				11 / 0		— / 0		— / 0
794	rubber tubing				17 / 0		0 / 0		0 / 0
795	copper tubing				15 / 0		— / 0		— / 0
796	copper sleve				14 / 0		— / 0		— / 0
797	"				9 / 0		— / 0		— / 0
798	Pb container				12 / 0		— / 0		— / 0
799	Rubber washer				14 / 0		— / 0		— / 0
800	Tube clamp				17 / 0		0 / 0		0 / 0
801	Pastic disk 2" dia.				11 / 0		— / 0		— / 0
802	3"x3" sq. of AL, sheet				14 / 0		— / 0		— / 0
803	4-3"x3" plastic sheets				16 / 0		— / 0		— / 0
804	Soft plastic Probe covers				17 / 0		0 / 0		0 / 0
805	2cc syringe				14 / 0		— / 0		— / 0
806	metal tray inside				16 / 0		— / 0		— / 0
807	" outside				13 / 0		— / 0		— / 0
808	Box of steel wool				12 / 0		— / 0		— / 0
809	"				12 / 0		— / 0		— / 0
810	Rubber bulb				11 / 0		— / 0		— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-21-84 PAGE

LOCATION Rx room SURVEY DATE 8-3-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
811	Coffee Can inside				12 / 0	17 / 0	— / 0	35 / 3.7	— / 0	
812	" outside				16 / 0		— / 0		— / 0	
813	G.E. pump & monitor				16 / 0		— / 0		— / 0	
814	exit "				17 / 0		0 / 0		0 / 0	
815	intrance "				16 / 0		— / 0		— / 0	
816	test tube clamp				15 / 0		— / 0		— / 0	
817	30 cc syringe				12 / 0		0 / 0		0 / 0	
818	test tube stand				12 / 0		— / 0		— / 0	
819	1/2" rubber tubing				13 / 0		— / 0		— / 0	
820	elec. cord & plugs				13 / 0		— / 0		— / 0	
821	elec. cable				14 / 0		— / 0		— / 0	
822	Helicoid Gage imced				13 / 0		— / 0		— / 0	
823	"				17 / 0		— / 0		— / 0	
824	"				12 / 0		— / 0		— / 0	
825	"				9 / 0		— / 0		— / 0	
826	"				16 / 0		— / 0		— / 0	
827	"				16 / 0		— / 0		— / 0	
828	"				12 / 0		— / 0		— / 0	
829	"				17 / 0		0 / 0		0 / 0	
830	Plastic tube w/elbow				16 / 0		— / 0		— / 0	
831	wire brush				13 / 0		— / 0		— / 0	
832	Part of mop handle				15 / 0		— / 0		— / 0	
833	3/4" black pipe				12 / 0		— / 0		— / 0	
834	T.W. wire "white"				12 / 0		— / 0		— / 0	
835	1/4" rubber hose & "T"				13 / 0		— / 0		— / 0	
836	1/2" " " " ——				12 / 0		— / 0		— / 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-21-84 PAGE

LOCATION Rx room SURVEY DATE 8-3-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α									
837	2 Glass vials empty + corks	9.0	NDA	NDA	16	0	17	0	—	0	3.5	3.7	— 0
838	1 cork stopper				14	0			—	0			— 0
839	graduated cylinder				17	0			0	0			0 0
840	glass bottle				16	0			—	0			— 0
841	500 ml flask				13	0			—	0			— 0
842	glass dewer				17	0			0	0			0 0
843					16	0			—	0			— 0
844.		▽	▽	▽	10	0			—	0			— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

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Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-24-84 PAGE

LOCATION Reaction Room SURVEY DATE 8-6-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
845	glass tubes, rubber tube, stopper	9.0	NOA	NOA	15 / 0	17 / 0	– / 0	3.5 / 3.7	– / 0
846	glass funnel				15 / 0		– / 0		– / 0
847	" "				11 / 0		– / 0		– / 0
848	cover glasses (2)				13 / 0		– / 0		– / 0
849	1/2" dia. glass tube				13 / 0		– / 0		– / 0
850	2000 ml Dewer				14 / 0		– / 0		– / 0
851	grad. cylinder				12 / 0		– / 0		– / 0
852	pipet & rubber tube				17 / 0		0 / 0		0 / 0
853	brush				13 / 0		– / 0		– / 0
854	block of wax				16 / 0		– / 0		– / 0
855	" " "				16 / 0		– / 0		– / 0
856	1 gal. jug "NAOH" (empty)				17 / 0		0 / 0		0 / 0
857	1 gal. methyl alcohol (liquid)				16 / 0		– / 0		– / 0
858	1/2 gal. NAOH (liquid)				13 / 0		– / 0		– / 0
859	1/2 gal. methyl alcohol (L)				10 / 0		– / 0		– / 0
860	bottle 1,2-Dibromoethane (empty)				16 / 0		– / 0		– / 0
861	500 ml Bottle methyl (liquid)				15 / 0		– / 0		– / 0
862	Plastic bottle (liquid unknown)				17 / 0		0 / 0		0 / 0
863	" " HCl (liquid)				15 / 0		– / 0		– / 0
864	glass bottle NAOH (solid)				14 / 0		– / 0		– / 0
865	can of spray paint				10 / 0		– / 0		– / 0
866	small vial (liquid unknown)				17 / 0		0 / 0		0 / 0
867	Can of duplicating fluid				17 / 0		0 / 0		0 / 0
868	Can oil (5 gal.)				16 / 0		– / 0		– / 0
869	yellow metal rod				14 / 0		– / 0		– / 0
870	Crange stand	▽	▽	▽	9 / 0	▽	– / 0	▽	– / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-24-84 PAGE

LOCATION Rx room SURVEY DATE 8-6-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
871	glass Jar inside	9.0	NDA	NDA	15 / 0	17 / 0	— / 0	3.5 / 3.7	— / 0	
872	" outside				2 / 0		— / 0		— / 0	
873	AL sheet A				15 / 0		— / 0		— / 0	
874	" B				16 / 0		— / 0		— / 0	
875	AL sheet 1				17 / 0		0 / 0		0 / 0	
876	" 2				1 / 0		— / 0		— / 0	
877	wood slat				13 / 0		— / 0		— / 0	
878	metal pipe stand				14 / 0		— / 0		— / 0	
879	oil pan (metal) in				10 / 0		— / 0		— / 0	
880	" out				16 / 0		— / 0		— / 0	
881	copper tubing				16 / 0		— / 0		— / 0	
882	plastic "				16 / 0		— / 0		— / 0	
883	sand paper				12 / 0		— / 0		— / 0	
884	gasket				15 / 0		— / 0		— / 0	
885	hose clamp				14 / 0		— / 0		— / 0	
886	role of metal				12 / 0		— / 0		— / 0	
887	elec. plug				16 / 0		— / 0		— / 0	
888	metal plate				17 / 0		0 / 0		0 / 0	
889	"				16 / 0		— / 0		— / 0	
890	gasket				11 / 0		— / 0		— / 0	
891	strip of metal				13 / 0		— / 0		— / 0	
892	muffler clamp + bolt(rusty)				17 / 0		0 / 0		0 / 0	
893	" "				12 / 0		— / 0		— / 0	
894	"C" Clamp				14 / 0		— / 0		— / 0	
895	6" glass tube				9 / 0		— / 0		— / 0	
896	sand paper	▽	▽	▽	11 / 0	▽	— / 0	▽	— / 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-24-84 PAGE _____

LOCATION Rx room SURVEY DATE 8-6-84 TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm		Bkg cpm		Net cpm		Eff.		dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm		Bkg cpm		Net cpm		Eff.		dpm
897	Sand paper	9.0	NDA	NDA	13	0	17	0	—	0	35 / 3.7		— 0
898	Piece of plastic & Rubber washer				12	0			—	0			— 0
899	4 copper brackets				16	0			—	0			— 0
900	garden hose end piece				14	0			—	0			— 0
901	11 - 1" OD. washers				9	0			—	0			— 0
902	2 @ 2" pipe brakets				16	0			—	0			— 0
903	hypodermic needle				16	0			—	0			— 0
904	1/2" bolts (5)				17	0			0	0			0 0
905	2" pipe threaded				16	0			—	0			— 0
906	3/8" bolts (3)				16	0			—	0			— 0
907	2 expanders metal				13	0			—	0			— 0
908	3 rubber washers				13	0			—	0			— 0
909	rubber stopper				12	0			—	0			— 0
910	6 metal shims				14	0			—	0			— 0
911	metal Rod 4" long				11	0			—	0			— 0
912	peice of metal & 3-1/4" bolts				12	0			—	0			— 0
913	2 @ 1/2" hose clamps				16	0			—	0			— 0
914	6 @ 3/8" bolts				17	0			0	0			0 0
915	1/4" bolts (7)				15	0			—	0			— 0
916	1/2" pipe fitting				14	0			—	0			— 0
917	1/8" screws (3)				13	0			—	0			— 0
918	2 wood screws				16	0			—	0			— 0
919	brass fitting				14	0			—	0			— 0
920	plastic plug				15	0			—	0			— 0
921	18 washers				18	0			1	0			3.5 0
922	20 lock washers	▽	▽	▽	10	0	▽		—	0	▽		— 0

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-25-84 PAGE

LOCATION Rx room SURVEY DATE 8-6-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
923	8 - 1/4" Nuts	9.0	NDA	NDA	16 / 0	17 / 0	— / 0	35 / 3.7	— / 0
924	9 - 3/8" Nuts hex				13 / 0		— / 0		— / 0
925	3 - 1/2" Nut				14 / 0		— / 0		— / 0
926	2 - 3/8" Nuts square				17 / 0		0 / 0		0 / 0
927	5 pins				15 / 0		— / 0		— / 0
928	1/16" Nut				16 / 0		— / 0		— / 0
929	wing nut				11 / 0		— / 0		— / 0
930	1 brass cover nut				13 / 0		— / 0		— / 0
931	2 hex wrenchs				13 / 0		— / 0		— / 0
932	1 chrome bolt				15 / 0		— / 0		— / 0
933	Sanka coffee can of foil (can)				10 / 0		— / 0		— / 0
934	" " (oil)				16 / 0		— / 0		— / 0
935	"T" bar grey				13 / 0		— / 0		— / 0
936	green garden hose				10 / 0		— / 0		— / 0
937	metal stand				10 / 0		— / 0		— / 0
938	white particle board A				11 / 0		— / 0		— / 0
939	B				14 / 0		— / 0		— / 0
940	Metal stand				15 / 0		— / 0		— / 0
941	Lead sheet A				12 / 0		— / 0		— / 0
942	B				17 / 0		0 / 0		0 / 0
943	Lead piece				13 / 0		— / 0		— / 0
944	"				12 / 0		— / 0		— / 0
945	"				17 / 0		0 / 0		0 / 0
946	"				15 / 0		— / 0		— / 0
947	"				17 / 0		0 / 0		0 / 0
948	"	▽	▽	▽	11 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-25-84 PAGE

LOCATION Rx room SURVEY DATE 8-6-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
949	Piece of Lead	9.0	N.D.A	N.D.A	14	17	–	35 / 3.7	–
950	"				11		–		–
951	"				16		–		–
952	"				15		–		–
953	"				17		0		0
954	"				17		0		0
955	"				13		–		–
956	"				14		–		–
957	"				15		–		–
958	5 strips of Lead				9		–		–
959	7 " " "				15		–		–
960	7 " " "				15		–		–
961	Piece of Lead				17		0		0
962	4 Pieces " "				16		–		–
963	11 strips of Lead				15		–		–
964	11 " " "				10		–		–
965	10 " " "				13		–		–
966	7 " " "				17		0		0
967	27 " " "				16		–		–
968	Lead fiber				15		–		–
969	Piece of metal (AL)				15		–		–
970	Piece of Lead				16		–		–
971	graphite carts paint can				10		–		–
972	2 pieces of lead				16		–		–
973	chrome plate				16		–		–
974	plexaglass holder	▽	▽	▽	16	▽	–	▽	–

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-26-84 PAGE

LOCATION Rx room SURVEY DATE 8-6-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α									
					Gross cpm		Bkg cpm		Net cpm		Eff.		dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm		Bkg cpm		Net cpm		Eff.		dpm	
975	Plexaglass	9.0	NOA	NOA	16	0	17	0	–	0	35	3.7	–	0
976	4 strips of metals				13	0			–	0			–	0
977	Chrome bar				15	0			–	0			–	0
978	3@ 3/8" open end wrench				15	0			–	0			–	0
979	wire & connector				15	0			–	0			–	0
980	5 1/4" bolts				16	0			–	0			–	0
981	2 pieces of plexaglass				17	0			–	0			–	0
982	wood w/screwdriver tip				9	0			–	0			–	0
983	electric plug				13	0			–	0			–	0
984	plexaglass & metal				11	0			–	0			–	0
985	small wood dowl				14	0			–	0			–	0
986	red plastic cap				13	0			–	0			–	0
987	plastic box & foam				15	0			–	0			–	0
988	electric wire				13	0			–	0			–	0
989	2 electrical wires & leads				13	0			–	0			–	0
990	31 nuts 3/8"				14	0			–	0			–	0
991	2- 3/8" washers				11	0			–	0			–	0
992	30- 3/8" bolts 2" L				16	0			–	0			–	0
993	Large wood dowl				13	0			–	0			–	0
994	metal ring				13	0			–	0			–	0
995	Piece of hose				15	0			–	0			–	0
996	Flow chamber (out)				16	0			–	0			–	0
997	" (in)				11	0			–	0			–	0
998	" (bottom)				14	0			–	0			–	0
999	Lid to flow chamber A				14	0			–	0			–	0
1000	B	▽	▽	▽	16	0	▽		–	0	▽		–	0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-26-84 PAGE

LOCATION Rx room SURVEY DATE 8-8-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α						
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
1001	1/2" bolts @ 3				14 / 0	17 / 0	— / 0	35 / 3.7	— / 0
1002	Edgeworth tin can (in)				14 / 0		— / 0		— / 0
1003	(out)				16 / 0		— / 0		— / 0
1004	Flow chamber bot. Platform				13 / 0		— / 0		— / 0
1005	"				11 / 0		— / 0		— / 0
1006	"				17 / 0		0 / 0		0 / 0
1007	"				14 / 0		— / 0		— / 0
1008	"				14 / 0		— / 0		— / 0
1009	underside of Platform				13 / 0		— / 0		— / 0
100	"				18 / 0		1 / 0		35 / 0
1011	"				13 / 0		— / 0		— / 0
1012	"				17 / 0		0 / 0		0 / 0
1013	"				15 / 0		0 / 0		0 / 0
1014	Bottom valve (larger)				11 / 0		— / 0		— / 0
1015	" (smaller)				10 / 0		— / 0		— / 0
1016	Bottom tank				14 / 0		— / 0		— / 0
1017	Pipe side opening				12 / 0		— / 0		— / 0
1018	side pipe & yellow plug				12 / 0		— / 0		— / 0
1019	outside bottom tank				14 / 0		— / 0		— / 0
1020	" upper tank				13 / 0		— / 0		— / 0
1021	top of tank				14 / 0		— / 0		— / 0
1022	pipe on top				11 / 0		— / 0		— / 0
1023	short hose				12 / 0		— / 0		— / 0
1024	long hose				9 / 0		— / 0		— / 0
1025	med. hose				17 / 0		0 / 0		0 / 0
1026	Upper tank side pipe A				15 / 0	∅	— / 0	∅	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

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DEPARTMENT ME REPORT DATE 9-26-84 PAGE

LOCATION Rx room SURVEY DATE 8-8-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
1027	side pipe B	9.0	NDA	NDA	17 / 0	17 / 0	0 / 0	3.5 / 3.7	0 / 0
1028	Plastic rain hat				15 / 0		— / 0		— / 0
1029	hinge				16 / 0		— / 0		— / 0
1030	2" Dia. pipe				16 / 0		— / 0		— / 0
1031	Larger circ. Plate (metal)				13 / 0		— / 0		— / 0
1032	metal (circ.)				13 / 0		— / 0		— / 0
1033	"				16 / 0		— / 0		— / 0
1034	"				12 / 0		— / 0		— / 0
1035	"				17 / 0		0 / 0		0 / 0
1036	"				14 / 0		— / 0		— / 0
1037	"				14 / 0		— / 0		— / 0
1038	"				10 / 0		— / 0		— / 0
1039	"				15 / 0		— / 0		— / 0
1040	Bolt 3" "eye"				10 / 0		— / 0		— / 0
1041	Lead ring				15 / 0		— / 0		— / 0
1042	square metal pan A				9 / 0		— / 0		— / 0
1043	" " B				8 / 0		— / 0		— / 0
1044	metal sheet A				15 / 0		— / 0		— / 0
1045	B				13 / 0		— / 0		— / 0
1046	5' piece of wood				10 / 0		— / 0		— / 0
1047	3" flex tubing outside				16 / 0		— / 0		— / 0
1048	" " inside				19 / 0		— / 0		— / 0
1049	condensing chamber (out				17 / 0		0 / 0		0 / 0
1050	" (end)				16 / 0		— / 0		— / 0
1051	hose conn. & washer				15 / 0		— / 0		— / 0
1052	hose " (w/o washer)	▽	▽	▽	16 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-27-84 PAGE

LOCATION Rx room SURVEY DATE 8-8-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α									
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α										
1053	Cloud chamber (out)	9.0	NDA	NDA	11	0	17	0	—	0	3.5	3.5	—	0
1054	" (inside)				11	0			—	0			—	0
1055	L inside Cardboard				11	0			—	0			—	0
1056	Lid inside				12	0			—	0			—	0
1057	outside				14	0			—	0			—	0
1058	square piece of wood				12	0			—	0			—	0
1059	"				15	0			—	0			—	0
1060	metal plate w/holes				14	0			—	0			—	0
1061	"				15	0			—	0			—	0
1062	reactor mode (outside)				15	0			—	0			—	0
1063	" (inside)				17	0			0	0			0	0
1064	" model part				16	0			—	0			—	0
1065	flow tank outside				14	0			—	0			—	0
1066	side opening				12	0			—	0			—	0
1067	pipe inside opening				13	0			—	0			—	0
1068	side plug #1				18	0			1	0			3.5	0
1069	" " #2				13	0			—	0			—	0
1070	pipe inside tank				17	0			0	0			0	0
1071	inside of tank				8	0			—	0			—	0
1072	plastic jug of solvent				14	0			—	0			—	0
1073	metal Flip chart				17	0			0	0			0	0
1074	"				14	0			—	0			—	0
1075	"				13	0			—	0			—	0
1076	"				16	0			—	0			—	0
1077	"				13	0			—	0			—	0
1078	"				16	0			—	0			—	0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-27-84 PAGE

LOCATION Rx room SURVEY DATE 8-8-84 TIME

RESP. USER ☐ ROUTINE, ☐ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
1079	Metal flip chart	9.0	NOA	NOA	16 0	17 0	– 0	35 3.7	– 0
1080	"	"	"	"	17 0	"	0 0	"	0 0
1081	Frame of chart	"	"	"	14 0	"	– 0	"	– 0
1082	Metal funnel inside	"	"	"	11 0	"	– 0	"	– 0
1083	" outside	"	"	"	11 0	"	– 0	"	– 0
1084	Strip chart recorder (top)	"	"	"	13 0	"	– 0	"	– 0
1085	papers d front "	"	"	"	15 0	"	– 0	"	– 0
1086	right "	"	"	"	17 0	"	0 0	"	0 0
1087	left "	"	"	"	12 0	"	– 0	"	– 0
1088	bottom "	"	"	"	13 0	"	– 0	"	– 0
1089	back "	"	"	"	11 0	"	– 0	"	– 0
1090	8 medicine droppers	"	"	"	9 0	"	– 0	"	– 0
1091	card board box	"	"	"	10 0	"	– 0	"	– 0
1092	small glass bottle	"	"	"	12 0	"	– 0	"	– 0
1093	Nob guage	"	"	"	16 0	"	– 0	"	– 0
1094	2 lids → small, large	"	"	"	16 0	"	– 0	"	– 0
1095	plastic nob	"	"	"	10 0	"	– 0	"	– 0
1096	Key ring and chain	"	"	"	10 0	"	– 0	"	– 0
1097	New chrome piston ring set	"	"	"	11 0	"	– 0	"	– 0
1098	red plastic cap	"	"	"	11 0	"	– 0	"	– 0
1099	2 screws	"	"	"	15 0	"	– 0	"	– 0
1100	yellow rubber tips	"	"	"	12 0	"	– 0	"	– 0
1101	Electrical cap	"	"	"	15 0	"	– 0	"	– 0
1102	black plastic cap	"	"	"	17 0	"	0 0	"	0 0
1103	Key wrench	"	"	"	9 0	"	– 0	"	– 0
1104	glass stop cock	◁	◁	◁	14 0	◁	– 0	◁	– 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 9-28-84 PAGE

