Arch Chemicals, Inc.
Treatment Products
350 Knotter Drive
Cheshire, CT 06410
Tel. 203.271.4000

Br. 2

August 10, 2011

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REGION 1
2011 AUG 12 AM 10: 46

Nuclear Materials Safety Branch
U.S. Nuclear Regulatory Commission, Region 1
475 Allendale Road
King of Prussia, PA 19406-1415
Licensing Assistance Section

Attn.: License Assistance Team

RE: Material License No. 06-08166-03
Docket No. 030-36891

As a follow up to Arch's letter dated April 13, 2011, I am submitting records for decommissioning and release for unrestricted use of the areas identified in Arch's materials license 06-08166-03. Based on the criteria given in NUREG-1757, we believe that we fall under Group 2 since unsealed radioactive material was used and our survey demonstrated that levels of radiological contamination on building surfaces are less than decommissioning screening criteria. A final radiological survey was used to determine the final status of the licensed areas because the quantities of loose radioactive material used were routinely cleaned up and routine surveys were conducted. Attached is the report of the final radiological status survey for laboratories C9, C11, and A2 listed in the application for our current license.

The license application dated December 3, 2003 stated that radioactive materials will be used primarily in three laboratories (C9, C11, and A2). Rooms B2, B6, B20, B28, B30, C1, and C29 were also included in the license. We expected that we might occasionally perform instrumental analysis of samples containing small amounts of radiolabeled compounds in one or more of these rooms. The analyses would include mass spectrometry (MS) in room C29, inductively coupled plasma (ICP) spectroscopy in room B30, atomic absorption (AA) spectroscopy in room B20, infrared (IR) or ultraviolet (UV) spectrometry in room B28, and chromatographic analyses in rooms C1, B2, and B6. As it turned out, samples were analyzed on four occasions only in room B6 during 2002 and 2003. The samples contained low concentrations of radioactivity in sealed vials. Wipe tests were performed on the instruments and work areas after each use with radioactive samples. These wipe test are included as part of the decommissioning survey. This approach was discussed verbally with the NRC. There was no storage of radioactive materials or radioactive waste in rooms B2, B6, B20, B28, B30, C1, and C29.

575795
NMSS/RGN1 MATERIALS-002

There were no spills of radioactive material at the site and there are no potential, likely, and known sources of radioactive material and contamination within the existing or historical site boundaries.

Also attached is a copy of the Uniform Low-Level Radioactive Waste Manifest for material removed from the facility for disposal prior to the move. A total of 32 mCi of C-14 and 1 mCi of H-3 licensed material were disposed of as waste. Transfer of 54 mCi of C-14 radioactive material to our new facility in Alpharetta, Georgia was done on 8/5/2011. Our Georgia materials license is number GA 1619-1. I will also be the RSO at the new location.

Connecticut address:
Arch Chemicals, Inc.
350 Knotter Drive
Cheshire, CT 06410

Georgia address (after 8/15/2011):
Arch Chemicals, Inc.
1400 Bluegrass Lakes Parkway
Alpharetta, GA 30004

Since we are planning to vacate the decommissioned areas by September 6, 2011, it will be appreciated if you could respond with any further actions required on our part by that date.

You may call me at 203-271-4026 prior to 8/15/11 if you require additional information. After that date I may be reached at 678-624-5821.

Sincerely,

James C. Ritter

James C. Ritter
Radiation Safety Officer
Arch Chemicals, Inc.
jcritter@archchemicals.com

NRC FORM 314 (6-2004) 10 CFR 30.36(j)(1); 40.42(j)(1); 70.38(j)(1); and 72.54(j)(1)

U.S. NUCLEAR REGULATORY COMMISSION

CERTIFICATE OF DISPOSITION OF MATERIALS

APPROVED BY OMB: NO. 3150-0028 **EXPIRES: 06/30/2007**

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

LICENSEE NAME AND ADDRESS	LICENSE NUMBER	DOCKET NUMBER
Arch Chemicals, Inc. 350 Knotter Drive Cheshire,CT 06410	06-08166-03	030-36891
	LICENSE EXPIRATION DATE 04/30/2015	

A. LICENSE STATUS *(Check the appropriate box)*

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

B. DISPOSAL OF RADIOACTIVE MATERIAL

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

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

☐ 1. No radioactive materials have ever been procured or possessed by the licensee under this license.

☑ 2. All activities authorized by this license have ceased, and all radioactive materials procured and/or possessed by the licensee under this license number cited above have been disposed of in the following manner.

☑ a. Transfer of radioactive materials to the licensee listed below:
Arch Chemicals, Inc. 1400 Bluegrass Lakes Parkway, Alpharetta, GA. License number GA 1619-1

☑ b. Disposal of radioactive materials:

☐ 1. Directly by the licensee:

☐ 2. By licensed disposal site:

☑ 3. By waste contractor:
Chase Environmental Group
982 Ridge Road
Wethersfield, CT 06109 860-505-8109

☑ c. All radioactive materials have been removed such that any remaining residual radioactivity is within the limits of 10 CFR Part 20, Subpart E, and is ALARA.

C. SURVEYS PERFORMED AND REPORTED

☑ 1. A radiation survey was conducted by the licensee. The survey confirms:

☐ a. the absence of licensed radioactive materials

☑ b. that any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA.

☑ 2. A copy of the radiation survey results:

☑ a. is attached; or ☐ b. is not attached (Provide explanation); or ☐ c. was forwarded to NRC on: _____ Date

☐ 3. A radiation survey is not required as only sealed sources were ever possessed under this license, and

☐ a. The results of the latest leak test are attached; and/or ☐ b. No leaking sources have ever been identified.