LOCATION Rx room SURVEY DATE 8-8-84 TIME

RESP. USER ☐ ROUTINE, ☐ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ				α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	dpm	Eff.	dpm
1105	2 small round Lids	9.0	NOA	NOA	17	17	0	0	35 3.7	0
1106	2" x 1.75" Plastic Plate				13	0	—	0		—
1107	Key ring with chain				11	0	—	0		—
1108	piece of lead				14	0	—	0		—
1109	"O" ring				11	0	—	0		—
1110	New gasket				13	0	—	0		—
1111	piece of asp:stose				12	0	—	0		—
1112	gasket				16	0	—	0		—
1113	"				16	0	—	0		—
1114	3 round gaskets				15	0	—	0		—
1115	gasket				13	0	—	0		—
1116	round piece of aspestose				16	0	—	0		—
1117	piece of aluminum				15	0	—	0		—
1118	yellow plastic ring				11	0	—	0		—
1119	small Lid AL.				13	0	—	0		—
1120	AL. ring				17	0	0	0		0
1121	metal "				13	0	—	0		—
1122					13	0	—	0		—
1123	flashlight batteries				13	0	—	0		—
1124	3/8" drill bit				14	0	—	0		—
1125	3/8" bolt 12" L.				16	0	—	0		—
1126	small elec. motor				14	0	—	0		—
1127	Plastic dowl				13	0	—	0		—
1128	2" x 1.75" Plastic				17	0	0	0		0
1129	100 mL beaker				9	0	—	0		—
1130	glass vial	▽	▽	▽	15	0	—	0	▽	0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-1-84 PAGE

LOCATION Rx room SURVEY DATE 8-8-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
1131	plastic holder	9,0	NDA	NDA	13 / 0	17 / 0	— / 0	3.3 / 3.5	— / 0
1132	red plastic cap				16 / 0	— / —	— / 0		— / 0
1133	3 med. droppers				15 / 0		— / 0		— / 0
1134	piece of metal				14 / 0		— / 0		— / 0
1135	plastic syringes				13 / 0		— / 0		— / 0
1136	yellow wire				16 / 0		— / 0		— / 0
1137	air line coupler				14 / 0		— / 0		— / 0
1138	paper clip				13 / 0		— / 0		— / 0
1139	rubber stopper				14 / 0		— / 0		— / 0
1140	electrical cap				13 / 0		— / 0		— / 0
1141	metal tray inside A				13 / 0		— / 0		— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-1-84 PAGE

LOCATION Rx room SURVEY DATE 8-9-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α									
1142	metal tray outside B				12	0	17	0	—	0	3.3	3.5	— 0
1143	welded metal plates				11	0			—	0			— 0
1144	NOKORODE soldering paste				11	0			—	0			— 0
1145	metal pin				10	0			—	0			— 0
1146	edelift chamber				17	0			0	0			0 0
1147	metal pipe cap				15	0			—	0			— 0
1148	resister				15	0			—	0			— 0
1149	Red elec. head				17	0			0	0			0 0
1150	Amperex Rad. counter				14	0			—	0			— 0
1151	Pressure chamber				9	0			—	0			— 0
1152	Red. elec. leads				13	0			—	0			— 0
1153	1/16" tubing				14	0			—	0			— 0
1154	detector cable (det)				15	0			—	0			— 0
1155	(cable)				17	0			0	0			0 0
1156	metal rod				14	0			—	0			— 0
1157	metal screw driver				14	0			—	0			— 0
1158	piece of tin				17	0			0	0			0 0
1159	lead sheet 5"x8"				13	0			—	0			— 0
1160	box of boric acid powder				15	0			—	0			— 0
1161	boric acid				10	0			—	0			— 0
1162	cardboard barrel (top)				13	0			—	0			— 0
1163	" (bottom)				15	0			—	0			— 0
1164	" (side)				15	0			—	0			— 0
1165	ring lock				12	0			—	0			— 0
1166	welding wire				16	0			—	0			— 0
1167	green metal box (bottom				15	0			—	0			— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-3-84 PAGE

LOCATION Rx room SURVEY DATE 8-9-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
1168	green metal box (sides)	9.0	NDA	NDA	15 / 0	17 / 0	— / 0	3.3 / 3.5	— / 0	
1169	" (inside)				15 / 0		— / 0		— / 0	
1170	" Lid A				9 / 0		— / 0		— / 0	
1171	B				14 / 0		— / 0		— / 0	
1172	Green wood block A				16 / 0		— / 0		— / 0	
1173	B				15 / 0		— / 0		— / 0	
1174	brass rod				13 / 0		— / 0		— / 0	
1175	plastic tubing				14 / 0		— / 0		— / 0	
1176	plastic bag (yellow part)				16 / 0		— / 0		— / 0	
1177	plastic & paint yellow				16 / 0		— / 0		— / 0	
1178	"				16 / 0		— / 0		— / 0	
1179	"				13 / 0		— / 0		— / 0	
1180	lead pig outside				17 / 0		— / 0		— / 0	
1181	" inside				15 / 0		— / 0		— / 0	
1182	Lead base of counting cavet				13 / 0		— / 0		— / 0	
1183	Sample holder	▽	▽	▽	16 / 0	▽	— / 0	▽	— / 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-2-84 PAGE

LOCATION Rx room SURVEY DATE 8-10-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm	
1184	Lead ring A	9.0	NDA	NDA	14 0	12 0	— 0	3.3 3.5	— 0	
1185	B				14 0	0	— 0		— 0	
1186	oil cans				16 0	0	— 0		— 0	
1187	"				16 0		— 0		— 0	
1188	"				16 0		— 0		— 0	
1189	"				10 0		— 0		— 0	
1190	"				15 0		— 0		— 0	
1191	"				12 0		— 0		— 0	
1192	"				14 0		— 0		— 0	
1193	" (trans fluid)				16 0		— 0		— 0	
1194	"				13 0		— 0		— 0	
1195	"				15 0		— 0		— 0	
1196	"				16 0		— 0		— 0	
1197	Parts dip				13 0		— 0		— 0	
1198	metal oil can (inside)				13 0		— 0		— 0	
1199	" (outside)				13 0		— 0		— 0	
1200	metal shelf A				15 0		— 0		— 0	
1201	" B				14 0		— 0		— 0	
1202	metal shelf A				17 0		0 0		0 0	
1203	" B				13 0		— 0		— 0	
1204	33 gal can (normal Heptane)				12 0		— 0		— 0	
1205	" bottom				14 0		— 0		— 0	
1206	" sides				14 0		— 0		— 0	
1207	lead brick				13 0		— 0		— 0	
1208	starter rope				17 0		0 0		0 0	
1209	piece of Pb.	▽	▽	▽	14 0	▽	— 0	▽	— 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donath

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-2-84 PAGE
LOCATION Rx room SURVEY DATE 8-9-84 TIME
RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
1210	Lead (Pb)	9.0	NDA	NDA	14 / 0	17 / 0	— / 0	3.3 / 3.5	— / 0
1211	"				15 / 0		— / 0		— / 0
1212	"				15 / 0		— / 0		— / 0
1213	"				16 / 0		— / 0		— / 0
1214	"				15 / 0		— / 0		— / 0
1215	"				14 / 0		— / 0		— / 0
1216	"				14 / 0		— / 0		— / 0
1217	" (Brick)				10 / 0		— / 0		— / 0
1218	"				13 / 0		— / 0		— / 0
1219	"				17 / 0		0 / 0		0 / 0
1220	"				13 / 0		— / 0		— / 0
1221	"				16 / 0		— / 0		— / 0
1222	"				17 / 0		0 / 0		0 / 0
1223	"				14 / 0		— / 0		— / 0
1224	"				11 / 0		— / 0		— / 0
1225	"				18 / 0		1 / 0		33 / 0
1226	"				16 / 0		— / 0		— / 0
1227	"				14 / 0		— / 0		— / 0
1228	"				12 / 0		— / 0		— / 0
1229	"				12 / 0		— / 0		— / 0
1230	"				17 / 0		0 / 0		0 / 0
1231	plastic attached to wire				15 / 0		— / 0		— / 0
1232	wire →				16 / 0		— / 0		— / 0
1233	Lid for Pb container A				14 / 0		— / 0		— / 0
1234	" B				14 / 0		— / 0		— / 0
1235	" handle	▽	▽	▽	15 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-2-84 PAGE

LOCATION Rx room SURVEY DATE 8-9-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
1210	Lead (Pb)	9.0	NDA	NDA	14 / 0	17 / 0	— / 0	3.3 / 3.5	— / 0	
1211	"				15 / 0		— / 0		— / 0	
1212	"				15 / 0		— / 0		— / 0	
1213	"				16 / 0		— / 0		— / 0	
1214	"				15 / 0		— / 0		— / 0	
1215	"				14 / 0		— / 0		— / 0	
1216	"				14 / 0		— / 0		— / 0	
1217	" (Brick)				10 / 0		— / 0		— / 0	
1218	"				12 / 0		— / 0		— / 0	
1219	"				17 / 0		0 / 0		0 / 0	
1220	"				13 / 0		— / 0		— / 0	
1221	"				16 / 0		— / 0		— / 0	
1222	"				17 / 0		0 / 0		0 / 0	
1223	"				14 / 0		— / 0		— / 0	
1224	"				11 / 0		— / 0		— / 0	
1225	"				18 / 0		1 / 0		33 / 0	
1226	"				16 / 0		— / 0		— / 0	
1227	"				14 / 0		— / 0		— / 0	
1228	"				12 / 0		— / 0		— / 0	
1229	"				12 / 0		— / 0		— / 0	
1230	"				17 / 0		0 / 0		0 / 0	
1231	plastic attached to wire				15 / 0		— / 0		— / 0	
1232	wire →				16 / 0		— / 0		— / 0	
1233	Lid for Pb container A				14 / 0		— / 0		— / 0	
1234	" B				14 / 0		— / 0		— / 0	
1235	" handle	▽	▽	▽	15 / 0	▽	— / 0	▽	— / 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-3-84 PAGE

LOCATION R. room SURVEY DATE 8-9-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α							
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α								
1236	Lead container (in)	9.0	NOA	NOA	18	0	17	0	1	0	3.3 / 3.5	3.3 / 0
1237	" (out)				12	0			—	0		— / 0
1238	" "				16	0			—	0		— / 0
1239	(out. bot.)				13	0			—	0		— / 0
1240	(in bot.)				16	0			—	0		— / 0
1241	gray shovel handle				17	0			0	0		0 / 0
1242	A				16	0			—	0		— / 0
1243	B				16	0			—	0		— / 0
1244	flow sec. 1 pipe (Flex tangle valve)				15	0			—	0		— / 0
1245	sec. 2				13	0			—	0		— / 0
1246	3				14	0			—	0		— / 0
1247	4				11	0			—	0		— / 0
1248	sec. 5 opening on angle pipe				10	0			—	0		— / 0
1249	" 6 " on Flex bracket				9	0			—	0		— / 0
1250	" 7 " opening @ valve				10	0			—	0		— / 0
1251	composite pipe				12	0			—	0		— / 0
1252	Radiation signs				16	0	▽		—	0		— / 0
1253	"				15	0	16	0	—	0		— / 0
1254	"				13	0			—	0		— / 0
1255	"				15	0			—	0		— / 0
1256	T.A. Counting cave top				10	0			—	0		— / 0
1257	" outside				14	0			—	0		— / 0
1258	bottom				8	0			—	0		— / 0
1259	top inside				12	0			—	0		— / 0
1260	inside wall				10	0			—	0		— / 0
		▽	▽	▽			▽				▽	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-3-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
1261	RLDM-3 Sheild (top)	9.0	NDA	NDA	17 / 0	16 / 0	1 / 0	3.3 / 3.5	3.3 / 0
1262	bottom				9 / 0		— / 0		— / 0
1263	side				11 / 0		— / 0		— / 0
1264	inside center				11 / 0		— / 0		— / 0
1265	Large piece of plastic				16 / 0		0 / 0		0 / 0
1266	"				11 / 0		— / 0		— / 0
1267	"				16 / 0		0 / 0		0 / 0
1268	"				14 / 0		— / 0		— / 0
1269	"				15 / 0		— / 0		— / 0
1270	Plywood board 32"x36" A				14 / 0		— / 0		— / 0
1271	" " " B				10 / 0		— / 0		— / 0
1272	" " 32"x42" A				9 / 0		— / 0		— / 0
1273	" B				14 / 0		— / 0		— / 0
1274	Red Plastic cap				14 / 0		— / 0		— / 0
1275	clear " "				17 / 0		1 / 0		3.3 / 0
1276	welding (Brass) rods				13 / 0		— / 0		— / 0
1277	metal cover A				11 / 0		— / 0		— / 0
1278	B	▽	▽	▽	16 / 0	▽	0 / 0	▽	0 / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donath

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-3-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
1261	RLDM-3 sheild (top)	9.0	NDA	NDA	17 / 0	16 / 0	1 / 0	3.3 / 3.5	33 / 0
1262	bottom				9 / 0		— / 0		— / 0
1263	side				11 / 0		— / 0		— / 0
1264	inside center				11 / 0		— / 0		— / 0
1265	Large piece of plastic				16 / 0		0 / 0		0 / 0
1266	"				11 / 0		— / 0		— / 0
1267	"				16 / 0		0 / 0		0 / 0
1268	"				14 / 0		— / 0		— / 0
1269	"				15 / 0		— / 0		— / 0
1270	Plywood board 32"x36" A				14 / 0		— / 0		— / 0
1271	" " " B				10 / 0		— / 0		— / 0
1272	" " 32"x42" A				9 / 0		— / 0		— / 0
1273	" B				14 / 0		— / 0		— / 0
1274	Red Plastic cap				14 / 0		— / 0		— / 0
1275	clear " "				17 / 0		1 / 0		33 / 0
1276	welding (Brass) rods				13 / 0		— / 0		— / 0
1277	metal cover A				11 / 0		— / 0		— / 0
1278	B	▽	▽	▽	16 / 0	▽	0 / 0	▽	0 / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donath

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-4-84 PAGE

LOCATION Rx room SURVEY DATE 8-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
1279	Brass nut	9.0	NDA	NDA	10 0	16 0	— 0	3.3 3.5	— 0
1280	Plastic				13 0		— 0		— 0
1281	Desk top seat				14 0		— 0		— 0
1282	top desk				12 0		— 0		— 0
1283	Front, back				10 0		— 0		— 0
1284	bottom seat				10 0		— 0		— 0
1285	bottom desk				13 0		— 0		— 0
1286	back				11 0		— 0		— 0
1287	↓ base				12 0		— 0		— 0
1288	Desk top seat				14 0		— 0		— 0
1289	top desk				11 0		— 0		— 0
1290	bottom seat				13 0		— 0		— 0
1291	bottomdesk				15 0		— 0		— 0
1292	Front, back				16 0		0 0		0 0
1293	back				8 0		— 0		— 0
1294	↓ base				13 0		— 0		— 0
1295	Desk top seat				16 0		0 0		0 0
1296	top desk				10 0		— 0		— 0
1297	bottom seat				13 0		— 0		— 0
1298	bottom desk				11 0		— 0		— 0
1299	Front, back				12 0		— 0		— 0
1300	back				16 0		0 0		0 0
1301	↓ base	▽	▽	▽	16 0	▽	0 0	▽	0 0

INSTRUMENTS: PRS-1 Bkg = $\bar{X}$ 56 cpm

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-4-84 PAGE

LOCATION Rx room SURVEY DATE 8-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS				READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored		uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
1302	Desk	top seat	9.0	NDA	NDA	13 / 0	16 / 0	— / 0	3.3 / 3.5	— / 0
1303	|	top desk	|			15 / 0		— / 0		— / 0
1304	|	Front back	|			14 / 0		— / 0		— / 0
1305	|	bottom seat	|			10 / 0		— / 0		— / 0
1306	|	bottom desk	|			17 / 0		1 / 0		3.3 / 0
1307	|	back	|			13 / 0		— / 0		— / 0
1308	↓	base	|			15 / 0		— / 0		— / 0
1309	Desk	top seat	|			16 / 0		0 / 0		0 / 0
1310	|	top desk	|			13 / 0		— / 0		— / 0
1311	|	front back	|			11 / 0		— / 0		— / 0
1312	|	bottom seat	|			12 / 0		— / 0		— / 0
1313	|	bottom desk	|			14 / 0		— / 0		— / 0
1314	|	back	|			11 / 0		— / 0		— / 0
1315	↓	base	|			11 / 0		— / 0		— / 0
1316	Desk	top seat	|			11 / 0		— / 0		— / 0
1317	|	top desk	|			10 / 0		— / 0		— / 0
1318	|	front desk	|			11 / 0		— / 0		— / 0
1319	|	bottom desk	|			8 / 0		— / 0		— / 0
1320	|	back	|			15 / 0		— / 0		— / 0
1321	|	base	|			15 / 0		— / 0		— / 0
1322	↓	bottom seat	|			13 / 0		— / 0		— / 0
1323	Desk	top seat	|			10 / 0		— / 0		— / 0
1324	|	top desk	|			11 / 0		— / 0		— / 0
1325	|	Front back	|			15 / 0		— / 0		— / 0
1326	|	bottom desk	|			16 / 0		0 / 0		0 / 0
1327	↓	bottom seat	▽			9 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-5-84 PAGE

LOCATION R.; room SURVEY DATE 8-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

Sample Number	Objects Monitored	uR/hr	READINGS cpm @ contact (less Bkg) β + γ	READINGS cpm @ contact (less Bkg) α	REMOVABLE β+γ Gross cpm	REMOVABLE β+γ Bkg cpm	REMOVABLE β+γ Net cpm	α Eff.	α dpm
1328	(cont) Desk Back	9.0	NDA	NDA	15 0	16 0	– 0	3.3 3.5	– 0
1329	base				15 0		– 0		– 0
1330	Desk top seat				16 0		0 0		0 0
1331	top desk				11 0		– 0		– 0
1332	front back				14 0		– 0		– 0
1333	bottom seat				12 0		– 0		– 0
1334	bottom desk				16 0		0 0		0 0
1335	back				14 0		– 0		– 0
1336	base				13 0		– 0		– 0
1337	Desk top seat				13 0		– 0		– 0
1338	top desk				14 0		– 0		– 0
1339	frt. back				16 0		0 0		0 0
1340	bot. Seat				12 0		– 0		– 0
1341	bot. desk				8 0		– 0		– 0
1342	back				12 0		– 0		– 0
1343	base				10 0		– 0		– 0
1344	wood chair top seat				16 0		0 0		0 0
1345	frt. back				13 0		– 0		– 0
1346	bot. seat				16 0		0 0		0 0
1347	back				12 0		– 0		– 0
1348	Legs				14 0		– 0		– 0
1349	Stool top seat				8 0		– 0		– 0
1350	bot. seat				14 0		– 0		– 0
1351	Legs				14 0		– 0		– 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-5-84 PAGE

LOCATION Rx room SURVEY DATE 8-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
1352	Stool top seat	9.0	NDA	NDA	12 0	16 0	— 0	33 35	— 0
1353	bot. seat				10 0		— 0		— 0
1354	Legs				16 0		0 0		0 0
1355	Stool top seat				12 0		— 0		— 0
1356	bot. seat				8 0		— 0		— 0
1357	Legs				16 0		0 0		0 0
1358	wood end table top				10 0		— 0		— 0
1359	back				12 0		— 0		— 0
1360	rt. side				8 0		— 0		— 0
1361	Lft. side				10 0		— 0		— 0
1362	Bottom				16 0		0 0		0 0
1363	Legs				12 0		— 0		— 0
1364	inside top				12 0		— 0		— 0
1365	inside bot.				18 0		0 0		0 0
1366	inside back				16 0		0 0		0 0
1367	inside rt.				8 0		— 0		— 0
1368	insid lft.				14 0		— 0		— 0
1369	12D 1 Floor				14 0		— 0		— 0
1370	2				16 0		0 0		0 0
1371	3				14 0		— 0		— 0
1372	4				14 0		— 0		— 0
1373	5				16 0		0 0		0 0
1374	12D x wall 1				16 0		0 0		0 0
1375	2				12 0		— 0		— 0
1376	3				10 0		— 0		— 0
1377	4	◇	◇	◇	14 0	◇	— 0	◇	— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-5-84 PAGE

LOCATION Rx room SURVEY DATE 8-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
1328	(cont) Desk Back	9.0	NDA	NDA	15	16	–	3.3	–
					0	0	0	3.5	0
1329	base				15		–		–
					0		0		0
1330	Desk top seat				16		0		0
					0		0		0
1331	top desk				11		–		–
					0		0		0
1332	front back				14		–		–
					0		0		0
1333	bottom seat				12		–		–
					0		0		0
1334	bottom desk				16		0		0
					0		0		0
1335	back				14		–		–
					0		0		0
1336	base				12		–		–
					0		0		0
1337	Desk top seat				12		–		–
					0		0		0
1338	top desk				14		–		–
					0		0		0
1339	frt. back				16		0		0
					0		0		0
1340	bot. Seat				12		–		–
					0		0		0
1341	bot. desk				8		–		–
					0		0		0
1342	back				12		–		–
					0		0		0
1343	base				10		–		–
					0		0		0
1344	wood chair top seat				16		0		0
					0		0		0
1345	frt. back				13		–		–
					0		0		0
1346	bot. seat				16		0		0
					0		0		0
1347	back				12		–		–
					0		0		0
1348	Legs				14		–		–
					0		0		0
1349	stool top seat				8		–		–
					0		0		0
1350	bot. seat				14		–		–
					0		0		0
1351	Legs	▽	▽	▽	14		–		–
					0		0		0
						▽		▽	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-5-84 PAGE

LOCATION Rx room SURVEY DATE 8-13-84 TIME 1:01-5:00

RESP. USER ☐ ROUTINE, ☑ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α						
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm		
Sample Number	Objects Monitored	uR/hr	β + γ	α							
1378	12Dx Wall 5	~~9.0~~	NDA	NDA	13 0	16 0	— 0	3.3 3.5	— 0		
1379	12Dy wall 1				8 0		— 0		— 0		
1380	2				14 0		— 0		— 0		
1381	3				10 0		— 0		— 0		
1382	4				14 0		— 0		— 0		
1383	5				14 0		— 0		— 0		
1384	C. Block (Cinderblock)				12 0		— 0		— 0		
1385	11				16 0		0 0		0 0		
1386	11				10 0		— 0		— 0		
1387	11				10 0		— 0		— 0		
1388	11				14 0		— 0		— 0		
1389	11				10 0		— 0		— 0		
1390	11				10 0		— 0		— 0		
1391	11				16 0		0 0		0 0		
1392	11				14 0		— 0		— 0		
1393	11				14 0		— 0		— 0		
1394	11				14 0		— 0		— 0		
1395	11				12 0		— 0		— 0		
1396	11				8 0		— 0		— 0		
1397	11				13 0		— 0		— 0		
1398	11				16 0		0 0		0 0		
1399	11				14 0		— 0		— 0		
1400	11				14 0		— 0		— 0		
1401	11				16 0		0 0		0 0		
1402	11				10 0		— 0		— 0		

INSTRUMENTS: Rascal Bkg = 69 cpm $\bar{x}$ 9 uR/hr = Bkg $\bar{x}$

COMMENTS:

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-8-84 PAGE

LOCATION Rx room SURVEY DATE 8-13-84 TIME 1:00-5:00

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
1403	Pb container (out)	9.0	NDA	NDA	16 / 0	16 / 0	0 / 0	3.3 / 35	0 / 0
1404	" (in)				12 / 0		— / 0		— / 0
1405	med. dropper				8 / 0		— / 0		— / 0
1406	metal tube				16 / 0		0 / 0		0 / 0
1407	opening w/garden hose adapt.				14 / 0		— / 0		— / 0
1408	1½" piece				12 / 0		— / 0		— / 0
1409	bottom stone				10 / 0		— / 0		— / 0
1410	supports				4 / 0		— / 0		— / 0
1411	elect. motor				12 / 0		— / 0		— / 0
1412	oil pump				8 / 0		— / 0		— / 0
1413	oil sample				16 / 0		0 / 0		0 / 0
1414	D11 Floor 1				16 / 0		0 / 0		0 / 0
1415	2				10 / 0		— / 0		— / 0
1416	3				12 / 0		— / 0		— / 0
1417	4				16 / 0		0 / 0		0 / 0
1418	5				14 / 0		— / 0		— / 0
1419	Floor E13 1				16 / 0		0 / 0		0 / 0
1420	2				16 / 0		0 / 0		0 / 0
1421	3				14 / 0		— / 0		— / 0
1422	4				8 / 0		— / 0		— / 0
1423	5				10 / 0		— / 0		— / 0
1424	E12 wall 1				16 / 0		0 / 0		0 / 0
1425	2				14 / 0		— / 0		— / 0
1426	3				8 / 0		— / 0		— / 0
1427	4				13 / 0		— / 0		— / 0
1428	5				16 / 0		0 / 0		0 / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Dorati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT M.E. REPORT DATE 10-9-84 PAGE

LOCATION Rx Room Lab SURVEY DATE 8-13-84 TIME 1-5

RESP. USER ☐ ROUTINE, ☑ SPECIAL, Decommissioning

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm	
1480	Particle board A	9.0	NDA	NDA	14 0	16 0	— 0	33 35	— 0	
1481	B				8 0		— 0		— 0	
1482	7 3/8" dia. metal rods (w/ 3 pieces)				16 0		0 0		0 0	
1483	cinder blocks				16 0		0 0		0 0	
1484	"				14 0		— 0		— 0	
1485	"				16 0		0 0		0 0	
1486	metal strips				12 0		— 0		— 0	
1487	"				12 0		— 0		— 0	
1488	11 FA wall 1				16 0		0 0		0 0	
1489	2				8 0		— 0		— 0	
1490	3				10 0		— 0		— 0	
1491	4				8 0		— 0		— 0	
1492	5				14 0		— 0		— 0	
1493	10 FA wall 1				8 0		— 0		— 0	
1494	2				12 0		— 0		— 0	
1495	3				12 0		— 0		— 0	
1496	4				12 0		— 0		— 0	
1497	5				16 0		0 0		0 0	
1498	9 FA wall 2				16 0		0 0		0 0	
1499	3				16 0		0 0		0 0	
1500	5	▽	▽	▽	14 0	▽	— 0		— 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-10-84 PAGE

LOCATION Rx room SURVEY DATE 8-14-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS				READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
						Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored		uR/hr	β + γ	α					
1501	9 FB Wall	2	9.0	NDA	NDA	16 / 0	16 / 0	0 / 0	3.3 / 3.5	0 / 0
1502	↓	3				10 / 0		— / 0		— / 0
1503		5				14 / 0		— / 0		— / 0
1504	10 FB Wall	1				16 / 0		0 / 0		0 / 0
1505		2				14 / 0		— / 0		— / 0
1506		3				10 / 0		— / 0		— / 0
1507		4				16 / 0		0 / 0		0 / 0
1508	↓	5				16 / 0		0 / 0		0 / 0
1509	11 FB Wall	1				16 / 0		0 / 0		0 / 0
1510		2				12 / 0		— / 0		— / 0
1511		3				14 / 0		— / 0		— / 0
1512		4				12 / 0		— / 0		— / 0
1513	↓	5				16 / 0	▽	0 / 0		0 / 0
1429	12 FB Wall	1				17 / 0	17	0 / 0		0 / 0
1430		2				16 / 0		— / 0		— / 0
1431		3				17 / 0		0 / 0		0 / 0
1432		4				15 / 0		— / 0		— / 0
1433	↓	5				12 / 0	▽	— / 0		— / 0
1514	Piece Wood	A				10 / 0	16 / 0	— / 0		— / 0
1515	"	B				10 / 0		— / 0		— / 0
1516	Portable Air Monitor top					16 / 0		0 / 0		0 / 0
1517	Front					16 / 0		0 / 0		0 / 0
1518	Rt. Side					14 /		— / 0		— / 0
1519	Left Side					14 / 0		— / 0		— / 0
1520	Bottom					10 / 0		— / 0		— / 0
1521	Basket		▽	▽	▽	14 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-11-84 PAGE

LOCATION Rx room SURVEY DATE 8-14-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
1522	Portable air monitor (outside chamber)	9.0	NDA	NDA	14 / 0	16 / 0	— / 0	3.3 / 3.5	— / 0
1523	" " (in)				10 / 0		— / 0		— / 0
1524	Detector outside				16 / 0		0 / 0		0 / 0
1525	face plate				16 / 0		0 / 0		0 / 0
1526	metal strap				16 / 0		0 / 0		0 / 0
1527	11 E Floor 1				16 / 0		0 / 0		0 / 0
1528	2				16 / 0		0 / 0		0 / 0
1529	3				16 / 0		0 / 0		0 / 0
1530	4				16 / 0		0 / 0		0 / 0
1531	5				12 / 0		0 / 0		— / 0
1532	10 E Floor 1				10 / 0		— / 0		— / 0
1533	2				12 / 0		— / 0		— / 0
1534	3				10 / 0		— / 0		— / 0
1535	4				10 / 0		— / 0		— / 0
1536	5				12 / 0		— / 0		— / 0
1537	9 E Floor 1				12 / 0		— / 0		— / 0
1538	2				16 / 0		0 / 0		0 / 0
1539	3				12 / 0		— / 0		— / 0
1540	E12 pipe chase cover				14 / 0		— / 0		— / 0
1541	E11 " " "				12 / 0		— / 0		— / 0
1542	E10 " " "				14 / 0		— / 0		— / 0
1543	E9 " " "				12 / 0		— / 0		— / 0
1544	E9 Rust spot				16 / 0		0 / 0		0 / 0
1545	guage & piping on floor				12 / 0		— / 0		— / 0
1546	valve opening				12 / 0		— / 0		— / 0
1547	pipe opening	▽	▽	▽	12 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-11-84 PAGE

LOCATION Rx room SURVEY DATE 8-14-84 TIME

RESP. USER [ ] ROUTINE, [X] SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
1548	Flow test unit open pipe	9.0	NOA	NOA	14 / 0	16 / 0	— / 0	3.3 / 3.5	— / 0
1549	" " " injection valve				12 / 0		— / 0		— / 0
1550	" " "				12 / 0		— / 0		— / 0
1551	" " "				14 / 0		— / 0		— / 0
1552	" " "				10 / 0		— / 0		— / 0
1553	" " "				12 / 0		— / 0		— / 0
1554	" " "				10 / 0		— / 0		— / 0
1555	" " "				16 / 0		0 / 0		0 / 0
1556	" " "				12 / 0		— / 0		— / 0
1557	" " "				14 / 0		— / 0		— / 0
1558	" " " injection valve				12 / 0		— / 0		— / 0
1559	" " "				14 / 0		— / 0		— / 0
1560	" " "				16 / 0		0 / 0		0 / 0
1561	" " " injection valve				12 / 0		— / 0		— / 0
1562	" " "				16 / 0		0 / 0		0 / 0
1563	" " "				14 / 0		— / 0		— / 0
1564	" " "				16 / 0		0 / 0		0 / 0
1565	" " "				16 / 0		0 / 0		0 / 0
1566	" " "				12 / 0		0 / 0		0 / 0
1567	" " "				14 / 0		— / 0		— / 0
1568	" " " valve				16 / 0		0 / 0		0 / 0
1569	" " "				14 / 0		— / 0		— / 0
1570	" " "				12 / 0		— / 0		— / 0
1571	" " "				16 / 0		0 / 0		0 / 0
1572	" " "				12 / 0		— / 0		— / 0
1573	" " "				10 / 0		— / 0		— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Dorati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-15-84 PAGE

LOCATION Rx room SURVEY DATE 8-15-84 TIME 10:00-5:00

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
1574	Flow apperatice	9.0	NDA	NDA	12 / 0	16 / 0	— / 0	33 / 3.5	— / 0	
1575	Level tube on tank				16 / 0		0 / 0		0 / 0	
1576	tank				12 / 0		— / 0		— / 0	
1577	plate under tank				16 / 0		0 / 0		0 / 0	
1578	" " "				12 / 0		— / 0		— / 0	
1579	bot. of tank + elbow				16 / 0		0 / 0		0 / 0	
1580	bot. of plate tank				10 / 0		— / 0		— / 0	
1581	" " " "				12 / 0		— / 0		— / 0	
1582	piping under tank				14 / 0		— / 0		— / 0	
1583	valve				12 / 0		— / 0		— / 0	
1584	pipe + fitting open				14 / 0		— / 0		— / 0	
1585	Liquid sample				16 / 0		0 / 0		0 / 0	
1586	pump housing				10 / 0		— / 0		— / 0	
1587	pipe to pump				12 / 0		— / 0		— / 0	
1588	pump motor				12 / 0		— / 0		— / 0	
1589	piping				14 / 0		— / 0		— / 0	
1590	valve + pipe				14 / 0		— / 0		— / 0	
1591	pipe + fitting open				16 / 0		0 / 0		0 / 0	
1592	valve				16 / 0		0 / 0		0 / 0	
1593	Flow app. piping				10 / 0		— / 0		— / 0	
1594	open end of pipe				10 / 0		— / 0		— / 0	
1595	Switch telec. wire to pump				14 / 0		— / 0		— / 0	
1596	electric cord				16 / 0		0 / 0		0 / 0	
1597	pipe, Stand				16 / 0		0 / 0		0 / 0	
1598	" "				16 / 0		0 / 0		0 / 0	
1599	" "	▽	▽	▽	16 / 0	▽	0 / 0	▽	0 / 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donath

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-16-84 PAGE

LOCATION Rx room SURVEY DATE 8-15-84 TIME 10-5

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
1600	Pipe Stand	9.0	NOA	NOA	12	16	—	3.3	—
					0	0	0	3.5	0
1601	" "				16		0		0
					0		0		0
1602	" "				10		—		—
					0		0		0
1603	" "				16		0		0
					0		0		0
1604	" "				12		—		—
					0		0		0
1605	" "				14		—		—
					0		0		0
1606	" "				16		0		0
					0		0		0
1607	" "				16		0		0
					0		0		0
1608	" "				14		—		—
					0		0		0
1609	" "				14		—		—
					0		0		0
1610	" "				12		—		—
					0		0		0
1611	" "				14		—		—
					0		0		0
1612	" "				16		0		0
					0		0		0
1613	" "				12		—		—
					0		0		0
1614	" "				10		—		—
					0		0		0
1615	" "				14		—		—
					0		0		0
1616	" "				16		0		0
					0		0		0
1617	" "				16		0		0
					0		0		0
1618	" "				12		—		—
					0		0		0
1619	Back side of tank				12		—		—
					0		0		0
1620	Ex Wall 1				12		—		—
					0		0		0
1621	2				14		—		—
					0		0		0
1622	3				12		—		—
					0		0		0
1623	4				10		—		—
					0		0		0
1624	5	▽	▽	▽	16		0		0
					0	▽	0	▽	0

INSTRUMENTS:

COMMENTS:

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-16-84 PAGE

LOCATION Rx room SURVEY DATE 8-15-84 TIME 1-5

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm	
1625	9Ey upper wall 1	9.0	NDA	NDA	12 0	16 0	— 0	3.5	— 0	
1626	2				16 0		0 0		0 0	
1627	3				16 0		0 0		0 0	
1628	4				10 0		— 0		— 0	
1629	5				14 0		— 0		— 0	
1630	9E elec. conduit				12 0		— 0		— 0	
1631	" " "				10 0		— 0		— 0	
1632	" " "				14 0		— 0		— 0	
1633	" " "				14 0		— 0		— 0	
1634	sewer pipe				14 0		— 0		— 0	
1635	" " plate				14 0		— 0		— 0	
1636	valve opening				12 0		— 0		— 0	
1637	sewer pipe				16 0		0 0		0 0	
1638	" "				10 0		— 0		— 0	
1639	9Ec ceiling 1				10 0		— 0		— 0	
1640	2				14 0		— 0		— 0	
1641	3				10 0		— 0		— 0	
1642	4				10 0		— 0		— 0	
1643	5				14 0	18 0	— 0		— 0	
1644	sill				18 0		0 0		0 0	
1645	sill				16 0		— 0		— 0	
1646	"I" beam				12 0		— 0		— 0	
1647	light fixture				18 0		0 0		0 0	
1648	"I" beam				12 0		— 0		— 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-17-84 PAGE

LOCATION Rx room SURVEY DATE 8-15-84 TIME 1-5

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
1649	10c E Ceiling 1	9.0	NDA	NDA	16 / 0	18 / 0	– / 0	3.3 / 3.5	– / 0	
1650	2				12 / 0		– / 0		– / 0	
1651	3				12 / 0		– / 0		– / 0	
1652	4				14 / 0		– / 0		– / 0	
1653	5				18 / 0		– / 0		– / 0	
1654	opening in sewer pipe				14 / 0		– / 0		– / 0	
1655	sewer pipe				14 / 0		– / 0		– / 0	
1656	opening (end) sewer pipe				12 / 0		– / 0		– / 0	
1657	"I" beam				12 / 0		– / 0		– / 0	
1658	" "				18 / 0		0 / 0		0 / 0	
1659	sewer pipe				16 / 0		– / 0		– / 0	
1660	" "				14 / 0		– / 0		– / 0	
1661	" "				12 / 0		– / 0		– / 0	
1662	11 C E 1				13 / 0		– / 0		– / 0	
1663	2				18 / 0		0 / 0		0 / 0	
1664	3				16 / 0		– / 0		– / 0	
1665	4				14 / 0		– / 0		– / 0	
1666	5				18 / 0		0 / 0		0 / 0	
1667	"I" beam				12 / 0		– / 0		– / 0	
1668	" "				16 / 0		– / 0		– / 0	
1669	" "				12 / 0		– / 0		– / 0	
1670	Light fixture				16 / 0		– / 0		– / 0	
1671	sewer pipe				16 / 0		– / 0		– / 0	
1672	" "				18 / 0		0 / 0		0 / 0	
1673	sewer pipe				12 / 0		– / 0		– / 0	
1674	" "	↓	↓	↓	18 / 0	↓	0 / 0	↓	0 / 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-18-84 PAGE

LOCATION Rx room SURVEY DATE 8-15-84 TIME 1-5

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α												
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm				
Sample Number	Objects Monitored	uR/hr	β + γ	α													
1675	Tubing	9.0	NOA	NOA	14	0	18	0	—	0	3.3	3.5	—	0			
1676	"				16	0			—	0			—	0			
1677	"				18	0			0	0			0	0			
1678	Light fixture				14	0			—	0			—	0			
1679	"I" beam				14	0			—	0			—	0			
1680	" "				16	0			—	0			—	0			
1681	desk top				18	0			0	0			0	0			
1682					18	0			0	0			0	0			
1683					12	0			—	0			—	0			
1684					14	0			—	0			—	0			
1685	↓				16	0			—	0			—	0			
1686	small lead container (outside)				16	0			—	0			—	0			
1687	" " " (inside)				12	0			—	0			—	0			
1688	copper clamp				18	0			0	0			0	0			
1689	tube of setting agent				18	0			0	0			0	0			
1690	plastic cap read				16	0			—	0			—	0			
1691	clear plastic cap				12	0			—	0			—	0			
1692	glass bottle				14	0			—	0			—	0			
1693	3 bandaids				18	0			0	0			0	0			
1694	2 pieces of plexaglass				13	0			—	0			—	0			
1695	washer				16	0			—	0			—	0			
1696	drawer inside				16	0			—	0			—	0			
1697	" outside				16	0			—	0			—	0			
1698	D.C. 12 1				16	0			—	0			—	0			
1699	2				16	0			16	0			—	0			
1700	3	▽	▽	▷	18	0	◁		0	0	▽		0	0			