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

NAME	TITLE	TELEPHONE *(Include Area Code)*	E-MAIL ADDRESS
James Ritter	RSO	(678) 624-5821	jcritter@archchemica

Mail all future correspondence regarding this license to:
Arch Chemicals, Inc. 1400 Bluegrass Lakes Parkway, Alpharetta, GA.

C. CERTIFYING OFFICIAL

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

PRINTED NAME AND TITLE	SIGNATURE	DATE
James Ritter	James Ritter	8/10/2011

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

Arch Chemical
350 Knotter Drive
Cheshire, Connecticut

FINAL STATUS SURVEY

Prepared by

Radiation Safety Associates, Inc.
19 Pendleton Drive, PO Box 107
Hebron, Connecticut 06248
(860) 228-0487

10 August 2011

1.0 INTRODUCTION

Arch Chemical is a private research facility in Cheshire Connecticut. As part of their on-going research they used radioactive materials in the form of Tritium and Carbon-14 as tracers. At the time of the survey, all radioactive materials had been removed from the laboratories and storage refrigerators and were stored in a locked cage in room C9. Arch Chemical will be terminating its NRC license.

2.0 SITE DESCRIPTION

The Arch Chemical facility is located at 350 Knotter Drive, in Cheshire Connecticut. All of the spaces included in this survey are located on the first floor of the building. Rooms C9, C11 and A2 were actively used for radioactive materials. Laboratories C9 and C11 are side by side separated by a wall with a wide pass through between the labs. Room A2 is on the other side of the facility. Labs C9 and C11 were the main laboratories used for radioactive materials and A2 was used only for limited studies. The radioactive materials storage cage and liquid scintillation counter are located in C9.

These laboratories have been used for radioactive materials since 2000. Routine Survey records were available from 2000 through 2011 and revealed no contamination. Company policy prevented down drain disposal of radioactive materials.

This survey is being conducted under the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance for radiological surveys for demonstrating compliance with dose or risk-based regulations or standards.

3.0 SUMMARY OF INVESTIGATIONS

This radiological survey of the facility was performed on 26 – 27 July 2011, with a follow up survey on August 10. Based upon the history of radioactive materials use and advice from the RSO, rooms C9, C11 and A2 were presumptively designated MARSIMM Class 3 areas. Historical Site Assessment revealed no history of radioactive spills and routine surveys showed no contamination in excess of the DCGL for either isotope.

The survey consisted of a 100% scan of all floors, countertops, laboratory equipment and walls up to two meters with a gas proportional counter. A 1-meter-square grid was superimposed on the laboratory spaces and a wipe was taken in every square meter of the floor and countertops. Random wipes were taken on the walls up to two meters. Random wipes and direct measurements were taken in drawers and cabinets. Those pieces of laboratory equipment remaining in the labs were identified and had direct and wipe measurements taken. Wipes and direct measurements were taken on the inside of the fume hoods and the accessible portion of the hood vents located in room C11. All sinks had wipes taken of the sink bowls and the accessible portion of the drains.

Finally, a square grid with a random start point was superimposed upon the laboratory spaces. Final status wipes and direct counts were taken at each of these grid points as well as at random locations throughout the three laboratories.

Wipes taken for removable contamination were counted on a liquid scintillation counter calibrated in dual dpm mode for Tritium and Carbon 14. Measurements for total contamination were made using instruments sensitive to the low energy beta emissions of Carbon-14. Measurements were made for lengths of time sufficient to achieve the detection limit for the isotopes used in the laboratory.

Calibration certificates for the instruments used and calculations of MDA can be found in Attachment C.

No single measurement for total or removable contamination exceeded the DCGL for the isotopes of interest.

4.0 OBJECTIVES

The objective of this survey is to determine the level of contamination, if any, present in rooms C9, C11, and A2. The purpose is to provide information required to plan and execute a decontamination and decommissioning program sufficient to release the room for unrestricted use.

5.0 DERIVED CONCENTRATION GUIDELINE LEVELS (DCGLs)

Remediation goals for the final status survey will achieve the derived concentration guidelines (DCGLs) established for the area. The NRC has established a DCGL of 3.7E+06 dpm/100cm^2 total contamination for Carbon 14 and a DCGL of 1.2E+08 dpm/100cm^2 total contamination for Tritium. These DCGL's correspond to to an exposure of 25mrem/y. The State of Connecticut imposes a more restrictive exposure limit of 19 mrem/y which would reduce the Carbon 14 DCGL to 2.8E+06 dpm/100cm^2. As the Carbon 14 DCGL is the more restrictive value it is being used as the release limit for this survey. This release limit will be applied to floors, walls and fixed assets such as laboratory benches. Since the laboratory equipment will be retained by the company and transferred to another licensed facility, wipes and directs measurements are being taken to identify any equipment that may need decontamination or special handling.

The DCGL values are taken from Table 5.19, "Concentration (dpm/100cm^2) equivalent to 25 mrem/y for the specified value of P_{crit}," published in the Federal Register on Wednesday, November 18, 1998 (FR, Vol. 63, No. 222, Notices, p.5-43 – 5-46). These DCGLs are provided by the Nuclear Regulatory Commission and correspond to an annual dose of 0.25 mSv (25 mrem) using the default parameters that are generated by the approach to be used in the new version of NRC's "DandD" program.

6.0 DATA QUALITY OBJECTIVES

As part of the DQO process the objective of the survey and the null and alternate hypotheses should be clearly stated. In demonstrating that this objective is met, the null hypothesis, H_0, tested is that residual contamination exceeds the release criterion; the alternative hypothesis, H_a, is that residual contamination meets the release criterion.

Since the beta emitting contaminants that are present in the facility are not presumed present in background, the Sign test is used to determine the number of data points needed for statistical tests. The Type I error (α) was specified as 0.05 and Type II decision error (β) was set at 0.05.

The shift, Δ, also referred to as the lower bound of the gray region (LBGR), was set as 50% of the DCGL.

The square roots of the DCGLs were taken as the standard deviation values used for calculation of the sample sizes.

These data are summarized in the following table.

	STATE of CT DCGL (dpm/100 cm^2)	Site Specific (dpm/100 cm^2)	Δ (dpm/100 cm^2)	σ (dpm/100 cm^2)	Δ/σ	Number of samples required per survey unit as per Sign Test
C-14 Total	3.7E+6	10,000	5000	100	50	14
C-14 Removable	3.7E+5	1000	500	31.62	15.81	14

Direct surveys and measurements were performed using the instruments listed in Attachment B. Using the background data from an unaffected hallway area, the background and sample count times were established to make the MDA less than the DCGL for Carbon-14.

Wipes were counted for Tritium/Carbon-14 on a liquid scintillation counter calibrated against quenched standards.

7.0 PROCEDURES - OVERVIEW

7.1 Class 3 Area

Three laboratories were designated as Class 3 areas as a result of the history provided by the RSO. The total area of these portions of the lab was approximately 118 m^2 and together they were considered to be a single survey unit.

7.2 Reference Area

Background measurements were taken outside of the Class 3 areas on surfaces similar to those inside the survey units but which were not subject to exposure from licensed radioactive materials. The area was an adjacent laboratory with similar materials for floors, walls, laboratory benches, drawers and cabinets.

8.0 CONCLUSIONS

Direct survey measurements from all areas sampled in the three laboratories are indistinguishable from background. Wipe survey results demonstrated no floor, wall, cabinet or lab bench area that exceeded the release criteria for Tritium or Carbon 14.

Several wipes of laboratory equipment exceeded the MDA for Tritium and Carbon 14. With the exception of a small centrifuge located in room C9 all equipment responded to simple decontamination with CONTRAD decontamination solution. No direct measurement exceeds the total DCGL of 2.8E+06 dpm/100cm^2 and all wipes are below the DCGL for removable contamination of 2.8E+06 dpm/100cm^2.

Based upon the results of this final status survey, the average member of the critical group is unlikely to receive an annual dose of more than 25 mrem resulting from licensed radioactive material remaining at this facility.

Jay R. Dockendorff
Health Physicist

LIST OF ATTACHMENTS

A. Instrumentation used during radiological surveys, and calibration certificates for these instruments

B. MDA Calculations

C. Maps of facility and Class 1 areas

D. Survey results

ATTACHMENT A

Instrumentation

Table 1. Instrumentation for Radiological Surveys

Type of Measurement	Instrumentation		Bkgd.[a]	4π Eff. (%)	Detection Sensitivity
	Detector	Instrument			
Surface scans and activity: beta	Large area (425 cm^2) gas proportional, Floor monitor Ludlum, Model 43-37	Scaler/Count-rate meter[b], Ludlum, Model 2224-1		4.6 (^{14}C)	1135 dpm/detector area (scan) 263.8 dpm/100 cm^2 (activity)
Surface scans and activity: alpha/ beta	Gas proportional, Hand held monitor Ludlum, Model 43-68	Scaler/Count-rate meter[b], Ludlum, Model 2224-1		7.2 (^{14}C)	862.8 dpm/detector area (scan) 862.8 dpm/100 cm^2 (activity)

[a]Nominal Values
[b]Monitoring audible signal.

CERTIFICATE OF CALIBRATION
(COUNT-RATE INSTRUMENT)

RSA Laboratories, Inc.
19 Pendleton Drive, P.O. Box 61
Hebron, Connecticut 06248
(860) 228-0721 Fax (860) 228-4402

Customer and Contact: **Radiation Safety Associates, Inc. Attn: K. Paul Steinmeyer (860) 228-0487**
Customer Address: **P.O. Box 107, 19 Pendleton Drive, Hebron, CT 06248**

Inst. Mfr. & Model **Ludlum Model 2224-1** Inst. Type **Scaler/Ratemeter** Inst. s/n **129459**
Det. Mfr. & Model **Ludlum Model 43-68** Det. Type **Gas Proportional** Det. s/n **111315**
Cal. Date **29 December 2010** Due Date **29 December 2011** Cal. Interval **1 year**

Environmental conditions: Temperature: **72°F** Relative Humidity **34%** Atmospheric Pressure **29.65** inches Hg
Pre-calibration Checks:

☒ Contamination survey ☒ Battery check ☐ Slow response check
☒ Mechanical check ☒ Audio check ☐ Window operation ☒ Det. volts **1550** Vdc
☒ Meter zero ☒ Reset check ☒ Plateau check
☒ Geotropism check ☐ Fast response check ☐ Alarm set ☒ Input sens. ***See comments**

☒ Pulse generator s/n 94926 ☐ Oscilloscope s/n 171-04928 ☒ Voltmeter s/n 57410002
☒ HV Readout (2 points) Ref./Inst. **900 V/ 900 V** Ref./Inst. **1700 V/ 1700 V**

Comments: *** Alpha threshold = 140 mV; Beta threshold = 3.6 mV; Beta window = 3.6 mV to 30 mV.**
Local background ≈ 2 cpm alpha, 614 cpm beta.