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-19-84 PAGE

LOCATION Rx room SURVEY DATE 8-15-84 TIME 1-5

RESP. USER ☐ ROUTINE, ☑ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
1701	D. C. 4	9.0	NDA	NDA	18 / 0	18 / 0	0 / 0	3.3 / 3.5	0 / 0	
1702	" 5				12 / 0		- / 0		- / 0	
1703	I Beam				14 / 0		- / 0		- / 0	
1704	Light Fixture				18 / 0		0 / 0		0 / 0	
1705	Sewer Pipe				14 / 0		- / 0		- / 0	
1706	Water Pipe				16 / 0		- / 0		- / 0	
1707	Water Pipe.				14 / 0		- / 0		- / 0	
1708	IEC 1				16 / 0		- / 0		- / 0	
1709	2				18 / 0		0 / 0		0 / 0	
1710	3				16 / 0		- / 0		- / 0	
1711	4				13 / 0		- / 0		- / 0	
1712	5				12 / 0		- / 0		- / 0	
1713	"I" Beam				16 / 0		- / 0		- / 0	
1714	" "				14 / 0		- / 0		- / 0	
1715	Desk Drawer instale				18 / 0		0 / 0		0 / 0	
1716	" - outside				14 / 0		- / 0		- / 0	
1717	" " inside				16 / 0		- / 0		- / 0	
1718	" " outside				18 / 0		0 / 0		0 / 0	
1719	" " inside				13 / 0		- / 0		- / 0	
1720	" " outside				12 / 0		- / 0		- / 0	
1721	inside Panels				12 / 0		- / 0		- / 0	
1722	" "				16 / 0		- / 0		- / 0	
1723	Rt. Side.				18 / 0		0 / 0		0 / 0	
1724	Lfts Side.				14 / 0		- / 0		- / 0	
1725	Back A				14 / 0		- / 0		- / 0	
1726	Back B	↓	↓	↓	12 / 0	↓	- / 0	↓	- / 0	

INSTRUMENTS:

COMMENTS:

MONITORED BY Carol Donati

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Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-19-84 PAGE

LOCATION Rx room SURVEY DATE 8-15-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
1727	Bottom inside A	9.0	NDA	NDA	16 0	18 0	— 0	3.3 3.5	— 0
1728	" " B				16 0		— 0		— 0
1729	" Ext Surface				16 0		— 0		— 0
1730	Vertical Piping E12				18 0		0 0		0 0
1731	" " "				16 0		— 0		— 0
1732	" " "				12 0		— 0		— 0
1733	10 DC 1				16 0		— 0		— 0
1734	2				18 0		0 0		0 0
1735	3				13 0		— 0		— 0
1736	4				14 0		— 0		— 0
1737	5				12 0		— 0		— 0
1738	"I" Beam				16 0		— 0		— 0
1739	"I" "				16 0		— 0		— 0
1740	Light Fixture				14 0		— 0		— 0
1741	9 DC 1				14 0		— 0		— 0
1742	2				16 0		— 0		— 0
1743	3				18 0		0 0		0 0
1744	4				16 0		— 0		— 0
1745	5				16 0		— 0		— 0
1746	"I" Beam				16 0		— 0		— 0
1747	Sill				18 0		0 0		0 0
1748	Sill				16 0		— 0		— 0
1749	9 DA 1				14 0		— 0		— 0
1750	2				16 0		— 0		— 0
1751	3				18 0		0 0		0 0
1752	4				14 0		— 0		— 0

INSTRUMENTS:

COMMENTS:

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Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-23-84 PAGE

LOCATION Rx room SURVEY DATE 8-15-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
1753	9 D A 5	9.0	NOA	NOA	16 0	18 0	— 0	3.3 3.5	— 0
1754	9 D B 1				18 0	0	0 0		0 0
1755	2				18 0		0 0		0 0
1756	3				16 0		— 0		— 0
1757	4				14 0		— 0		— 0
1758	5				16 0		— 0		— 0
1759	10 C Floor 1				18 0		0 0		0 0
1760	2				12 0		— 0		— 0
1761	3				18 0		0 0		0 0
1762	4				18 0		0 0		0 0
1763	5				12 0		— 0		— 0
1764	9 D Floor 3				16 0		— 0		— 0
1765	4				16 0		— 0		— 0
1766	5				14 0		— 0		— 0
1767	10 D Floor 1				18 0		0 0		0 0
1768	2				16 0		— 0		— 0
1769	3				16 0		— 0		— 0
1770	4				12 0		— 0		— 0
1771	5				16 0		— 0		— 0
1772	11 C floor 1				18 0		0 0		0 0
1773	2				16 0		— 0		— 0
1774	3				14 0		— 0		— 0
1775	4				12 0		— 0		— 0
1776	5				18 0		0 0		0 0
1777	9 B' Floor 1				18 0		0 0		0 0
1778	2	▽	▽	▽	16 0	▽	— 0	▽	— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-24-84 PAGE

LOCATION Rx room SURVEY DATE 8-16-84 TIME 12-5

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
1779	9 B floor 3	9.0	NDA	NDA	16	18	—	3.5	—
1780	↓ 4				16	0	—	35	—
1781					16	0	—		—
1782	9 B C 1				14	0	—		—
1783	2				14	0	—		—
1784	3				14	0	—		—
1785	4				16	0	—		—
1786	↓ 5				12	0	—		—
1787	lower sill				12	0	—		—
1788	upper sill				16	0	—		—
1789	"I" beam				16	0	—		—
1790	electric wire				16	0	—		—
1791	9 C B wall 1				14	0	—		—
1792	2				18	0	0		0
1793	3				16	0	—		—
1794	4				18	0	0		0
1795	↓ 5				18	0	0		0
1796	10 C C ceiling 1				14	0	—		—
1797	2				13	0	—		—
1798	3				16	0	—		—
1799	4				18	0	0		0
1800	↓ 5				16	0	—		—
1801	"I" beam				18	0	0		0
1802	Light fixture				14	0	—		—
1803	"I" beam				12	0	—		—

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-25-84 PAGE

LOCATION Rx room SURVEY DATE 8-16-84 TIME

RESP. USER ☐ ROUTINE, ☑ SPECIAL,

Sample Number	Objects Monitored	uR/hr	READINGS cpm @ contact (less Bkg) β + γ	READINGS cpm @ contact (less Bkg) α	REMOVABLE β+γ Gross cpm	REMOVABLE β+γ Bkg cpm	REMOVABLE β+γ Net cpm	REMOVABLE α Eff.	REMOVABLE α dpm
1804	11 CC 1	9.0	NOA	NOA	18	18	0	3.3 / 3.5	0
1805	2				18		0		0
1806	3				18		0		0
1807	4				14		0		0
1808	5				18		0		0
1809	I Beam				14		0		0
1810	I Beam				14		0		0
1811	Light Fixture				18		0		0
1812	12 CC 1				14		0		0
1813	2				16		0		0
1814	3				14		0		0
1815	4				12		0		0
1816	5				14		0		0
1817	Pipes				12		0		0
1818					18		0		0
1819					18		0		0
1820					13		0		0
1821					16		0		0
1822					16		0		0
1823	I Beam				14		0		0
1824	" "				12		0		0
1825	Light Fixture				16		0		0
1826	13 CB 1				14		0		0
1827	2				14		0		0
1828	3				16		0		0
1829	4	◇	◁	◁	18	◁	0	◁	0

INSTRUMENTS: BKg 59

COMMENTS:

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9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-26-84 PAGE

LOCATION Rx room SURVEY DATE 8-16-84 TIME

RESP. USER ☐ ROUTINE, ☑ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
1830	13CB 5	9.0	NDA	NDA	16	18	–	3.3/3.5	–
1831	13CA 1				18		0		0
1832	2				12		0		0
1833	3				16		0		0
1834	4				18		0		0
1835	5				12		0		0
1836	12C 1				16		0		0
1837	2				12		0		0
1838	3				14		0		0
1839	4				14		0		0
1840	5				14		0		0
1841	Desk Top				12		0		0
1842					12		0		0
1843					16		0		0
1844					16		0		0
1845					14		0		0
1846	Drawer inside				16		0		0
1847	" outside				16		0		0
1848	" inside				12		0		0
1849	" outside				14		0		0
1850	" inside				18		0		0
1851	" outside				16		0		0
1852	" inside				16		0		0
1853	" outside				16		0		0
1854	Lft. inside				16		0		0
1855	Rt. inside Panel				18		0		0

INSTRUMENTS: Bkg 58

COMMENTS:

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SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-29-84 PAGE

LOCATION Rx room SURVEY DATE 8-16-84 TIME

RESP. USER ☐ ROUTINE, ☑ ~~SPECIAL~~,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α						
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
1856	~~Bottom~~ Inside of Back A	9.0	NOA	NOA	16	0	18	0	—	0	3.3 / 35 — 0
1857	~~Bottom~~ Inside of Back B				12	0	~~18~~	~~0~~	—	0	— 0
1858	Rt Base				16	0			—	0	— 0
1859	Rt Side				14	0			—	0	— 0
1860	Lft side				14	0			—	0	— 0
1861	Back				16	0			—	0	— 0
1862	Back				16	0			—	0	— 0
1863	13 B A 1				18	0			0	0	0 0
1864	2				18	0			0	0	0 0
1865	3				14	0			—	0	— 0
1866	4				14	0			—	0	— 0
1867	▽ 5				12	0			—	0	— 0
1868	I Beam				14	0			—	0	— 0
1869	13 B B 1				14	0			—	0	— 0
1870	2				18	0			0	0	0 0
1871	3				18	0			0	0	0 0
1872	4				14	0			—	0	— 0
1873	▽ 5				14	0			—	0	— 0
1874	~~1~~ Elect. Box				12	0			—	0	— 0
1875	〃 Elect. Box				16	0			—	0	— 0
1876	〃 Conduit				18	0			0	0	0 0
1877	〃 〃				12	0			0	0	— 0
1878	~~Cement~~ in corner				18	0			0	0	0 0
1879	Conduit				12	0			—	0	— 0
1880	〃				18	0			0	0	0 0
1881	Electric Box	▽	▽	▽	18	0	▽	▽	0	0	▽ 0 0

INSTRUMENTS: Bkg - 62 cpm

COMMENTS:

MONITORED BY Carol Dongti

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 10-30-84 PAGE

LOCATION Rx room SURVEY DATE 8-16-84 TIME

RESP. USER ☐ ROUTINE, ☑ SPECIAL,

Sample Number	Object Monitored		SURFACE CONTAMINATION MEASUREMENTS uR/hr	READINGS cpm @ contact (less Bkg) β + γ	READINGS cpm @ contact (less Bkg) α	REMOVABLE β+γ Gross cpm	REMOVABLE β+γ Bkg cpm	REMOVABLE β+γ Net cpm	REMOVABLE α Eff.	REMOVABLE α dpm
1882	12BC	1	9.0	NDA	NDA	18	18	0	3.3	0
1883		2				18		0		0
1884		3				12		0		0
1885		4				16		0		0
1886	↓	5				14		0		0
1887	Piping					14		0		0
1888	Piping					12		0		0
1889	"					14		0		0
1890	"					16		0		0
1891	12AB	1				16		0		0
1892		2				18		0		0
1893		3				18		0		0
1894		4				14		0		0
1895	↓	5				16		0		0
1896	I Beam					16		0		0
1897	" "					16		0		0
1898	Heater Hanger					16		0		0
1899	" "					14		0		0
1900	" "					13		0		0
1901	Elect Wire to Furnace					14		0		0
1902	" " " "					16		0		0
1903	Piping to heater					18		0		0
1904	~~Valve + Piping~~					18		0		0
1905	Valve + Piping					16		0		0
1906	" "					14		0		0
1907	Electric Box		↓	↓	↓	12	↓	0	↓	0

INSTRUMENTS:

COMMENTS:

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

D. RTMENT ME REPORT DATE 10-31-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
1908	Top of Heater	9.0	NDA	NDA	16 / 0	16 / 0	0 / 0	3.3 / 3.5	0 / 0
1909	Front of Heater				12 / 0		– / 0		– / 0
1910	Rt				14 / 0		– / 0		– / 0
1911	Lft				10 / 0		– / 0		– / 0
1912	Back + Fan Motor				14 / 0		– / 0		– / 0
1913	Bottom				16 / 0		0 / 0		0 / 0
1914	12-A Wall 1				12 / 0		– / 0		– / 0
1915	2				16 / 0		0 / 0		0 / 0
1916	3				16 / 0		0 / 0		0 / 0
1917	4				12 / 0		– / 0		– / 0
1918	5				16 / 0		0 / 0		0 / 0
1919	Pipe water				14 / 0		– / 0		– / 0
1920	" "				16 / 0		0 / 0		0 / 0
1921	" "+Valve				16 / 0		0 / 0		0 / 0
1922	12-B Flour 1				14 / 0		– / 0		– / 0
1923	2				10 / 0		– / 0		– / 0
1924	3				16 / 0		0 / 0		0 / 0
1925	4				12 / 0		– / 0		– / 0
1926	5				16 / 0		0 / 0		0 / 0
1927	Conduit (elect)				12 / 0		– / 0		– / 0
1928	Water heater Top				16 / 0		0 / 0		0 / 0
1929	Back				14 / 0		– / 0		– / 0
1930	RT				10 / 0		– / 0		– / 0
1931	Lft				14 / 0		– / 0		– / 0
1932	Bottom				12 / 0		– / 0		– / 0
1933	Top Pipe	▽	▽	▽	10 / 0	▽	– / 0	▽	– / 0

INSTRUMENTS:

COMMENTS:

MONITORED BY Carol Donati

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SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-1-84 PAGE

LOCATION Rx room SURVEY DATE 9-10-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
1934	IIBC ceiling 1	9.0	NDA	NDA	14 / 0	16 / 0	— / 0	3.3 / 3.7	— / 0
1935	2				16 / 0		0 / 0		0 / 0
1936	3				12 / 0		— / 0		— / 0
1937	4				14 / 0		— / 0		— / 0
1938	4 5				16 / 0		0 / 0		0 / 0
1939	Life Fixture				16 / 0		0 / 0		0 / 0
1940	I Beam				12 / 0		— / 0		— / 0
1941	I Beam				10 / 0	▽	— / 0		— / 0
1942	Life Fixture				12 / 0	15 / 0	0 / 0		0 / 0
1943	Piping				10 / 0		— / 0		— / 0
1944	"				14 / 0		0 / 0		0 / 0
1945	II AB Wall 1				10 / 0	▽	— / 0		— / 0
1946	2				10 / 0	16	— / 0		— / 0
1947	3				16 / 0		0 / 0		0 / 0
1948	4				10 / 0		— / 0		— / 0
1949	▽ 6				12 / 0		— / 0		— / 0
1950	Ledge				12 / 0		— / 0		— / 0
1951	II A wall 1				14 / 0		— / 0		— / 0
1952	2				16 / 0		0 / 0		0 / 0
1953	3				16 / 0		0 / 0		0 / 0
1954	4				14 / 0		— / 0		— / 0
1955	▽ 6				10 / 0		— / 0		— / 0
1956	Elec Conduit				16 / 0		0 / 0		0 / 0
	/	▽	0	0		▽		▽	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-1-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
1957	11B Floor 1	9.0	NDA	NDA	16 / 0	18 / 0	0 / 0	3.3 / 3.7	— / 0
1958	2				13 / 0		— / 0		— / 0
1959	3				10 / 0		— / 0		— / 0
1960	4				16 / 0		— / 0		— / 0
1961	5				18 / 0		0 / 0		0 / 0
1962	Work Bench Surf.				16 / 0		— / 0		— / 0
1963					18 / 0		0 / 0		0 / 0
1964					12 / 0		— / 0		— / 0
1965					10 / 0		— / 0		— / 0
1966					14 / 0		— / 0		— / 0
1967					16 / 0		— / 0		— / 0
1968					18 / 0		0 / 0		0 / 0
1969					14 / 0		— / 0		— / 0
1970					18 / 0		0 / 0		0 / 0
1971					14 / 0		— / 0		— / 0
1972					12 / 0		— / 0		— / 0
1973					18 / 0		0 / 0		0 / 0
1974	↓				16 / 0		— / 0		— / 0
1975	Drawers				14 / 0		— / 0		— / 0
1976					10 / 0		— / 0		— / 0
1977					10 / 0		— / 0		— / 0
1978					14 / 0		— / 0		— / 0
1979					12 / 0		— / 0		— / 0
1980					16 / 0		— / 0		— / 0
1981					18 / 0		0 / 0		0 / 0
1982	↓	▽	▽	○	16 / 0	▽	— / 0	▽	— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-2-84 PAGE

LOCATION Rx room SURVEY DATE 9-10-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
1983	~~Desk~~ Work Bench	9.0	NDA	NDA	16	18	–	3.3	–
					0	0	0	3.7	0
1984					12		–		–
					0		0		0
1985					16		–		–
					0		0		0
1986					14		–		–
					0		0		0
1987					16		–		–
					0		0		0
1988					10		–		–
					0		0		0
1989					16		–		–
					0		0		0
1990					10		–		–
					0		0		0
1991					18		0		0
					0		0		0
1992					16		–		–
					0		0		0
1993					14		–		–
					0		0		0
1994					14		–		–
					0		0		0
1995					10		–		–
					0		0		0
1996					14		–		–
					0		0		0
1997					10		–		–
					0		0		0
1998	Grey Cabinet				14		–		–
					0		0		0
1999					14		–		–
					0		0		0
2000					10		–		–
					0		0		0
2001					14		–		–
					0		0		0
2002					16		–		–
					0		0		0
2003					16		–		–
					0		0		0
2004					16		–		–
					0		0		0
2005					16		–		–
					0		0		0
2006					18		0		0
					0		0		0
2007					12		0		0
					0		0		0
2008					14		–		–
					0		0		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donath

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-2-84 PAGE _____

LOCATION Rx room SURVEY DATE _____ TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α							
					Gross cpm		Bkg cpm		Net cpm		Eff.	dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm		Bkg cpm		Net cpm		Eff.	dpm
2009	Co-60 Cabinet	9.0	NDA	NDA	14	0	18	0	—	0	3.3 / 2.7	— / 0
2010					14	0			—	0		— / 0
2011					12	0			—	0		— / 0
2012					10	0			—	0		— / 0
2013					10	0			—	0		— / 0
2014					12	0			—	0		— / 0
2015					16	0			—	0		— / 0
2016					14	0			—	0		— / 0
2017					14	0			—	0		— / 0
2018					12	0			—	0		— / 0
2019					16	0			—	0		— / 0
2022					14	0			—	0		— / 0
2023					18	0			0	0		0 / 0
2024					10	0			—	0		— / 0
2025					14	0			—	0		— / 0
2026					14	0			—	0		— / 0
2027					14	0			—	0		— / 0
2028					18	0			0	0		0 / 0
2029					14	0			—	0		— / 0
2030					18	0			0	0		0 / 0
2031					18	0			0	0		0 / 0
2032					12	0			—	0		— / 0
2033					12	0			—	0		— / 0
2034					16	0			—	0		— / 0
2035					18	0			0	0		0 / 0
2036					18	0			0	0		0 / 0
~~2020~~												
~~INSTRUMENTS~~: 2021					14	0			—	0		— / 0
					10	0			—	0		— / 0

COMMENTS: _____

dpm = (cpm - Bkgcpm)Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-2-84 PAGE

LOCATION Rx room SURVEY DATE 9-10-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2037	Grey Cabinet	9.0	NDA	NDA	18	18	0	3.3	0
					14		0		0
2038					18		0		0
2039					14		0		0
2040					14		0		0
2041					12		0		0
2042					14		0		0
2043					16		0		0
2044					13		0		0
2045					14		0		0
2046	↓				14		0		0
2047	10 Bc Ceiling 1				14		0		0
2048	2				18		0		0
2049	3				19		0		0
2050	4				16		0		0
2051	↓ 5				18		0		0
2052	Piping				13		0		0
2053	"				10		0		0
2054	"I" Beam				14		0		0
2055	"				16		0		0
2056	Light Fixture				16		0		0
2057	10 ~~AB~~ Wall 1				14		0		0
2058	2				12		0		0
2059	3				18		0		0
2060	4				14		0		0
2061	5				18		0		0
2062	Locker	▽	▽	▽		▽		▽	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-2-84 PAGE

LOCATION Rx room SURVEY DATE 9-10-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α						
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
2063	10A wall 1	9.0	NDA	NDA	18 0	18 0	— 0	3.3 3.7	— 0		
2064	2				14 0		— 0		— 0		
2065	3				13 0		— 0		— 0		
2066	4				16 0		— 0		— 0		
2067	5				10 0		— 0		— 0		
2068	Elect. Conduit + Box				18 0		0 0		0 0		
2069	10B Floor 1				13 0		— 0		— 0		
2070	2				18 0		0 0		0 0		
2071	3				14 0		— 0		— 0		
2072	4				13 0		— 0		— 0		
2073	5				16 0		— 0		— 0		
2074	9BC Ceiling 1				13 0		— 0		— 0		
2075	2				14 0		— 0		— 0		
2076	3				14 0		— 0		— 0		
2077	4				14 0		— 0		— 0		
2078	5				18 0		0 0		0 0		
2079	Piping				18 0		0 0		0 0		
2080	"				18 0		0 0		0 0		
2081	I Beam				18 0		0 0		0 0		
2082	" "				12 0		— 0		— 0		
2083	Light Fixture				13 0		— 0		— 0		
2084	9B 4 Wall 1				16 0		— 0		— 0		
2085	2				16 0		— 0		— 0		
2086	3				16 0		— 0		— 0		
2087	4				10 0		— 0		— 0		
2088	5				14 0		— 0		— 0		

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-5-84 PAGE

LOCATION Rx room SURVEY DATE 9-10-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

Sample Number	Objects Monitored		uR/hr	READINGS cpm @ contact (less Bkg) β + γ	READINGS cpm @ contact (less Bkg) α	REMOVABLE β+γ Gross cpm	REMOVABLE β+γ Bkg cpm	REMOVABLE β+γ Net cpm	REMOVABLE α Eff.	REMOVABLE α dpm
2089	9B wall	1	9.0	NDA	NDA	14	18	—	3.3	—
2090		2				18		0	3.7	0
2091		3				16		—		—
2092		4				16		0		0
2093		5				18		0		0
2094	9B Wall "Door"	1				16		—		—
2095		2				18		0		0
2096		3				14		—		—
2097		4				12		—		—
2098		5				16	16	—		—
2099	9Bx Wall "Door"	1				10		—		—
2100		2				16		0		0
2101		3				10		—		—
2102		4				0		0		0
2103		5				0		0		0
2104	Bottom of table					0		0		0
2105						0		0		0
2106						0		0		0
2107						0		0		0
2108						0		0		0
2109	Table Legs					0		0		0
2110						0		0		0
2111						0		0		0
2112						0		0		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-5-84 PAGE

LOCATION Rx room SURVEY DATE 9-11-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS				READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored		uR/hr	β + γ	α	Gross cpm / dpm	Bkg cpm	Net cpm	Eff.	dpm
2113	8B FLOOR	1	9.0	NDA	NDA	14 / 0	14 / 0	0	3.3 / 3.7	0
2114		2				10 / 0		0		0
2115		3				14 / 0		0		0
2116		4				14 / 0		0		0
2117	↓	5				14 / 0		0		0
2118	8C FLOOR	1				14 / 0		0		0
2119		2				14 / 0		0		0
2120		3				14 / 0		0		0
2121		4				14 / 0		0		0
2122	↓	5				14 / 0		0		0
2123	8D FLOOR	1				14 / 0		0		0
2124		2				14 / 0		0		0
2125		3				10 / 0		–		–
2126		4				12 / 0		–		–
2127	↓	5				14 / 0		0		0
2128	8E FLOOR	1				14 / 0		0		0
2129		2				14 / 0	↓	0		0
2130		3				16 / 0	16 / 0	0		0
2131		4				16 / 0		0		0
2132	↓	5				16 / 0		0		0
2133	9C FLOOR	1				14 / 0		–		–
2134	↓	2				14 / 0		–		–
2135	9D FLOOR	1				12 / 0		–		–
2136	↓	2				14 / 0		–		–
2137	9E FLOOR	1				14 / 0		–		–
2138	↓	2	▽	▽	▽	13 / 0	▽	–	▽	–

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-5-84 PAGE _____

LOCATION Rx room SURVEY DATE 9-11-84 TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS				READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
Sample Number	Objects Monitored		uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2139	9Bx Door	1	9.0	NDA	NDA	14	16	—	33	—
2140		2				12		—		—
2141		3				10		—		—
2142		4				16		0		0
2143		5				16		0		0
2144	9By Door	1				16		0		0
2145		2				16		0		0
2146		3				14		—		—
2147		4				14		—		—
2148		5				10		—		—
2149	9Cx Wall-Door	1				14		—		—
2150		2				16		0		0
2151		3				14		—		—
2152		4				12		—		—
2153		5				10		—		—
2154	9Cy Wall-Door	1				10		—		—
2155		2				14		—		—
2156		3				14		—		—
2157		4				14		—		—
2158		5				10		—		—
2159	9Dx Wall	1				10		—		—
2160		2				16		0		0
2161		3				14		—		—
2162		4				16		0		0
2163		8				16		0		0

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm) Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-6-84 PAGE

LOCATION Rx room SURVEY DATE 9-11-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
2164	9DY wall 1	9.0	NOA	NOA	12 / 0	16 / 0	— / 0	3.2 / 3.7	— / 0
2165	2				14 / 0		— / 0		— / 0
2166	3				16 / 0		0 / 0		0 / 0
2167	4				16 / 0		0 / 0		0 / 0
2168	5				16 / 0		0 / 0		0 / 0
2169	9EY 1				12 / 0		— / 0		— / 0
2170	2				12 / 0		— / 0		— / 0
2171	3				12 / 0		— / 0		— / 0
2172	4				14 / 0		— / 0		— / 0
2173	5				14 / 0		— / 0		— / 0
2174	9EX 1				12 / 0		— / 0		— / 0
2175	2				12 / 0		— / 0		— / 0
2176	3				16 / 0		0 / 0		0 / 0
2177	4				14 / 0		— / 0		— / 0
2178	5				16 / 0		0 / 0		0 / 0
2179	9A wall 1				16 / 0		0 / 0		0 / 0
2180	2				13 / 0		— / 0		— / 0
2181	9AB wall 1				14 / 0		— / 0		— / 0
2182	2				12 / 0		— / 0		— / 0
2183	8A wall 1				14 / 0		— / 0		— / 0
2184	2				14 / 0		— / 0		— / 0
2185	3				16 / 0		0 / 0		0 / 0
2186	4				12 / 0		— / 0		— / 0
2187	5				14 / 0		— / 0		— / 0
~~2188~~									

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-6-84 PAGE

LOCATION Rx room SURVEY DATE 9-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS				READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored		uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
2187A	BAB Wall	1	9.0	NDA	NDA	12 / 0	16 / 0	— / 0	33 / 33	— / 0
2188		2				14 / 0		— / 0		— / 0
2189		3				12 / 0		— / 0		— / 0
2190		4				16 / 0		0 / 0		0 / 0
2191		5				16 / 0		0 / 0		0 / 0
2192	Door #1					10 / 0		— / 0		— / 0
2193						12 / 0		— / 0		— / 0
2194						16 / 0		0 / 0		0 / 0
2195						16 / 0		0 / 0		0 / 0
2196						16 / 0		0 / 0		0 / 0
2197						14 / 0		— / 0		— / 0
2198						16 / 0		0 / 0		0 / 0
2199						16 / 0		0 / 0		0 / 0
2200						12 / 0		— / 0		— / 0
2201						12 / 0		— / 0		— / 0
2202	⇩					16 / 0		0 / 0		0 / 0
2203	7AB Wall	1				14 / 0		— / 0		— / 0
2204		2				16 / 0		0 / 0		0 / 0
2205		3				14 / 0		— / 0		— / 0
2206	⇩	5				14 / 0		— / 0		— / 0
2207	7A Wall	2				16 / 0		0 / 0		0 / 0
2208		3				12 / 0		— / 0		— / 0
2209	⇩	5				12 / 0		— / 0		— / 0
2210	6AB Wall	1				14 / 0		— / 0		— / 0
2211		3				16 / 0		0 / 0		0 / 0
2212		4	⇩	⇩	⇩	16 / 0	⇩	0 / 0	⇩	0 / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-7-84 PAGE

LOCATION Rx room SURVEY DATE 9-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS				READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored		uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
2213	6A Wall	1	9.0	NPA	NDA	10 / 0	10 / 0	— / 0	3.3 / 3.7	— / 0
2214		3				13 / 0		— / 0		— / 0
2215		4				13 / 0		— / 0		— / 0
2216	7B Floor	1				14 / 0		— / 0		— / 0
2217		2				10 / 0		— / 0		— / 0
2218		3				10 / 0		— / 0		— / 0
2219		4				12 / 0		— / 0		— / 0
2220		5				14 / 0		— / 0		— / 0
2221	Metal Plate	A				16 / 0		— / 0		— / 0
2222		B				14 / 0		— / 0		— / 0
2223	½" Pipe					12 / 0		— / 0		— / 0
2224	Sand Paper					10 / 0		— / 0		— / 0
2225	Roll Paper					16 / 0		0 / 0		0 / 0
2226	Electronic Tubes					14 / 0		— / 0		— / 0
2227	"					14 / 0		— / 0		— / 0
2228						16 / 0		0 / 0		0 / 0
2229						10 / 0		— / 0		— / 0
2230						14 / 0		— / 0		— / 0
2231						10 / 0		— / 0		— / 0
2232						14 / 0		— / 0		— / 0
2233						14 / 0		— / 0		— / 0
2234						16 / 0		0 / 0		0 / 0
2235						14 / 0		— / 0		— / 0
2236						16 / 0		0 / 0		0 / 0
2237						10 / 0		— / 0		— / 0
2238						10 / 0		— / 0		— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-7-84 PAGE

LOCATION Rx room SURVEY DATE 9-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α									
2239	INK Bottles	9.0	NDA	NDA	14	0	16	0	—	0	3.3	3.1	—	0
2240	↓				16	0			0	0			0	0
2241	↓				14	0			—	0			—	0
2242	Box Miniature Lamp Bulbs				16	0			0	0			0	0
2243	"				13	0			—	0			—	0
2244	Larger Lamp Bulb.				14	0			—	0			—	0
2245	Roll of chart paper				13	0			—	0			—	0
2246	NO. E3 Batteries				16	0			0	0			0	0
2247	Ruler				14	0			—	0			—	0
2248	Battery				14	0			—	0			—	0
2249	Plastic				12	0			—	0			—	0
2250	"				16	0			0	0			0	0
2251	Beakman ectric and.				14	0			—	0			—	0
2252	Roll of Tape				14	0			—	0			—	0
2253	Plastic Bag + Battery				14	0			—	0			—	0
2254	Box of Batteries				16	0			0	0			0	0
2255	Felt Tip Marker				12	0			—	0			—	0
2256	Roll of wire				10	0			—	0			—	0
2257	Six Boxes of fuses.				14	0			—	0			—	0
2258	Wire Connector				14	0			—	0			—	0
2259	Plastic Cable				16	0			0	0			0	0
2260	Rubber Bands				14	0			—	0			—	0
2261	Plastic Cap				16	0			0	0			0	0
2262	2 Pens				16	0			0	0			0	0
2263	Syringe 2 cc				12	0			—	0			—	0
2264	Piece of Plastic.	▽	▽	▽	10	0	▽		—	0	▽		—	0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-7-84 PAGE

LOCATION Rx room SURVEY DATE 9-[illegible]-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α						
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
2265	Eraser	9.0	NDA	NDA	12	0	16	0	—	0	3.7
2266	2" Washer				14	0			—	0	
2267	Chart pens				16	0		0	0	0	
2268	6 Resisters				10	0		—	0	—	
2269	3 electrical connectors				16	0		0	0	0	
2270	Screw				14	0		—	0	—	
2271	Paper Clip + Spring.				12	0		—	0	—	
2272	Piece of Plastic.				14	0		—	0	—	
2273	Lamp "Big Beam" inside				14	0		—	0	—	
2274	outside				12	0		—	0	—	
2275	Console				16	0		0	0	0	
2276					16	0		0	0	0	
2277					12	0		—	0	—	
2278					16	0		0	0	0	
2279					16	0		0	0	0	
2280					10	0		—	0	—	
2281					10	0		—	0	—	
2282					10	0		—	0	—	
2283					16	0		0	0	0	
2284					12	0		—	0	—	
2285					14	0		—	0	—	
2286					16	0		0	0	0	
2287					12	0		—	0	—	
2288					16	0		0	0	0	
2289					14	0		—	0	—	
2290					16	0		0	0	0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkg cpm) Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-8-84 PAGE

LOCATION Rx room SURVEY DATE 9-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2291	Console	9.0	NDA	NDA	12	16	—	3.3	—
					0	0	0	3.7	0
2292					16		0		0
					0		0		0
2293					14		—		—
					0		0		0
2294					14		—		—
					0		0		0
2295					14		—		—
					0		0		0
2296					12		—		—
					0		0		0
2297					10		—		—
					0		0		0
2298					13		—		—
					0		0		0
2299					16		0		0
					0		0		0
2300					14		—		—
					0		0		0
2301					16		0		0
					0		0		0
2302					16		0		0
					0		0		0
2303					14		—		—
					0		0		0
2304					14		—		—
					0		0		0
2305					16		0		0
					0		0		0
2306					12		—		—
					0		0		0
2307					10		—		—
					0		0		0
2308					14		—		—
					0		0		0
2309					14		—		—
					0		0		0
2310					14		—		—
					0		0		0
2311					16		0		0
					0		0		0
2312					10		—		—
					0		0		0
2313					16		—		—
					0		0		0
2314					14		—		—
					0		0		0
2315					12		—		—
					0		0		0
2316	〃	〃	〃	〃	12	〃	—	〃	—
					0		0		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-9-84 PAGE

LOCATION Rx room SURVEY DATE 9-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
2317	Console	9.0	NDA	NDA	14	18	—	3.3 / 3.7	—	
2318					12		—		—	
2319					14		—		—	
2320					18		0		0	
2321					12		—		—	
2322	6B Floor	3			14		—		—	
2323		4			14		—		—	
2324		5			14		—		—	
2325	6Bx Blocks	1			16		—		—	
2326		2			12		—		—	
2327		3			16		—		—	
2328		4			16		—		—	
2329		5			18		0		0	
2330	6By Blocks	1			16		—		—	
2331		2			16		—		—	
2332		3			12		—		—	
2333		4			12		—		—	
2334		5			14		—		—	
2335	6Cy Blocks	1			16		—		—	
2336		2			18		0		0	
2337		3			18		0		0	
2338		4			16		—		—	
2339	6Dy Blocks	1			16		—		—	
2340		2			18		0		0	
2341		3			12		—		—	
2342		4			16		—		—	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-9-84 PAGE

LOCATION Rx room SURVEY DATE 9-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2343	6 Dy Block 5	9.0	NDA	NDA	18	18	0	3.3	0
2344	Top of Blocks				16		0		0
2345					16		0		0
2346					18		0		0
2347					14		0		0
2348					14		0		0
2349					18		0		0
2350	▽				18		0		0
2351	9FA Wall				18		0		0
2352	↓				14		0		0
2353	9FB Wall				18		0		0
2354	↓				12		0		0
2355	Double Doors				14		0		0
2356					14		0		0
2357					12		0		0
2358					12		0		0
2359					16		0		0
2360					12		0		0
2361					16		0		0
2362					18		0		0
2363					14		0		0
2364					14		0		0
2365					12		0		0
2366					14		0		0
2367					16	16	0		0
2368	▽	▽	▽	▽	12	▽	▽	▽	0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donaty

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-9-84 PAGE

LOCATION Rx room SURVEY DATE 9-13-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2369	7E Floor 1	9.0	NOA	NOA	14	16	—	3.3	—
					0	0	0	3.7	0
2370	2				13		—		—
					0		0		0
2371	3				16		0		0
					0		0		0
2372	4				12		—		—
					0		0		0
2373	5				12		—		—
					0		0		0
2374	7FA Wall 1				14		—		—
					0		0		0
2375	2				16		0		0
					0		0		0
2376	3				16		0		0
					0		0		0
2377	4				16		0		0
					0		0		0
2378	5				12		—		—
					0		0		0
2379	6 [illegible] 1				13		—		—
					0		0		0
2380	2				14		—		—
					0		0		0
2381	3				14		—		—
					0		0		0
2382	4				14		—		—
					0		0		0
2383	5				13		—		—
					0		0		0
2384	6 [illegible] 1				14		—		—
					0		0		0
2385	2				10		—		—
					0		0		0
2386	3				12		—		—
					0		0		0
2387	4				16		0		0
					0		0		0
2388	5				16		0		0
					0		0		0
2389	5x [illegible] 1				12		—		—
					0		0		0
2390	2				12		—		—
					0		0		0
2391	3				12		—		—
					0		0		0
2392	4				16		0		0
					0		0		0
2393	5 1				14		—		—
					0		0		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-9-84 PAGE

LOCATION Rx room SURVEY DATE 9-24-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2394	5y Blank 1	9.0	NDA	NDA	10	16	—	3.5	—
2395	" 2				14		—		—
2396	" 3				12		—		—
2397	" 4				14		—		—
2398	" 5				10		—		—
2399	5E. Floor 1				16		0		0
2400	" 2				16		0		0
2401	" 3				14		—		—
2402	" 4				16		0		0
2403	" 5				16		0		0
2404	5FA 1				14		—		—
2405	" 2				14		0		0
2406	" 3				16		0		0
2407	" 4				16		0		0
2408	" 5				16		0		0
2409	Floor in Bldg				16		0		0
2410					14		—		—
2411					16		0		0
2412	5y - Floor				16		0		0
2413	Blanks 1y & 5y				14		—		—
2414					10		—		—
2415					14		—		—
2416					14		—		—
2417	" , "				12		—		—

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donath

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-12-84 PAGE

LOCATION Rx room SURVEY DATE TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
2418	5Dy Block Wall 1	9.0	NDA	NDA	12 0	16 0	- 0	3.3 3.3	- 0
2419	2				14 0		- 0		- 0
2420	3				16 0		0 0		0 0
2421	4				10 0		- 0		- 0
2422	5				16 0		0 0		0 0
2423	5Dx Block Wall 1				12 0		- 0		- 0
2424	2				10 0		- 0		- 0
2425	3				16 0		0 0		0 0
2426	4				16 0		0 0		0 0
2427	5				12 0		- 0		- 0
2428	5DA Block Wall 1				12 0		- 0		- 0
2429	2				12 0		- 0		- 0
2430	3				16 0		0 0		0 0
2431	4				10 0		- 0		- 0
2432	5				16 0		0 0		0 0
2433	5Dx Block Wall 1				14 0		- 0		- 0
2434	2				16 0		0 0		0 0
2435	3				14 0		- 0		- 0
2436	4				16 0		0 0		0 0
2437	5				10 0		- 0		- 0
2438	5Dx Block Wall 1				8 0		- 0		- 0
2439	2				16 0		0 0		0 0
2440	3				14 0		- 0		- 0
2441	4				12 0		- 0		- 0
2442	5				16 0		0 0		0 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-12-84 PAGE

LOCATION Rx room SURVEY DATE 9-24-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α									
2443	5CA Block wall 1	9.0	NDA	NDA	14	0	16	0	—	0	3.3	3.7	— 0
2444	2				14	0	—		—	0			— 0
2445	3				14	0			—	0			— 0
2446	4				14	0			—	0			— 0
2447	↓ 5				16	0			0	0			0 0
2448	5BA Block wall 1				14	0			—	0			— 0
2449	2				16	0			0	0			0 0
2450	3				16	0			0	0			0 0
2451	4				14	0			—	0			— 0
2452	↓ 5				16	0			0	0			0 0
2453	5EA Block Wall 1				12	0			—	0			— 0
2454	2				16	0			0	0			0 0
2455	3				16	0			0	0			0 0
2456	4				16	0			0	0			0 0
2457	↓ 5				16	0			0	0			0 0
2458	5A Wall 1				16	0			0	0			0 0
2459	2				14	0			—	0			— 0
2460	3				14	0			—	0			— 0
2461	4				16	0			0	0			0 0
2462	↓ 5				16	0			0	0			0 0
2463	5AE Wall 1				16	0			0	0			0 0
2464	2				14	0			—	0			— 0
2465	3				14	0			—	0			— 0
2466	4				14	0			—	0			— 0
2467	↓ 5				16	0			0	0			0 0
		▽	▽	▽		▽						▽	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-12-84 PAGE