S/N of source used for precision check **#6** Isotope **Cs-137** Dedicated Source? ☐Yes ☒No
Reading #1 **23,000 cpm** Reading #2 **23,000 cpm** Reading #3 **23,000 cpm** Mean **23,000 cpm**
Precision: ☒±<10% ☐±10-20% ☐Out of tolerance

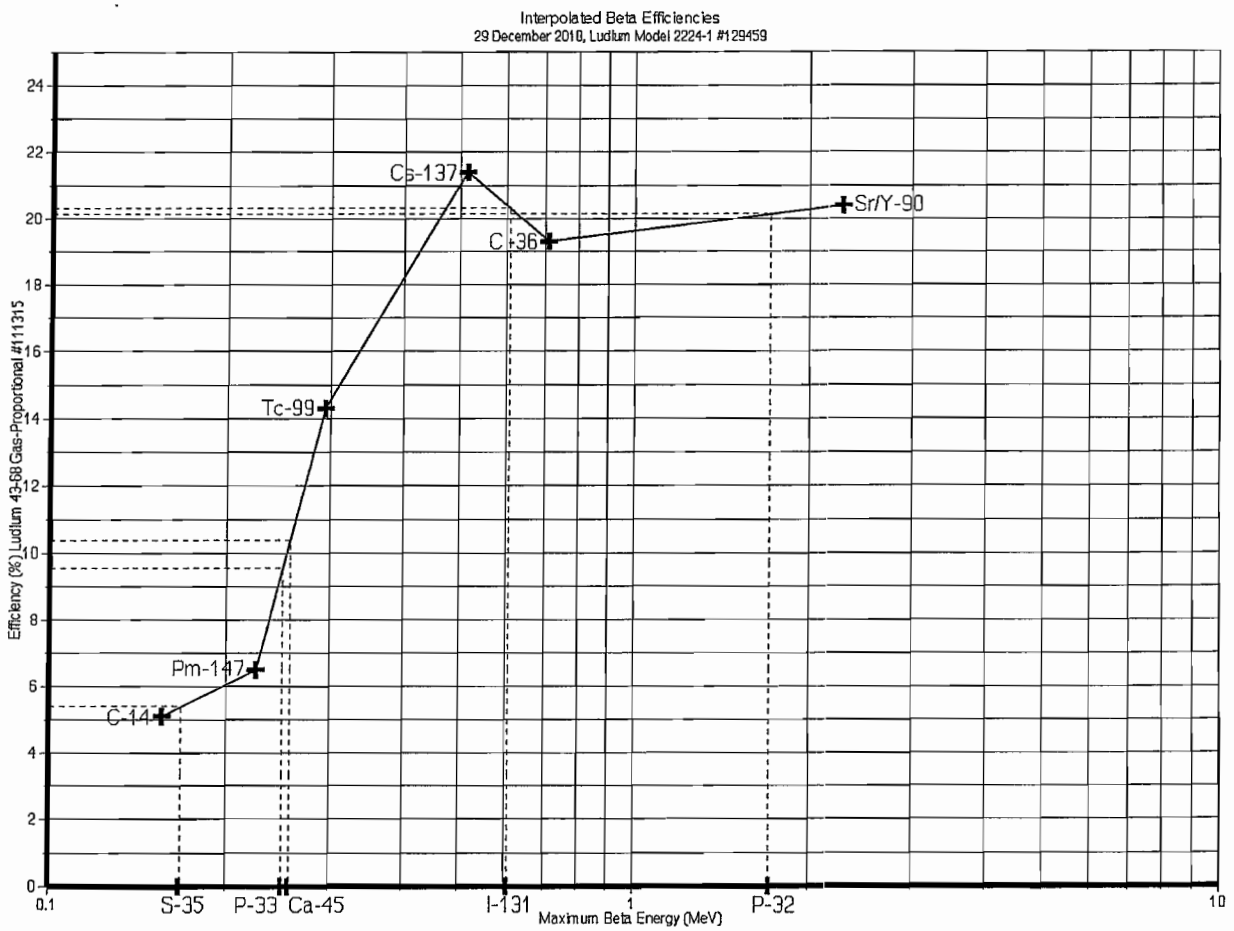
Range Multiplier	Reference Calibration Point	Instrument Indication
x 1000	400,000 cpm	400,000 cpm
x 1000	100,000 cpm	100,000 cpm
x 100	40,000 cpm	40,000 cpm
x 100	10,000 cpm	10,000 cpm
x 10	4000 cpm	4000 cpm
x 10	1000 cpm	1000 cpm
x 1	400 cpm	400 cpm
x 1	100 cpm	100 cpm
1 min count	100,000 cpm	100,001 cpm

All ranges calibrated electronically.