LOCATION Rx room SURVEY DATE 9-24-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
2468	Stair Rail	9.0	NDA	NDA	12 / 0	16 / 0	— / 0	3.3 / 3.3	— / 0
2469	" "				16 / 0		0 / 0		0 / 0
2470	" "				16 / 0		0 / 0		0 / 0
2471	Light + Light Pole				12 / 0		— / 0		— / 0
2472	Top Grating				12 / 0		— / 0		— / 0
2473	Support Girder Beam				14 / 0		— / 0		— / 0
2474	Beams				14 / 0		— / 0		— / 0
2475	Support Post				14 / 0		— / 0		— / 0
2476	" "				14 / 0		— / 0		— / 0
2477	Base Angle Iron				16 / 0		0 / 0		0 / 0
2478	↓				12 / 0		— / 0		— / 0
2479	↓				14 / 0		— / 0		— / 0
2480	STEPS 1				8 / 0		— / 0		— / 0
2481	2				14 / 0		— / 0		— / 0
2482	3				8 / 0		— / 0		— / 0
2483	4				16 / 0		0 / 0		0 / 0
2484	5				16 / 0		0 / 0		0 / 0
2485	6				12 / 0		— / 0		— / 0
2486	Angle Iron STEP Support				10 / 0		— / 0		— / 0
2487	" " " "				16 / 0		0 / 0		0 / 0
2488	5B FLOOR 1				10 / 0		— / 0		— / 0
2489	↓ 2				16 / 0		0 / 0		0 / 0
2490	3				16 / 0		0 / 0		0 / 0
2491	4				14 / 0		— / 0		— / 0
2492	↓ 5				16 / 0		0 / 0		0 / 0
		◇		◇				◇	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-13-84 PAGE

LOCATION Rx room SURVEY DATE 9-24-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS				READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
						Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored		uR/hr	β + γ	α						
2493	4-A Wall	1	9.0	NDA	NDA	22 / 0	22 / 0	0 / 0	3.3 / 3.7	0 / 0	
2494		2				18 / 0		— / 0		— / 0	
2495		3				16 / 0		— / 0		— / 0	
2496		4				16 / 0		— / 0		— / 0	
2497	▼	5				18 / 0		— / 0		— / 0	
2498	4A Wall	1				18 / 0		— / 0		— / 0	
2499		2				16 / 0		— / 0		— / 0	
2500		3				22 / 0		0 / 0		0 / 0	
2501		4				18 / 0		— / 0		— / 0	
2502	▼	5				16 / 0		— / 0		— / 0	
2503	Work Bench #002					18 / 0		— / 0		— / 0	
2504						16 / 0		— / 0		— / 0	
2505						20 / 0		— / 0		— / 0	
2506						22 / 0		0 / 0		0 / 0	
2507						18 / 0		— / 0		— / 0	
2508	4-E FLOOR	1				20 / 0		— / 0		— / 0	
2509		2				18 / 0		— / 0		— / 0	
2510		3				16 / 0		— / 0		— / 0	
2511		4				22 / 0		0 / 0		0 / 0	
2512	▼	5				22 / 0		0 / 0		0 / 0	
2513	Work Bench #002					14 / 0		— / 0		— / 0	
2514	" "					20 / 0		— / 0		— / 0	
2515						16 / 0		— / 0		— / 0	
2516						18 / 0		— / 0		— / 0	
2517	/					22 / 0		0 / 0		0 / 0	
2519	▼		◇	◇	◇	22 / 0	◇	0 / 0	◇	0 / 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-13-84 PAGE

LOCATION Rx room SURVEY DATE 9-24-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
2519	Work Bench #002	9.0	NDA	NDA	18 / 0	22 / 0	— / 0	33 / 3.7	— / 0
2520					20 / 0		— / 0		— / 0
2521					18 / 0		— / 0		— / 0
2522					18 / 0		— / 0		— / 0
2523					22 / 0		0 / 0		0 / 0
2524					18 / 0		— / 0		— / 0
2525					22 / 0		0 / 0		0 / 0
2526					18 / 0		— / 0		— / 0
2527					16 / 0		— / 0		— / 0
2528					16 / 0		— / 0		— / 0
2529					20 / 0		— / 0		— / 0
2530					20 / 0		— / 0		— / 0
2531					22 / 0		0 / 0		0 / 0
2532					18 / 0		— / 0		— / 0
2533					20 / 0		— / 0		— / 0
2534					20 / 0		— / 0		— / 0
2535					18 / 0		— / 0		— / 0
2536					20 / 0		— / 0		— / 0
2537					16 / 0		— / 0		— / 0
2538	▽				18 / 0		— / 0		— / 0
2539	50 Floor	1			14 / 0		— / 0		— / 0
2540		2			16 / 0		— / 0		— / 0
2541		3			20 / 0		— / 0		— / 0
2542		4			18 / 0		— / 0		— / 0
2543	▽	5			20 / 0		— / 0		— / 0
			▽	▽	▽	▽	▽	▽	▽

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-14-84 PAGE

LOCATION Rx room SURVEY DATE 9-21-84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
2544	4C Floor 1	9.0	NDA	NDA	18 / 0	2 / 0	— / 0	3.3 / 3.7	— / 0
2545	2				22 / 0		0 / 0		0 / 0
2546	3				14 / 0		— / 0		— / 0
2547	4				16 / 0		— / 0		— / 0
2548	5				18 / 0		— / 0		— / 0
2549	5D Floor 1				18 / 0		— / 0		— / 0
2550	2				22 / 0		0 / 0		0 / 0
2551	3				16 / 0		— / 0		— / 0
2552	4				18 / 0		— / 0		— / 0
2553	5				22 / 0		0 / 0		0 / 0
	1								

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donath

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-28-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME 8:30 am

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2554	4D Floor 1	9.0	NDA	NDA	16 0	19 0	– 0	3.3 3.7	– 0
2555	2				19 0		0 0		0 0
2556	3				13 0		– 0		– 0
2557	4E Floor 1				13 0		– 0		– 0
2558	2				13 0		– 0		– 0
2559	3				17 0		– 0		– 0
2560	4				11 0		– 0		– 0
2561	5				18 0		– 0		– 0
2562	4FA Wall 1				16 0		– 0		– 0
2563	2				16 0		– 0		– 0
2564	3				16 0		– 0		– 0
2565	4				16 0		– 0		– 0
2566	5				16 0		– 0		– 0
2567	3FA Wall 1				19 0		0 0		0 0
2568	2				16 0		– 0		– 0
2569	3				19 0		0 0		0 0
2570	4				16 0		– 0		– 0
2571	5				14 0		– 0		– 0
2572	Back of Wood Shelf				17 0		– 0		– 0
2573					14 0		– 0		– 0
2574					19 0		0 0		0 0
2575					14 0		– 0		– 0
2576					19 0		0 0		0 0
2577					19 0		0 0		0 0
2578					15 0		– 0		– 0
2579					17 0		– 0		– 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-28-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
2580	Back of wood Shelf	9.0	NDA	NDA	14 / 0	19 / 0	— / 0	3.3 / 3.7	— / 0
2581	"				13 / 0		— / 0		— / 0
2582	3F Floor 1				15 / 0		— / 0		— / 0
2583	2				18 / 0		— / 0		— / 0
2584	3				16 / 0		— / 0		— / 0
2585	4				18 / 0		— / 0		— / 0
2586	5				18 / 0		— / 0		— / 0
2592	Top of wood shelf				14 / 0		— / 0		— / 0
2593	"				18 / 0		— / 0		— / 0
2594	End of Wood Shelf				18 / 0		— / 0		— / 0
2595					16 / 0		— / 0		— / 0
2596					16 / 0		— / 0		— / 0
2597					16 / 0		— / 0		— / 0
2598	Wood Shelf insides				18 / 0		— / 0		— / 0
2599					15 / 0		— / 0		— / 0
2600					17 / 0		— / 0		— / 0
2601					17 / 0		— / 0		— / 0
2602					17 / 0		— / 0		— / 0
2603					15 / 0		— / 0		— / 0
2604					17 / 0		— / 0		— / 0
2605					16 / 0		— / 0		— / 0
2606					19 / 0	0 / 0	0 / 0		0 / 0
2607					15 / 0		— / 0		— / 0
2608					18 / 0		— / 0		— / 0
2609					18 / 0		— / 0		— / 0
2610					15 / 0		— / 0		— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-29-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

Resurvey of Floor

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
2587	4C Floor	9.0	NDA	NDA	18 / 0	19 / 0	– / 0	3.3 / 3.7	– / 0
2588	↓	↓	↓	↓	18 / 0	↓	– / 0	↓	– / 0
2589					16 / 0		– / 0		– / 0
2590					16 / 0		– / 0		– / 0
2591	↓	↓	↓	↓	18 / 0	↓	– / 0	↓	– / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME Dept. Rx Room Facility REPORT DATE 11-29-84 PAGE _____

LOCATION _____ SURVEY DATE Nov. 26, 1984 TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm	
Sample Number	Objects Monitored	uR/hr	β + γ	α						
2611	Wood Shelf inside	9.0	NOA	NOA	19 / 0	19 / 0	0 / 0	3.3 / 3.7	0 / 0	
2612					18 / 0		— / 0		— / 0	
2613					16 / 0		— / 0		— / 0	
2614					16 / 0		— / 0		— / 0	
2615					18 / 0		— / 0		— / 0	
2616					19 / 0		0 / 0		0 / 0	
2617					18 / 0		— / 0		— / 0	
2618					15 / 0		— / 0		— / 0	
2619					19 / 0		0 / 0		0 / 0	
2620					15 / 0		— / 0		— / 0	
2621					19 / 0		0 / 0		0 / 0	
2622					17 / 0		— / 0		— / 0	
2623					16 / 0		— / 0		— / 0	
2624					17 / 0		— / 0		— / 0	
2625					18 / 0		— / 0		— / 0	
2626					19 / 0		0 / 0		0 / 0	
2627					16 / 0		— / 0		— / 0	
2628					15 / 0		— / 0		— / 0	
2629					18 / 0		— / 0		— / 0	
2630					15 / 0		— / 0		— / 0	
2631					16 / 0		— / 0		— / 0	
2632					17 / 0		— / 0		— / 0	
2633					17 / 0		— / 0		— / 0	
2634					18 / 0		— / 0		— / 0	

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

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Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-30-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS				READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored		uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2635	3C Floor	1	9.0	NDA	NDA	16 0	17 0	— 0	33 3.7	— 0
2636		2				17 0		0 0		0 0
2637		3				15 0		— 0		— 0
2638		4				14 0		— 0		— 0
2639	↓	5				10 0		— 0		— 0
2640	3B Floor	1				11 0		— 0		— 0
2641		2				15 0		— 0		— 0
2642		3				16 0		— 0		— 0
2643		4				15 0		— 0		— 0
2644	↓	5				16 0		— 0		— 0
2645	3A Wall	1				12 0		— 0		— 0
2646		2				15 0		— 0		— 0
2647		3				16 0		— 0		— 0
2648		4				15 0		— 0		— 0
2649	↓	5				15 0		— 0		— 0
2650	$3A_B$ Wall	1				16 0		— 0		— 0
2651		2				15 0		— 0		— 0
2652		3				17 0		0 0		0 0
2653		4				16 0		— 0		— 0
2654	↓	5				15 0		— 0		— 0
2655	2A Wall	1				16 0		— 0		— 0
2656		2				15 0		— 0		— 0
2657		3				15 0		— 0		— 0
2658		4				16 0		— 0		— 0
2659	↓	5				16 0		— 0		— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-30-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS				READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored		uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
2660	2A Wall	1	9.0	NDA	NDA	16 / 0	17 / 0	— / 0	3.3 / 3.7	— / 0
2661	↓	2	↓	↓	↓	17 / 0	↓	— / 0	↓	— / 0
2662		3				16 / 0		— / 0		— / 0
2663		4				12 / 0		— / 0		— / 0
2664	↓	5				16 / 0		— / 0		— / 0
2665	Metal Cover	A				16 / 0	↓	— / 0		— / 0
2666	"	B				16 / 0	16 / 0	0 / 0		0 / 0
2667	2B Floor	1				16 / 0	↓	0 / 0		0 / 0
2668	↓	2				13 / 0		— / 0		— / 0
2669		3				14 / 0		— / 0		— / 0
2670		4				10 / 0		— / 0		— / 0
2671	↓	5				15 / 0		— / 0		— / 0
2672	1B Wall	1				13 / 0		— / 0		— / 0
2673	↓	2				12 / 0		— / 0		— / 0
2674		3				13 / 0		— / 0		— / 0
2675		4				11 / 0		— / 0		— / 0
2676	↓	5				13 / 0		— / 0		— / 0
2677	1BB Wall	1				12 / 0		— / 0		— / 0
2678	↓	2				14 / 0		— / 0		— / 0
2679		3				16 / 0		0 / 0		0 / 0
2680		4				14 / 0		— / 0		— / 0
2681	↓	5				16 / 0		0 / 0		0 / 0
2682	I Beam					13 / 0		— / 0		— / 0
2683	↓					14 / 0		— / 0		— / 0
2684						14 / 0		— / 0		— / 0
2685	↓		↓	↓	↓	16 / 0	↓	0 / 0	↓	0 / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 11-30-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

Sample Number	Objects Monitored		uR/hr	READINGS cpm @ contact (less Bkg) β + γ	READINGS cpm @ contact (less Bkg) α	REMOVABLE β+γ Gross cpm	REMOVABLE β+γ Bkg cpm	REMOVABLE β+γ Net cpm	α Eff.	α dpm
2686	2D Floor	1	9.0	NOA	NOA	12	16	—	33	—
2687		2				10		—		—
2688		3				16		0		0
2689		4				15		—		—
2690	↓	5				16		0		0
2691	2C Floor	1				11		—		—
2692		2				16	18	0		—
2693		3				16		—		—
2694		4				16		—		—
2695		5				16		—		—
2696	Peg Board (Not Attached)					16		—		—
2697	"					13		—		—
2698	Plastic Tube					14		—		—
2699	1C wall	1				14		—		—
2700		2				14		—		—
2701		3				12		—		—
2702		4				18		0		0
2703		5				13		—		—
2704	1CB wall	1				12		—		—
2705		2				16		—		—
2706		3				18		0		0
2707		4				16		—		—
2708		5				16		—		—

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-3-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2709	1D Wall 1	9.0	NDA	NDA	18	18	0	3.3	0
2710	2				14		0		0
2711	3				10		0		0
2712	4				18		0		0
2713	5				13		0		0
2714	1DB Wall 1				10		0		0
2715	2				16		0		0
2716	3				16		0		0
2717	4				14		0		0
2718	5				10		0		0
2719	Metal Work Bench				14		0		0
2720					10		0		0
2721					18		0		0
2722					16		0		0
2723					14		0		0
2724					14		0		0
2725					18		0		0
2726					14		0		0
2727					16		0		0
2728					14		0		0
2729					16		0		0
2730					15		0		0
2731					17		0		0
2732					17		0		0
2733					14		0		0
2734					16		0		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-3-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2735	Metal Work Bench	9.0	NDA	NDA	17	18	0	3.3 / 3.5	0
2736					16		0		0
2737					17		0		0
2738					16		0		0
2739					17		0		0
2740					16		0		0
2741					15		0		0
2742	⇩				17		0		0
2743	Electrical cord in Brush.				17		0		0
2744	Metal Work Bench.				17		0		0
2745					17		0		0
2746					10		0		0
2747					18		0		0
2748	⇩				18		0		0
2749	Electrical Boxes MB				11		0		0
2750					16		0		0
2751					17		0		0
2752					18		0		0
2753					16		0		0
2754	⇩				13	17	0		0
2755	Drive Motors & Gears & Frames				12		0		0
2756					16		0		0
2757					13		0		0
2758					15		0		0
2759	Metal stand.				17		0		0
2760	"	⇩	⇩	⇩	15	⇩	0	⇩	0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-4-84 PAGE

LOCATION Rx room SURVEY DATE Dec. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α						
					Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm		
2761	Plastic Cover	9.0	NOA	NOA	15 0	17 0	— 0	3.3 3.5	— 0		
2762	Metal cover				14 0		— 0		— 0		
2763					13 0		— 0		— 0		
2764					15 0		— 0		— 0		
2765	↓				12 0		— 0		— 0		
2766	Metal Cross				15 0		— 0		— 0		
2767	" "				16 0		— 0		— 0		
2768	Lead				16 0		— 0		— 0		
2769					17 0		0 0		0 0		
2770					17 0		0 0		0 0		
2771					16 0		— 0		— 0		
2772	↓				9 0		— 0		— 0		
2773	Inside Floor of Rx				16 0		— 0		— 0		
2774	" Base of Rx				15 0		— 0		— 0		
2775					14 0		— 0		— 0		
2776					16 0		— 0		— 0		
2777					16 0		— 0		— 0		
2778	↓				14 0		— 0		— 0		
2779	outside Base of Rx				11 0		— 0		— 0		
2780					10 0		— 0		— 0		
2781					16 0		— 0		— 0		
2782					15 0		— 0		— 0		
2783					13 0		— 0		— 0		
2784					16 0		— 0		— 0		
2785					12 0		— 0		— 0		
2786	↓	▽	▽	▽	14 0	▽	— 0	▽	— 0		

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-4-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2787	outside Base of Rx	9.0	NOA	NOA	16 0	17 0	— 0	3.3 3.5	— 0
2788					15 0		— 0		— 0
2789					14 0		— 0		— 0
2790					14 0		— 0		— 0
2791					11 0		— 0		— 0
2792					17 0		0 0		0 0
2793					11 0		— 0		— 0
2794					15 0		— 0		— 0
2795	▽				15 0		— 0		— 0
2796	Inside of Cut Vessel 1/25				16 0		— 0		— 0
2797					17 0		0 0		0 0
2798					16 0		— 0		— 0
2799					15 0		— 0		— 0
2800					17 0		0 0		0 0
2801					12 0		— 0		— 0
2802					17 0		0 0		0 0
2803					15 0		— 0		— 0
2804					11 0		— 0		— 0
2805					13 0		— 0		— 0
2806					14 0		— 0		— 0
2807					11 0		— 0		— 0
2808					16 0		— 0		— 0
2809					13 0		— 0		— 0
2810					15 0		— 0		— 0
2811					16 0		— 0		— 0
2812		▽	▽	▽	16 0	▽	— 0	▽	— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-4-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 26, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
2813	Inside of cat Vessel	9.0	NDA	NDA	16 / 0	17 / 0	— / 0	3.3 / 3.5	— / 0
2814					15 / 0		— / 0		— / 0
2815					15 / 0		— / 0		— / 0
2816					12 / 0		— / 0		— / 0
2817					16 / 0		— / 0		— / 0
2818					12 / 0		— / 0		— / 0
2819					17 / 0		0 / 0		0 / 0
2820					14 / 0		— / 0		— / 0
2821					13 / 0		— / 0		— / 0
2822					13 / 0		— / 0		— / 0
2823					16 / 0		— / 0		— / 0
2824					15 / 0		— / 0		— / 0
2825					17 / 0		0 / 0		0 / 0
2826					17 / 0		0 / 0		0 / 0
2827					15 / 0		— / 0		— / 0
2828					15 / 0		— / 0		— / 0
2829	▽				14 / 0		— / 0		— / 0
2830	outside of Rx Vessel				15 / 0		— / 0		— / 0
2831					11 / 0		— / 0		— / 0
2832					14 / 0		— / 0		— / 0
2833					11 / 0		— / 0		— / 0
2834					17 / 0		0 / 0		0 / 0
2835					14 / 0		— / 0		— / 0
2836					15 / 0		— / 0		— / 0
2837					16 / 0		— / 0		— / 0
2838	▽	▽	▽	▽	17 / 0	▽	0 / 0	▽	0 / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-5-84 PAGE

LOCATION Rx room SURVEY DATE Nov 30, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α									
2839	Outside of Rx Vessel	9.0	NDA	NDA	16	0	17	0	—	0	3.5	3.5	— 0
2840					17	0			0	0			0 0
2841					17	0			0	0			0 0
2842					17	0			0	0			0 0
2843					17	0			0	0			0 0
2844					16	0			—	0			— 0
2845					16	0			—	0			— 0
2846					13	0			—	0			— 0
2847					13	0			—	0			— 0
2848					13	0			—	0			— 0
2849					12	0			—	0			— 0
2850					17	0			0	0			0 0
2851					15	0			—	0			— 0
2852					14	0			—	0			— 0
2853					16	0			—	0			— 0
2854					15	0			—	0			— 0
2855					10	0			—	0			— 0
2856					14	0			—	0			— 0
2857					15	0			—	0			— 0
2858					16	0			—	0			— 0
2859					14	0			—	0			— 0
2860					10	0			—	0			— 0
2861					12	0			—	0			— 0
2862					14	0			—	0			— 0
2863					13	0			—	0			— 0
2864	▽	▽	▽	▽	14	0	▽		—	0	▽		— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-5-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 30, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2865	OW side Rx Vessel	9.0	NDA	NDA	17	17	0	3.3	0
2866					16		—		—
2867					14		—		—
2868					17		0		0
2869					13		—		—
2870					17		0		0
2871					13		—		—
2872					17		0		0
2873					11		—		—
2874					13		—		—
2875					13		—		—
2876					13		—		—
2877					17		0		0
2878	inside Rx Vessel + Tubes				17		0		0
2879					17		0		0
2880					15		—		—
2881					14		—		—
2882					17		0		0
2883					13		—		—
2884					17		0		0
2885					15		—		—
2886					15		—		—
2887					15		—		—
2888					11		—		—
2889					18		1		0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-6-84 PAGE

LOCATION Rx room SURVEY DATE Nov. 30, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
2890	[redacted] INside Metal Supports	9.0	NDA	NDA	16 / 0	17 / 0	— / 0	3.3 / 35	— / 0
2891					17 / 0		0 / 0		0 / 0
2892					14 / 0		— / 0		— / 0
2893					12 / 0		— / 0		— / 0
2894					15 / 0		— / 0		— / 0
2895					17 / 0		0 / 0		0 / 0
2896					10 / 0		— / 0		— / 0
2897	INside Bottom of Vessel				17 / 0		0 / 0		0 / 0
2898					15 / 0		— / 0		— / 0
2899					12 / 0		— / 0		— / 0
2900					18 / 0		1 / 0		3.3 / 0
2901					16 / 0		— / 0		— / 0
2902					18 / 0		1 / 0		3.3 / 0
2903					15 / 0		— / 0		— / 0
2904					15 / 0		— / 0		— / 0
2905	Out side of Core liner				15 / 0		— / 0		— / 0
2906					17 / 0		— / 0		— / 0
2907					14 / 0		— / 0		— / 0
2908					12 / 0		— / 0		— / 0
2909					16 / 0		— / 0		— / 0
2910					17 / 0		0 / 0		0 / 0
2911					13 / 0		— / 0		— / 0
2912	INside Core Liner				14 / 0		— / 0		— / 0
2913					14 / 0		— / 0		— / 0
2914					14 / 0		— / 0		— / 0
2915					13 / 0		— / 0		— / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-12-84 PAGE

LOCATION Rx room SURVEY DATE Nov 30 + Dec. 3, 84 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
2916	Inside Core Liner	9.0	NOA	NOA	16 / 0	17 / 0	– / 0	3.3 / 3.5	– / 0
2917	"				17 / 0		0 / 0		0 / 0
2918	outside Center Column				16 / 0		– / 0		– / 0
2919	"				14 / 0		– / 0		– / 0
2920	inside Center Column				17 / 0		0 / 0		0 / 0
2921	"				12 / 0		– / 0		– / 0
2922	Cover & Clamp.				17 / 0		0 / 0		0 / 0
2923	" " "				16 / 0		– / 0		– / 0
2924	Metal Piece from Vessel inside ~~Supports~~				17 / 0		0 / 0		0 / 0
2925	" "				15 / 0		– / 0		– / 0
2926	Metal inside Supports				16 / 0		– / 0		– / 0
2927	" " "				17 / 0		0 / 0		0 / 0
2928	Piece of Pipe				15 / 0		– / 0		– / 0
2929	Center Pipe for electric wire				12 / 0		– / 0		– / 0
2930	MAINTEX Bucket inside				15 / 0		– / 0		– / 0
2931	" " outside.				15 / 0		– / 0		– / 0
2932	8C Ceiling				12 / 0		– / 0		– / 0
2933	7C Ceiling				16 / 0		– / 0		– / 0
2934	5D " I Beam				12 / 0		– / 0		– / 0
2935	3D " I Beam				13 / 0		– / 0		– / 0
2936	1Bc wall 1				16 / 0		– / 0		– / 0
2937	2				14 / 0		– / 0		– / 0
2938	3				12 / 0		– / 0		– / 0
2939	4				15 / 0		– / 0		– / 0
2940	5				15 / 0		– / 0		– / 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-12-84 PAGE

LOCATION Rx room SURVEY DATE Dec. 3, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α				
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
2941	1Bd wall* 1	9.0	NOA	NOA	15	17	—	3.3	—
					0	0	0	55	0
2942	2				13		—		—
					0		0		0
2943	3				15		—		—
					0		0		0
2944	4				10		—		—
					0		0		0
2945	5				17		0		0
					0		0		0
2946	1Ca wall 1				11		—		—
					0		0		0
2947	2				14		—		—
					0		0		0
2948	3				13		—		—
					0		0		0
2949	4				14		—		—
					0		0		0
2950	5				15		—		—
					0		0		0
2951	1Cd wall 1				15		—		—
					0		0		0
2952	2				11		—		—
					0		0		0
2953	3				13		—		—
					0		0		0
2954	4				15		—		—
					0		0		0
2955	5				11		—		—
					0		0		0
2956	1Da wall 1				15		—		—
					0		0		0
2957	2				17		0		90
					0		0		
2958	3				13		—		—
					0		0		0
2959	4				16		—		—
					0		0		0
2960	5				17		0		90
					0		0		
2961	1Dd wall 1				13		—		—
					0		0		0
2962	2				14		—		—
					0		0		0
2963	3				16		—		—
					0		0		0
2964	4				15		—		—
					0		0		0
2965	5				17		0		0
					0		0		0

INSTRUMENTS:

COMMENTS: * Surveyed to Pete

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-12-84 PAGE

LOCATION Rx room SURVEY DATE Dec. 3, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α											
					Gross cpm		Bkg cpm		Net cpm		Eff.		dpm			
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm		Bkg cpm		Net cpm		Eff.		dpm			
2966	1Ed wall 1	9.0	NDA	NDA	15	0	17	0	—	0	33	35	—	0		
2967	2				15	0			—	0			—	0		
2968	3				13	0			—	0			—	0		
2969	4				16	0			—	0			—	0		
2970	5				10	0			—	0			—	0		
2971	1Ec wall 1				16	0			—	0			—	0		
2972	2				14	0			—	0			—	0		
2973	3				16	0			—	0			—	0		
2974	4				14	0			—	0			—	0		
2975	5				14	0			—	0			—	0		
2976	1EB wall 1				17	0			0	0			0	0		
2977	2				13	0			—	0			—	0		
2978	3				13	0			—	0			—	0		
2979	4				16	0			—	0			—	0		
2980	5				14	0			—	0			—	0		
2981	1E wall 1				16	0			—	0			—	0		
2982	2				17	0			0	0			0	0		
2983	3				14	0			—	0			—	0		
2984	4				17	0			0	0			0	0		
2985	5				16	0			—	0			—	0		
2986	Piping				16	0			—	0			—	0		
2987	Crane Rail wastwall				16	0			—	0			—	0		
2988	Large Pipe wastwall				17	0			0	0			0	0		
2989	" vertical				13	0			—	0			—	0		
2990	Small Pipe Wastwall				12	0			—	0			—	0		
2991	" " vertical				14	0			—	0			—	0		

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-12-84 PAGE

LOCATION Rx room SURVEY DATE Dec 3, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS		REMOVABLE β+γ			α	
			cpm @ contact (less Bkg)		Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
2992	2FA wall 1	9.0	NDA	NDA	12 0	17 0	— 0	33 35	— 0
2993	2				14 0		— 0		— 0
2994	3				17 0		0 0		0 0
2995	4				14 0		— 0		— 0
2996	5				16 0		— 0		— 0
2997	2FB Wall 1				14 0		— 0		— 0
2998	2				16 0		— 0		— 0
2999	3				16 0		— 0		— 0
3000	4				15 0		— 0		— 0
3001	5				13 0		— 0		— 0
3002	2Fc wall 1				15 0		— 0		— 0
3003	2				15 0		— 0		— 0
3004	3				17 0		0 0		0 0
3005	4				10 0		— 0		— 0
3006	5				12 0		— 0		— 0
3007	2Fd wall 1				13 0		— 0		— 0
3008	2				17 0		0 0		0 0
3009	3				15 0		— 0		— 0
3010	4				12 0		— 0		— 0
3011	5				15 0		— 0		— 0
3012	3Fa Wall 1				16 0		— 0		— 0
3013	2				17 0		0 0		0 0
3014	3				12 0		— 0		— 0
3015	3Fc wall 1				16 0		— 0		— 0
3016	2				16 0		— 0		— 0
3017	3				13 0		— 0		— 0

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-12-84 PAGE

LOCATION Rx room SURVEY DATE Dec. 3, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm
3018	3Fd wall 1	9.0	NOA	NOA	16 0	17 0	— 0	3.3 3.5	— 0
3019	2				16 0		— 0		— 0
3020	3				13 0		— 0		— 0
3021	4FB Windows				13 0		— 0		— 0
3022	4Fc Window				14 0		— 0		— 0
3023	4Fd "				15 0		— 0		— 0
3024	5FB "				15 0		— 0		— 0
3025	5Fc "				14 0		— 0		— 0
3026	5Fd "				16 0		— 0		— 0
3027	6FB "				15 0		— 0		— 0
3028	6Fc "				17 0		0 0		0 0
3029	6Fd "				15 0		— 0		— 0
3030	7FB "				14 0		— 0		— 0
3031	7Fc "				13 0		— 0		— 0
3032	7Fd "				11 0		0 0		0 0
3033	8FB "				11 0		— 0		— 0
3034	8Fc "				12 0		0 0		0 0
3035	8Fd "				17 0		0 0		0 0
3036	Concrete around window				17 0		0 0		0 0
3037					13 0		— 0		— 0
3038					16 0		— 0		— 0
3039					13 0		— 0		— 0
3040	Piping 4" Dia				11 0		— 0		— 0
3041	Piping 4" Dia				16 0		— 0		— 0
3042	Piping 3" Dia				14 0		— 0		— 0
3043	Piping 3" Dia.				12 0		— 0		— 0

Standard Grid on Floor

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-13-84 PAGE _____

LOCATION Rx room SURVEY DATE Dec. 3, 1984 TIME _____

RESP. USER _____ ☐ ROUTINE, ☒ SPECIAL, _____

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ			α	
					Gross cpm / Gross cpm	Bkg cpm / Bkg cpm	Net cpm / Net cpm	Eff. / Eff.	dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α					
3044	Heater	9.0	NOA	NOA	14 / 0	17 / 0	— / 0	33 / 35	— / 0
3045	Piping to heater				13 / 0		— / 0		— / 0
3046	1 E ↓ Green metal Divider				17 / 0		0 / 0		0 / 0
3047	2				17 / 0		0 / 0		0 / 0
3048	3				16 / 0		0 / 0		0 / 0
3049	4				15		0 / 0		0 / 0
3050	5 ↓				16		0 / 0		0 / 0
3051	9D ↓ " " " " 1				15		0 / 0		0 / 0
3052	2				14		0 / 0		0 / 0
3053	3				13		0 / 0		0 / 0
3054	4				15		0 / 0		0 / 0
3055	↓ 5				15		0 / 0		0 / 0
3056	9C ↓ " " " 1				16		0 / 0		0 / 0
3057	2				14		0 / 0		0 / 0
3058	3				14		0 / 0		0 / 0
3059	4				15		0 / 0		0 / 0
3060	↓ 5				14		0 / 0		0 / 0
3061	9B ↓ " " " " 1				17		0 / 0		0 / 0
3062	2				16		0 / 0		0 / 0
3063	3				14		0 / 0		0 / 0
3064	4				14		0 / 0		0 / 0
3065	↓ 5				17		0 / 0		0 / 0
3066	4" dia Pipe				13		0 / 0		0 / 0
3067	"				17		0 / 0		0 / 0
3068	3" dia Pipe Vertical				15		0 / 0		0 / 0
3069	" " "				16	(1)	0 / 0	(1)	0 / 0

INSTRUMENTS: _____

COMMENTS: _____

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Dorati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-13-84 PAGE

LOCATION Rx room SURVEY DATE Dec. 3, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm		Bkg cpm		Net cpm		Eff.		dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm		Bkg cpm		Net cpm		Eff.		dpm
3070	Crane Rail	9.0	NDA	NDA	17	0	18	0	—	0	33	35	—
3071	Crane Rail	~	|	|	14	0	|	|	—	0	|	|	—
3072	Sump A Wall 1	|	|	|	16	0	|	|	—	0	|	|	—
3073	2	|	|	|	16	0	|	|	—	0	|	|	—
3074	3	|	|	|	15	0	|	|	—	0	|	|	—
3075	4	|	|	|	18	0	|	|	0	0	|	|	0
3076	5	|	|	|	18	0	|	|	0	0	|	|	0
3077	Sump B Wall 1	|	|	|	18	0	|	|	0	0	|	|	0
3078	2	|	|	|	19	0	|	|	—	0	|	|	—
3079	3	|	|	|	17	0	|	|	—	0	|	|	—
3080	4	|	|	|	18	0	|	|	0	0	|	|	0
3081	5	|	|	|	18	0	|	|	0	0	|	|	0
3082	Sump C Wall 1	|	|	|	17	0	|	|	—	0	|	|	—
3083	2	|	|	|	16	0	|	|	—	0	|	|	—
3084	3	|	|	|	16	0	|	|	—	0	|	|	—
3085	4	|	|	|	16	0	|	|	—	0	|	|	—
3086	5	|	|	|	18	0	|	|	0	0	|	|	0
3087	Sump D Wall 1	|	|	|	17	0	|	|	—	0	|	|	—
3088	2	|	|	|	18	0	|	|	0	0	|	|	0
3089	3	|	|	|	18	0	|	|	0	0	|	|	0
3090	4	|	|	|	18	0	|	|	0	0	|	|	0
3091	5	|	|	|	18	0	|	|	0	0	|	|	0
3092	6" Diam Pipe Sump	|	|	|	16	0	|	|	—	0	|	|	—
3093	" " Sump	|	|	|	15	0	|	|	—	0	|	|	—
3094	6" " " Vertical Sump	|	|	|	17	0	|	|	—	0	|	|	—
3095	8" Diam Pipe Sump	▽	▽	▽	16	0	▽	▽	—	0	▽	▽	—

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-14-84 PAGE

LOCATION Rx room SURVEY DATE Dec. 3, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α					
Sample Number	Objects Monitored	uR/hr	β + γ	α	Gross cpm	Bkg cpm	Net cpm	Eff.	dpm	
3096	Pipe hanger Sump	9.0	NOA	NOA	12 0	18 0	— 0	3.3 3.5	— 0	
3097	8" Dia. Pipe				18 0		0 0		0 0	
3098	1" piping & Valve				14 0		— 0		— 0	
3099	Ladder				14 0		— 0		— 0	
3100	Ladder				18 0		0 0		0 0	
3101	Hand Rail				16 0		— 0		— 0	
3102					16 0		— 0		— 0	
3103					16 0		— 0		— 0	
3104					18 0		0 0		0 0	
3105	Rubber Drain Hose in Sump				15 0		— 0		— 0	
3106	"				18 0		0 0		0 0	
3107	Short Piece of Rubber Drain Hose				16 0		— 0		— 0	
3108	" "				16 0		— 0		— 0	
3109	Pipe Chase + Pipes				16 0		— 0		— 0	
3110					14 0		— 0		— 0	
3111					18 0		0 0		0 0	
3112					15 0		— 0		— 0	
3113					16 0		— 0		— 0	
3114					14 0		— 0		— 0	
3115					16 0		— 0		— 0	
3116					16 0		— 0		— 0	
3117					18 0		0 0		0 0	
3118					18 0		0 0		0 0	
3119					18 0		0 0		0 0	
3120					16 0		— 0		— 0	
3121					16 0		— 0		— 0	

INSTRUMENTS:

COMMENTS:

dpm = (cpm - Bkgcpm) Eff.

MONITORED BY Carol Donati

CALIFORNIA POLYTECHNIC STATE UNIVERSITY
Radiation Safety Committee

Form 16
9/81

SURFACE CONTAMINATION MONITORING RECORD

DEPARTMENT ME REPORT DATE 12-15-84 PAGE

LOCATION Rx room SURVEY DATE Dec. 10, 1984 TIME

RESP. USER ☐ ROUTINE, ☒ SPECIAL,

SURFACE CONTAMINATION MEASUREMENTS			READINGS cpm @ contact (less Bkg)		REMOVABLE β+γ / α								
					Gross cpm / Gross cpm		Bkg cpm / Bkg cpm		Net cpm / Net cpm		Eff. / Eff.		dpm / dpm
Sample Number	Objects Monitored	uR/hr	β + γ	α									
3122	Pipe chase & pipes	9	NDA	NDA	18	0	18	0	0	0	3.3	3.5	0 / 0
3123					18	0			0	0			0 / 0
3124					15	0			–	0			– / 0
3125					14	0			–	0			– / 0
3126					16	0			–	0			– / 0
3127					15	0			–	0			– / 0
3128					18	0			0	0			0 / 0
3129					16	0			–	0			– / 0
3130					18	0			0	0			0 / 0
3131	▽	▽			15	0			–	0			– / 0
3132	Outside Sump & pipes	12			16	0			–	0			– / 0
3133					15	0			–	0			– / 0
3134					17	0			–	0			– / 0
3135					15	0			–	0			– / 0
3136	▽	▽			16	0			–	0			– / 0
3137	Large ladder (wood)	9			18	0			0	0			0 / 0
3138	user to survey walls				14	0			–	0			– / 0
3139	Step ladder use				17	0			–	0			– / 0
3140	to survey				16	0			–	0			– / 0
3141					18	0			0	0			0 / 0
3142	↓				18	0			0	0			0 / 0
3143	electrical pipe chase				16	0			–	0			– / 0
3144	"	▽	▽	▽	17	0			–	0			– / 0
3145	Overhead Crane Housing	9	NDA	NDA	16	0			–	0			– / 0
3146	Pulley, Cable hook, Chain				17	0	▽	▽	–	0	▽	▽	– / 0
3147	Control, Electric Cable.	▽	▽	▽	17	0			–	0			– / 0

1-23-85 Dup 3146 Dup 3147

INSTRUMENTS:

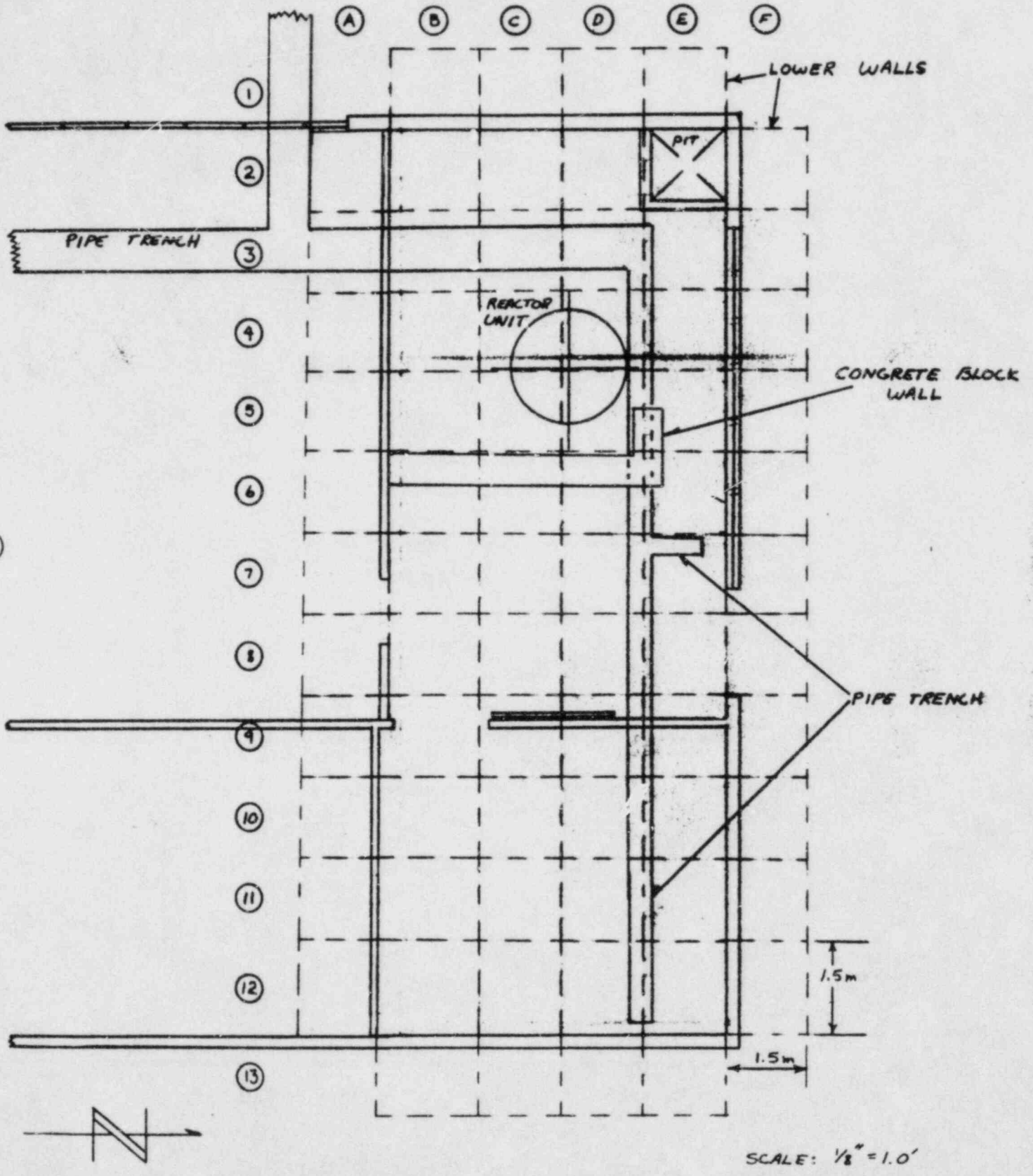
COMMENTS:

dpm = (cpm - Bkgcpm)Eff.