Range Multiplier	Cal. Source Used (isotope and S/N)	Source Activity (dpm)	Instrument Reading (cpm)	4π Instrument Efficiency (%)
1 min. count	C-14 #4456	202,100	1 (α) 10,838 (ß)	0.0% 5.1%
1 min. count	Pm-147 #5381	1,653	1 (α) 721 (ß)	0.0% 6.5%
1 min. count	Tc-99 #D702	23,064	3 (α) 3,917 (ß)	0.0% 14.3%
1 min. count	Cs-137 #2886	15,425	3 (α) 3,921 (ß)	0.0% 21.4%
1 min. count	Cl-36 #D700	23,598	1 (α) 5,162 (ß)	0.0% 19.3%
1 min. count	Sr/Y-90 #D711	38,312	2 (α) 8,431 (ß)	0.0% 20.4%
1 min. count	Th-230 #91TH2200210	38,900	310 (α) 1,593 (ß)	0.8% 2.5%

RSA Laboratories ID# **13901**. Instrument indicates within ±10% of calibration points unless otherwise indicated. Source-to-detector entry window distance for efficiency determinations is 1 cm unless otherwise specified. RSA Laboratories, Inc. certifies that the above instrument has been calibrated with standards traceable to the National Institute of Standards and Technology, or have been derived from accepted values of natural physical constants, or have been derived by the ratio-type of calibration techniques.

Calibrated by: **Kurt D. Newton** Date: **29 December 2010**



RSA Laboratories ID# **13901.**

Calibrated by: **Kurt D. Newton** _____ Date: **29 December 2010**

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(COUNT-RATE INSTRUMENT)

RSA Laboratories, Inc.
19 Pendleton Drive, P.O. Box 61
Hebron, Connecticut 06248
(860) 228-0721 Fax (860) 228-4402

Customer and Contact: **Radiation Safety Associates, Inc. Attn: K. Paul Steinmeyer (860) 228-0487**
Customer Address: **P.O. Box 107, 19 Pendleton Drive, Hebron, CT 06248**

Inst. Mfr. & Model **Ludlum Model 2224-1** Inst. Type **Scaler/Ratemeter** Inst. s/n **129459**
Det. Mfr. & Model **Ludlum Model 43-68** Det. Type **Gas Proportional** Det. s/n **111315**
Cal. Date **29 December 2010** Due Date **29 December 2011** Cal. Interval **1 year**

Environmental conditions: Temperature: **72°F** Relative Humidity **34%** Atmospheric Pressure **29.65** inches Hg
Pre-calibration Checks:

☒ Contamination survey ☒ Battery check ☐ Slow response check
☒ Mechanical check ☒ Audio check ☐ Window operation ☒ Det. volts **1550** Vdc
☒ Meter zero ☒ Reset check ☒ Plateau check
☒ Geotropism check ☐ Fast response check ☐ Alarm set ☒ Input sens. *See comments

☒ Pulse generator s/n 94926 ☐ Oscilloscope s/n 171-04928 ☒ Voltmeter s/n 57410002
☒ HV Readout (2 points) Ref./Inst. **900 V/ 900 V** Ref./Inst. **1700 V/ 1700 V**

Comments: * **Alpha threshold = 140 mV; Beta threshold = 3.6 mV; Beta window = 3.6 mV to 30 mV.**
Local background ≈ 2 cpm alpha, 614 cpm beta. All efficiences measured on contact.

S/N of source used for precision check **#6** Isotope **Cs-137** Dedicated Source? ☐Yes ☒No
Reading #1 **28,000 cpm** Reading #2 **28,000 cpm** Reading #3 **28,000 cpm** Mean **28,000 cpm**
Precision: ☒±<10% ☐±10-20% ☐Out of tolerance

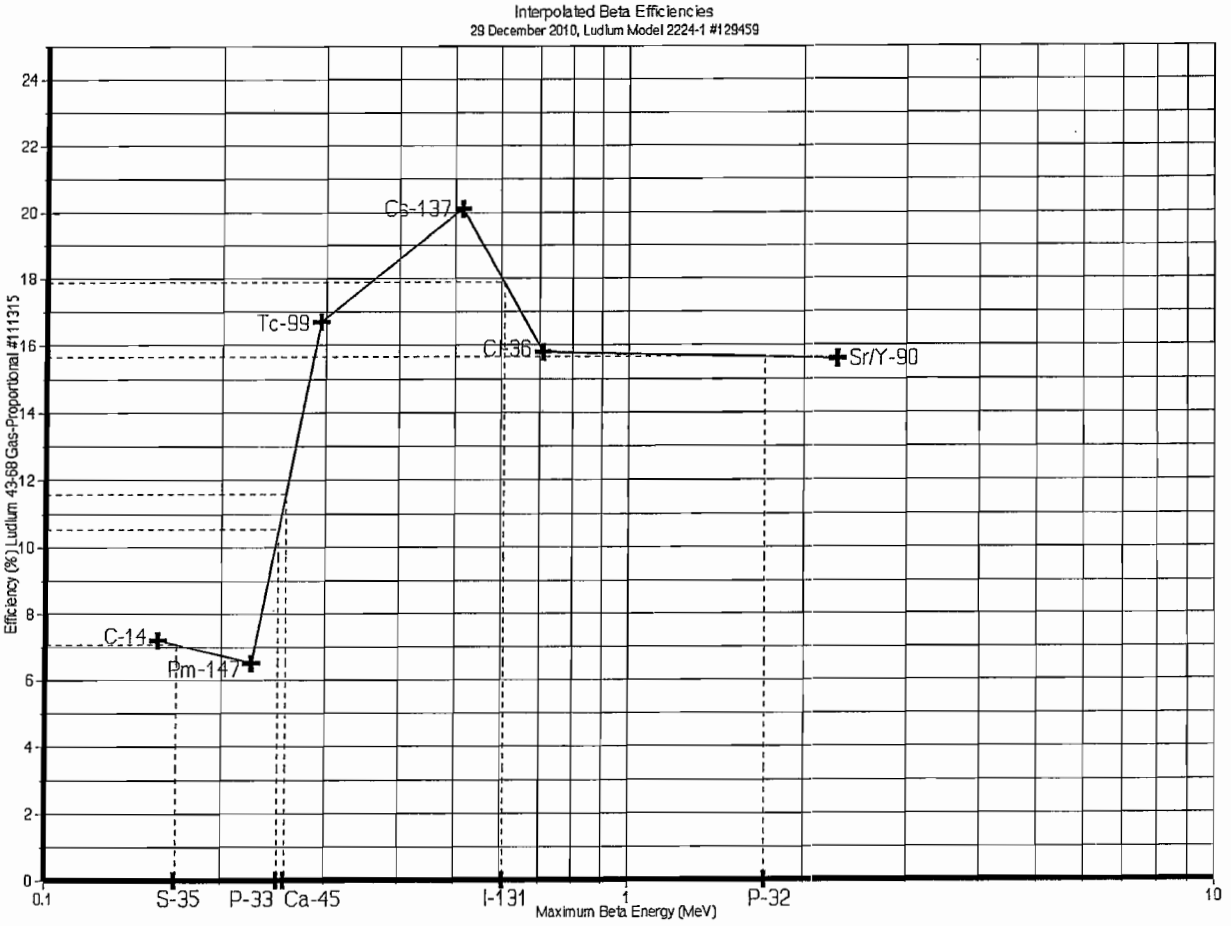
Range Multiplier	Reference Calibration Point	Instrument Indication
x 1000	400,000 cpm	400,000 cpm
x 1000	100,000 cpm	100,000 cpm
x 100	40,000 cpm	40,000 cpm
x 100	10,000 cpm	10,000 cpm
x 10	4000 cpm	4000 cpm
x 10	1000 cpm	1000 cpm
x 1	400 cpm	400 cpm
x 1	100 cpm	100 cpm
1 min count	100,000 cpm	100,001 cpm