MONITORED BY Carol Donati

RECTANGULAR GRID SYSTEM FOR FINAL RADIATION SURVEY

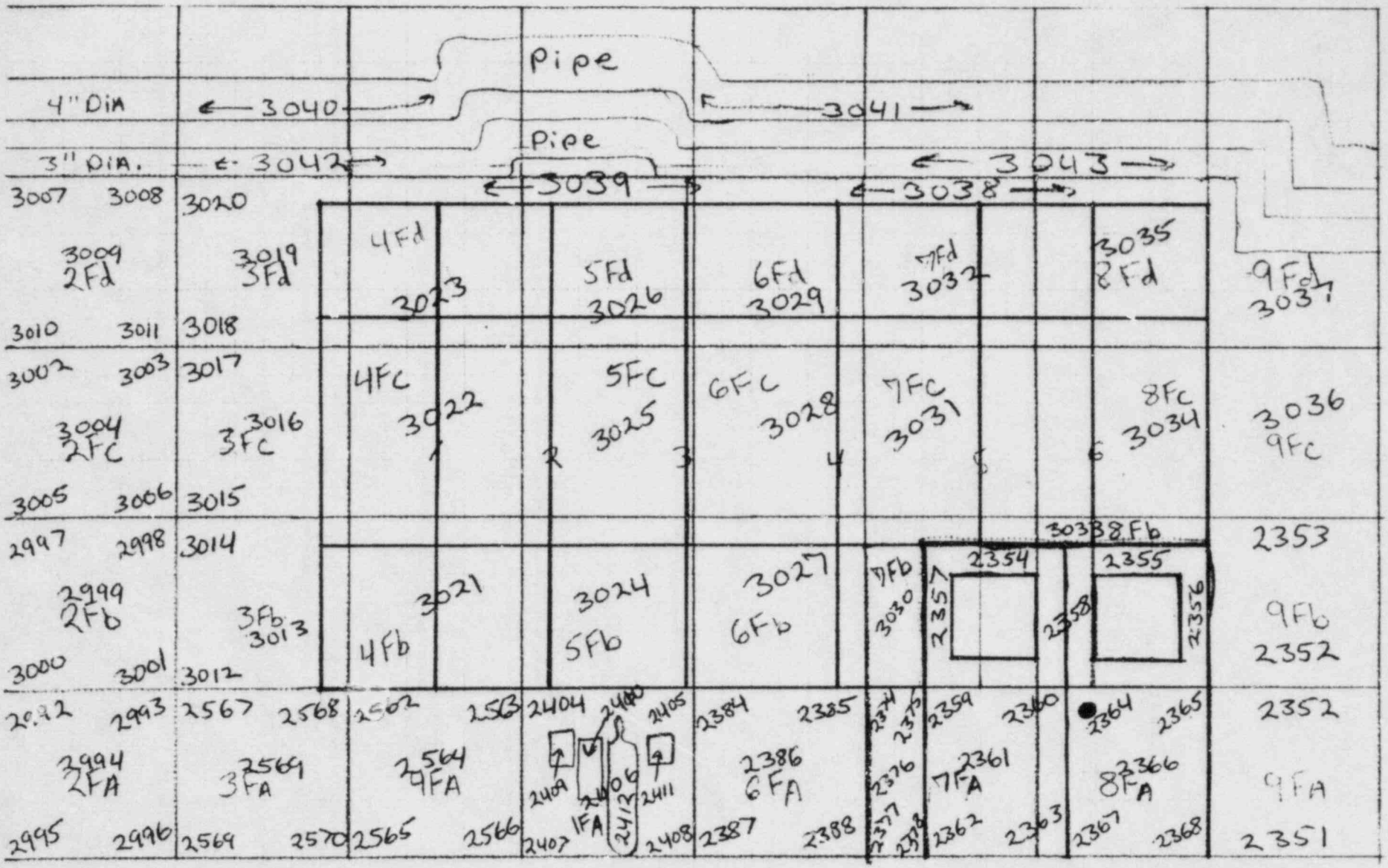
MECHANICAL ENGINEERING
CALIFORNIA POLYTECHNICAL STATE UNIVERSITY



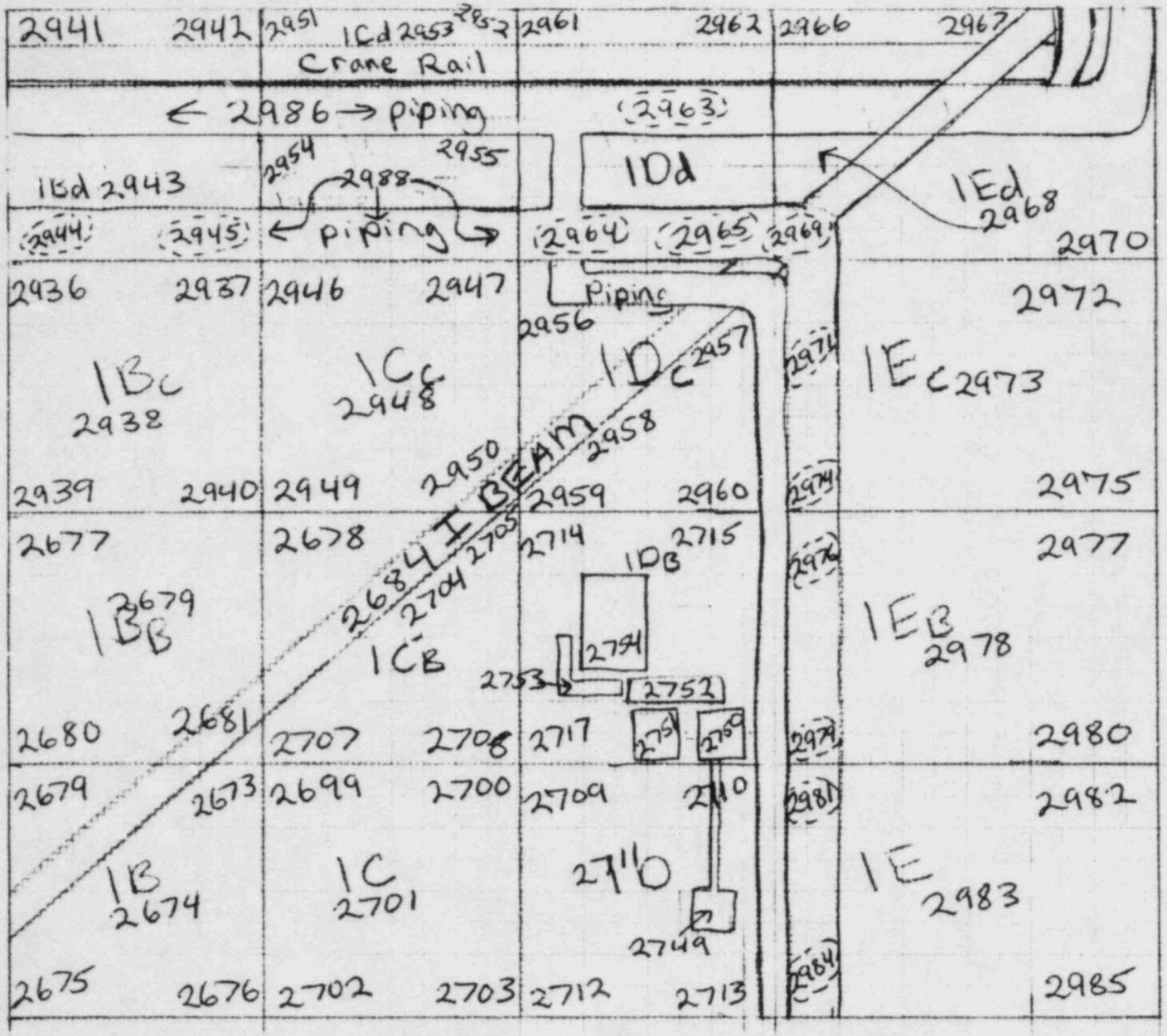
SCALE: 1/8" = 1.0'

J. HALL
APRIL 5, 1983

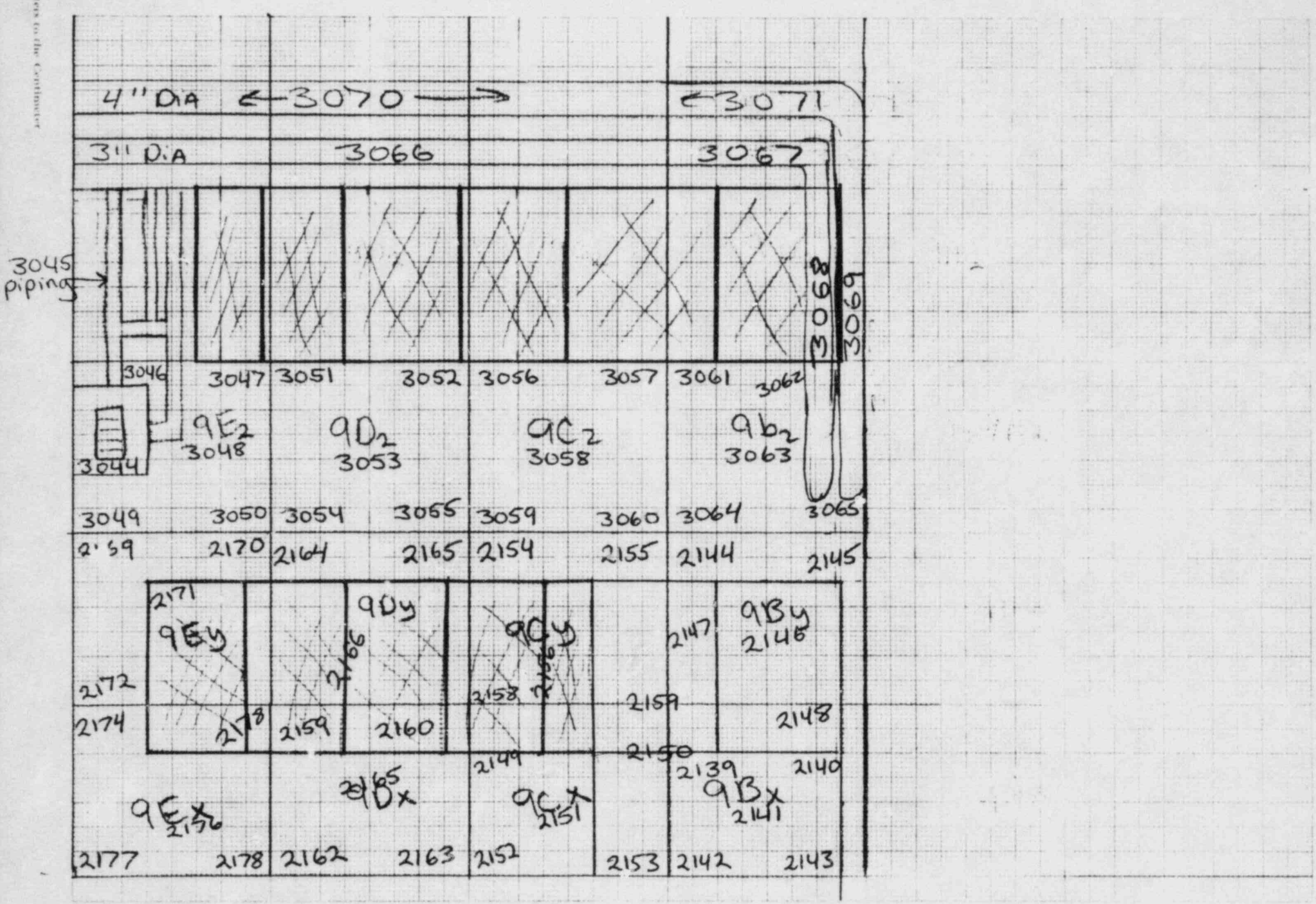
North Wall


Pipe
4" DIA
← 3040 →
3041 →
Pipe
3" DIA.
← 3042 →
← 3039 →
← 3043 →
← 3038 →
3007 3008 3020
3009 2Fd
3019 3Fd
4Fd 3023
5Fd 3026
6Fd 3029
7Fd 3032
3035 8Fd
9Fd 3037
3010 3011 3018
3002 3003 3017
3004 2FC
3016 3FC
4FC 3022
5FC 3025
6FC 3028
7FC 3031
8Fc 3034
3036 9FC
3005 3006 3015
2997 2998 3014
2999 2Fb
3Fb 3013
3021 4Fb
3024 5Fb
3027 6Fb
3033 8Fb
2354
2355
2357
2358
2356
9Fb 3030
2353
9Fb 2352
3000 3001 3012
2992 2993 2567 2568
3994 2FA
2569 3FA
2564 4FA
2386 6FA
2361 7FA
2366 8FA
9FA
2352
2995 2996 2569 2570
2565 2566
2404 2400 2405
2409 2406 2411
2407 1FA 2412 2408
2387 2388
2374 2375 2376 2377 2378
2359 2360
2362 2363
2364 2365
2367 2368
2351

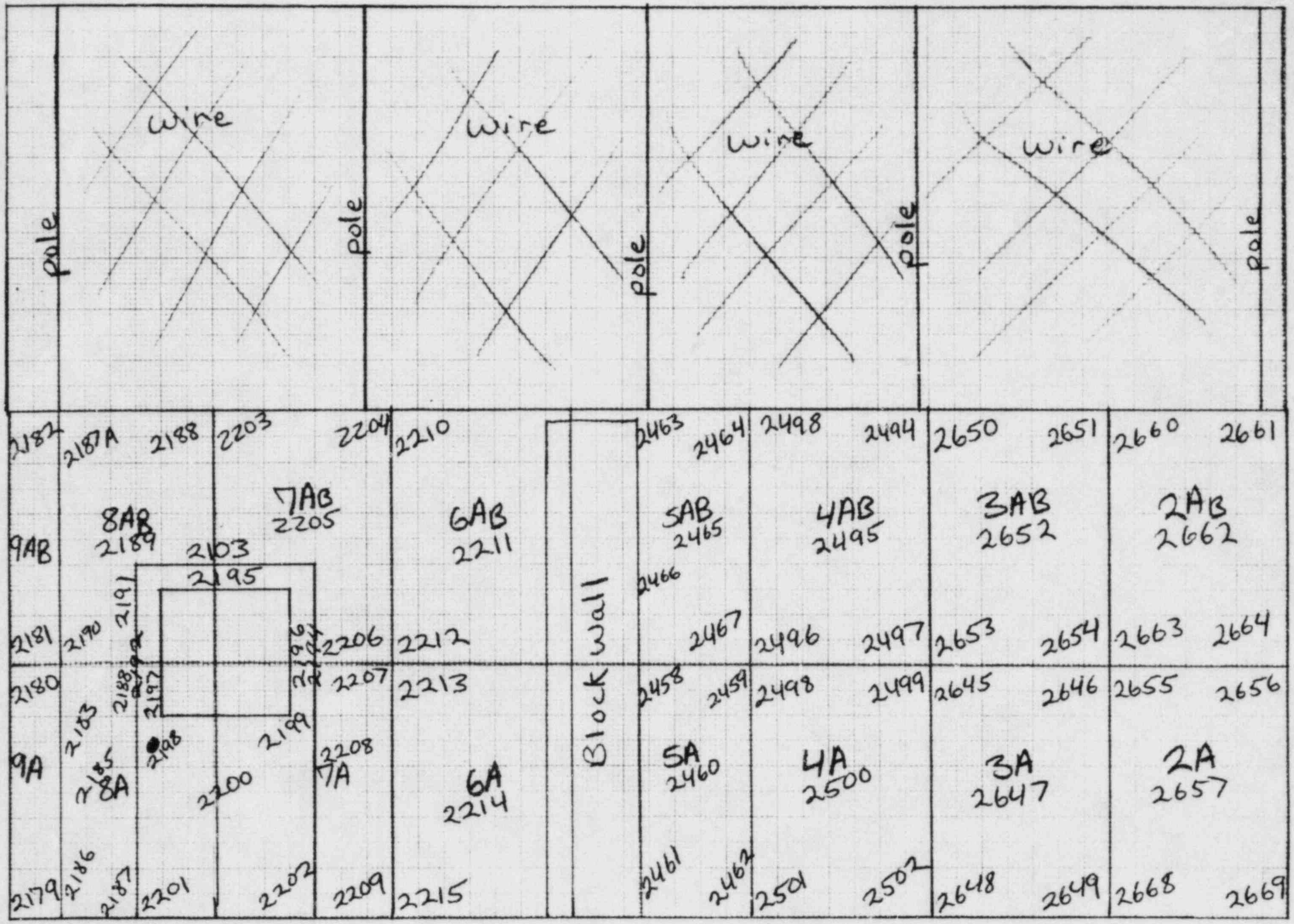
West Wall


2941
2942
2951
1Cd 2953
2952
Crane Rail
2961
2962
2966
2967
← 2986 → piping
(2963)
1Cd 2943
2954
2955
2988
1Dd
1Ed
2968
(2944)
(2945)
piping
(2964)
(2965)
(2969)
2970
2936
2937
2946
2947
Piping
2956
2972
1Bc
2938
1Cc
2948
1Dc 2957
2974
1Ec 2973
2950
2958
I BEAM
2939
2940
2949
2959
2960
2975
2677
2678
2714
1Db 2715
2977
1Bb 2679
2684
2704
2705
1Cb
1Eb
2978
2754
2753
2752
2680
2681
2707
2708
2717
2759
2769
2980
2679
2673
2699
2700
2709
2710
2982
1B
2674
1C
2701
2710
1E
2983
2749
2675
2676
2702
2703
2712
2713
2985

EAST WALL


4" DIA
3070
3071
3" DIA
3066
3067
3045 piping
3068
3069
3046
3047
3051
3052
3056
3057
3061
3062
9E2
3048
9D2
3053
9C2
3058
9b2
3063
3044
3049
3050
3054
3055
3059
3060
3064
3065
2159
2170
2164
2165
2154
2155
2144
2145
2171
9EY
9DY
9CY
9BY
2146
2147
2172
2166
2156
2158
2174
2178
2159
2160
2159
2148
2150
2149
2139
2140
9EX
2156
9DX
2165
9CX
2151
9BX
2141
2177
2178
2162
2163
2152
2153
2142
2143

South Wall



Wire
Wire
Wire
Wire
pole
pole
pole
pole
pole
Block Wall
2182
2187A
2188
2203
2204
2210
2463
2464
2498
2494
2650
2651
2660
2661
9AB
8AB
2189
7AB
2205
2103
2195
6AB
2211
5AB
2465
2466
4AB
2495
3AB
2652
2AB
2662
2181
2190
2191
2206
2212
2467
2496
2497
2653
2654
2663
2664
2180
2188
2197
2207
2213
2458
2459
2498
2499
2645
2646
2655
2656
9A
2183
2185
8A
2198
2199
2200
2208
7A
6A
2214
5A
2460
4A
2500
3A
2647
2A
2657
2179
2186
2187
2201
2202
2209
2215
2461
2462
2501
2502
2648
2649
2668
2669

Ceiling above Reactor