All ranges calibrated electronically.

Range Multiplier	Cal. Source Used (isotope and S/N)	Source Activity (dpm)	Instrument Reading (cpm)	4π Instrument Efficiency (%)
1 min. count	C-14 #4456	202,100	0 (α) 15,158 (ß)	0.0% 7.2%
1 min. count	Pm-147 #5381	1,653	1 (α) 720 (ß)	0.0% 6.5%
1 min. count	Tc-99 #D702	23,064	0 (α) 4,467 (ß)	0.0% 16.7%
1 min. count	Cs-137 #2886	15,425	0 (α) 3,714 (ß)	0.0% 20.1%
1 min. count	Cl-36 #D700	23,598	2 (α) 4,342 (ß)	0.0% 15.8%
1 min. count	Sr/Y-90 #D711	38,312	0 (α) 6,603 (ß)	0.0% 15.6%
1 min. count	Th-230 #91TH2200210	38,900	3,895 (α) 2,186 (ß)	8.4% 4.0%

RSA Laboratories ID# **13901**. Instrument indicates within ±10% of calibration points unless otherwise indicated. Source-to-detector entry window distance for efficiency determinations is 1 cm unless otherwise specified. RSA Laboratories, Inc. certifies that the above instrument has been calibrated with standards traceable to the National Institute of Standards and Technology, or have been derived from accepted values of natural physical constants, or have been derived by the ratio-type of calibration techniques.

Calibrated by: **Kurt D. Newton** _____ Date: **29 December 2010**



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Det. Mfr. & Model **Ludlum 43-37** Det. Type **Gas-Proportional** Det. s/n **103776**
Cal. Date **29 December 2010** Due Date **29 December 2011** Cal. Interval **1 year**

Environmental conditions: Temperature: **72°F** Relative Humidity **34%** Atmospheric Pressure **29.65** inches Hg
Pre-calibration Checks:

- ☒ Contamination survey
- ☒ Mechanical check
- ☒ Meter zero
- ☒ Geotropism check
- ☒ Battery check
- ☒ Audio check
- ☒ Reset check
- ☐ Fast response check
- ☐ Slow response check
- ☐ Window operation
- ☒ Plateau check
- ☐ Alarm set
- ☒ Det. volts **1550** Vdc
- ☒ Input sens. ***See comments**

☒ Pulse generator s/n 94926 ☐ Oscilloscope s/n 171-04928 ☒ Voltmeter s/n 57410002
☒ HV Readout (2 points) Ref./Inst. **900 V/ 900 V** Ref./Inst. **1700 V/ 1700 V**

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S/N of source used for precision check **#6** Isotope **Cs-137** Dedicated Source? ☐Yes ☒No
Reading #1 **23,000 cpm** Reading #2 **23,000 cpm** Reading #3 **23,000 cpm** Mean **23,000 cpm**
Precision: ☒± <10% ☐±10-20% ☐Out of tolerance

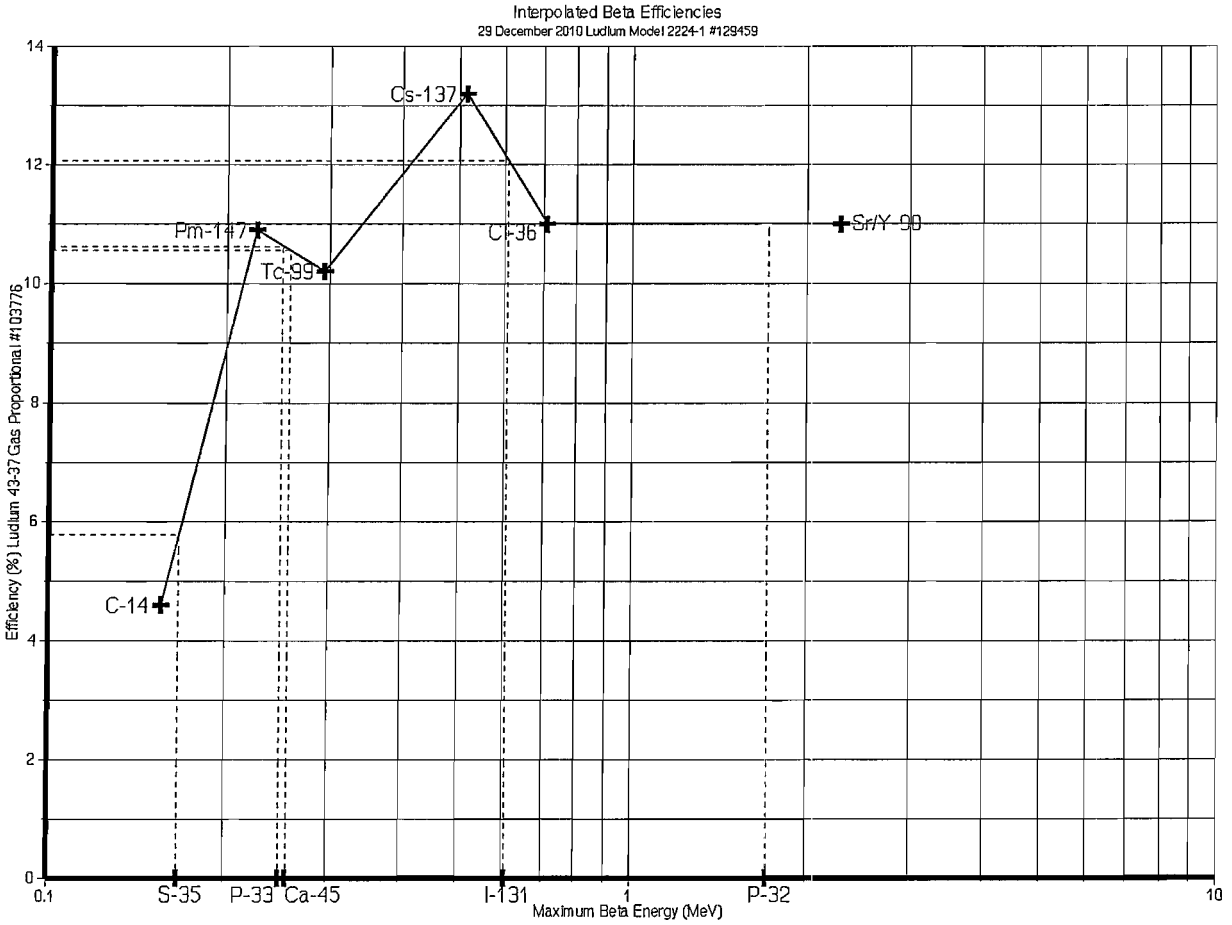
Range Multiplier	Reference Calibration Point	Instrument Indication
x 1000	400,000 cpm	400,000 cpm
x 1000	100,000 cpm	100,000 cpm
x 100	40,000 cpm	40,000 cpm
x 100	10,000 cpm	10,000 cpm
x 10	4000 cpm	4000 cpm
x 10	1000 cpm	1000 cpm
x 1	400 cpm	400 cpm
x 1	100 cpm	100 cpm
1 min. count	100,000 cpm	100,001 cpm

All ranges calibrated electronically.

Range Multiplier	Cal. Source Used (isotope and S/N)	Source Activity (dpm)	Instrument Reading (cpm)	4π Instrument Efficiency (%)
1 min. count	C-14 #4456	202,100	3 (α) 9,846 (β)	0.0% 4.6%
1 min. count	Pm-147 #5381	1,653	2 (α) 794 (β)	0.0% 10.9%
1 min. count	Tc-99 #D702	23,064	2 (α) 2,973 (β)	0.0% 10.2%
1 min. count	Cs-137 #2886	15,425	3 (α) 2,657 (β)	0.0% 13.2%
1 min. count	Cl-36 #D700	23,598	1 (α) 3,202 (β)	0.0% 11.0%
1 min. count	Sr/Y-90 #D711	38,312	0 (α) 4,812 (β)	0.0% 11.0%
1 min. count	Th-230 #91TH2200210	38,900	1,118 (α) 1,623 (β)	2.9% 2.6%

RSA Laboratories ID# **13901**. Instrument indicates within ±10% of calibration points unless otherwise indicated. Source-to-detector entry window distance for efficiency determinations is 1 cm unless otherwise specified. RSA Laboratories, Inc. certifies that the above instrument has been calibrated with standards traceable to the National Institute of Standards and Technology, or have been derived from accepted values of natural physical constants, or have been derived by the ratio-type of calibration techniques.

Calibrated by: **Kurt D. Newton** _____ Date: **29 December 2010**



RSA Laboratories ID# **13901.**

Calibrated by: **Kurt D. Newton** _____ Date: **29 December 2010**

ATTACHMENT B

MINIMUM DETECTABLE ACTIVITY

Minimum Detectable Activities have been calculated using RadCalc Version 1.1.

Arch Chemical – 43-68.txt

Arch Chemical – Cheshire, CT
Ludlum 224-1 s/n 129459 w/43-68 s/n 111315

DETECTION LIMITS – SURFACE CONTAMINATION

INPUT DATA:
Background Count = 2425 total counts
Background Counting Time = 5 minutes
Sample Counting Time = 2 minutes
Detector Efficiency = 7.2 %
Detector Area = 100 cm^2

RESULTS:
Critical Level (Lc) = 30.31 cpm above bkgd.
Detection Limit (Ld)) = 62.12 cpm above bkgd.
Minimum Detectable Activity (MDA) = 862.777 dpm/detector
Minimum Detectable Activity (MDA) = 862.777 dpm/100 cm^2
Minimum Detectable Activity (MDA) = 14.3796 Bq/detector
Minimum Detectable Activity (MDA) = 0.143796 Bq/1 cm^2

All Values calculated to 95% CL via MARSSIM methods

Calculated by RadCalc version 1.1 on 8/8/2011 at 5:20:10 PM

Arch Chemical - 43-37.txt

Arch Chemical – Cheshire, CT
Ludlum 2224-1 s/n 129459 w/43-37 s/n 103776

DETECTION LIMITS – SURFACE CONTAMINATION

INPUT DATA:
Background Count = 1695 total counts
Background Counting Time = 5 minutes
Samples Counting Time = 2 minutes
Detector Efficiency = 4.6%
Detector Area = 430 cm^2

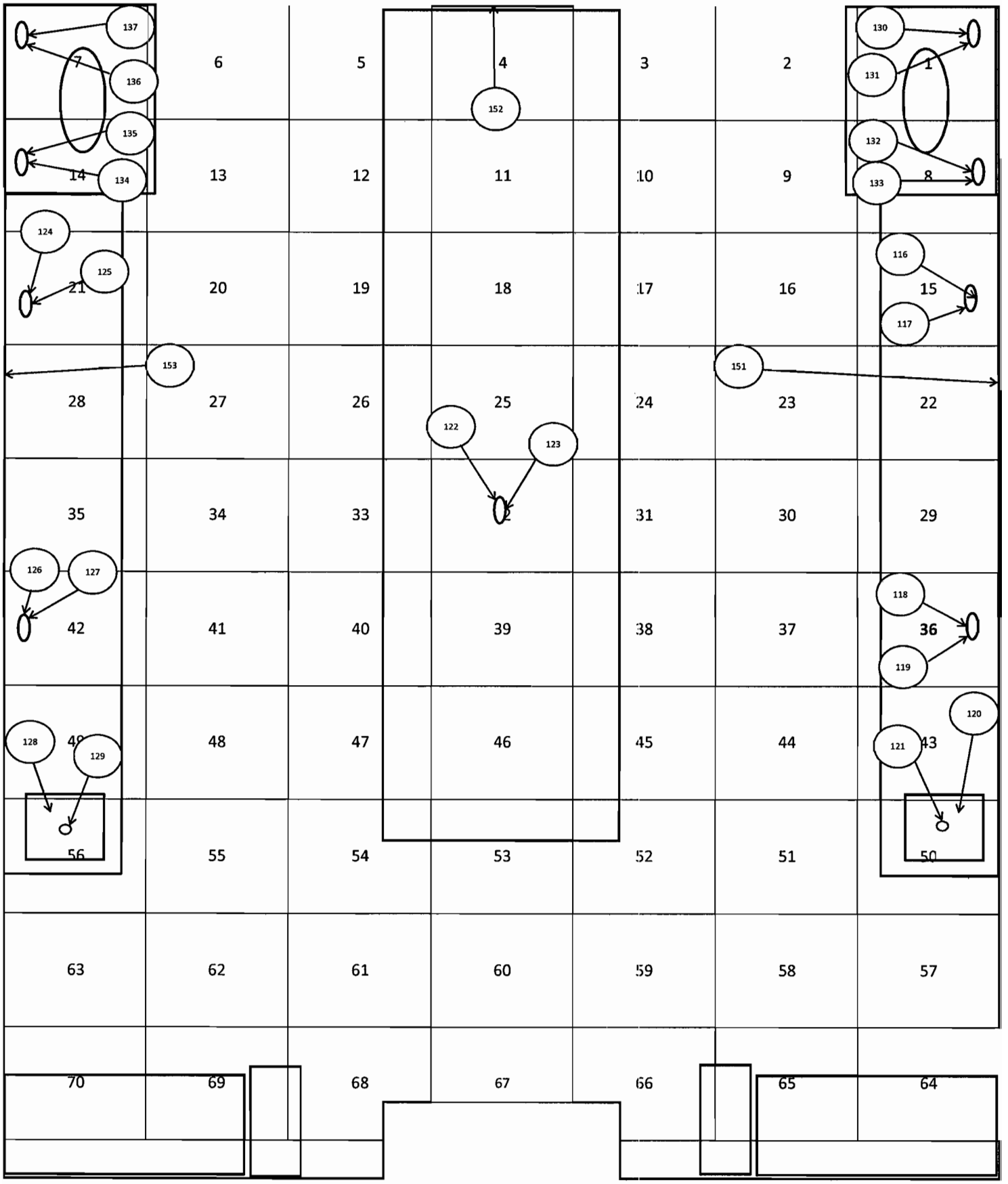
RESULTS:
Critical Level (Lc) = 25.3405 cpm above bkgd.
Detection Limit (Ld) = 52.181 cpm above bkgd.
Minimum Detectable Activity (MDA) = 1134.37 dpm/detector
Minimum Detectable Activity (MDA) = 263.807 dpm/100 cm^2
Minimum Detectable Activity (MDA) = 18.9061 Bq/detector
Minimum Detectable Activity (MDA) = 0.0439678 Bq/1 cm^2

All Values calculated to 95% CL via MARSSIM methods

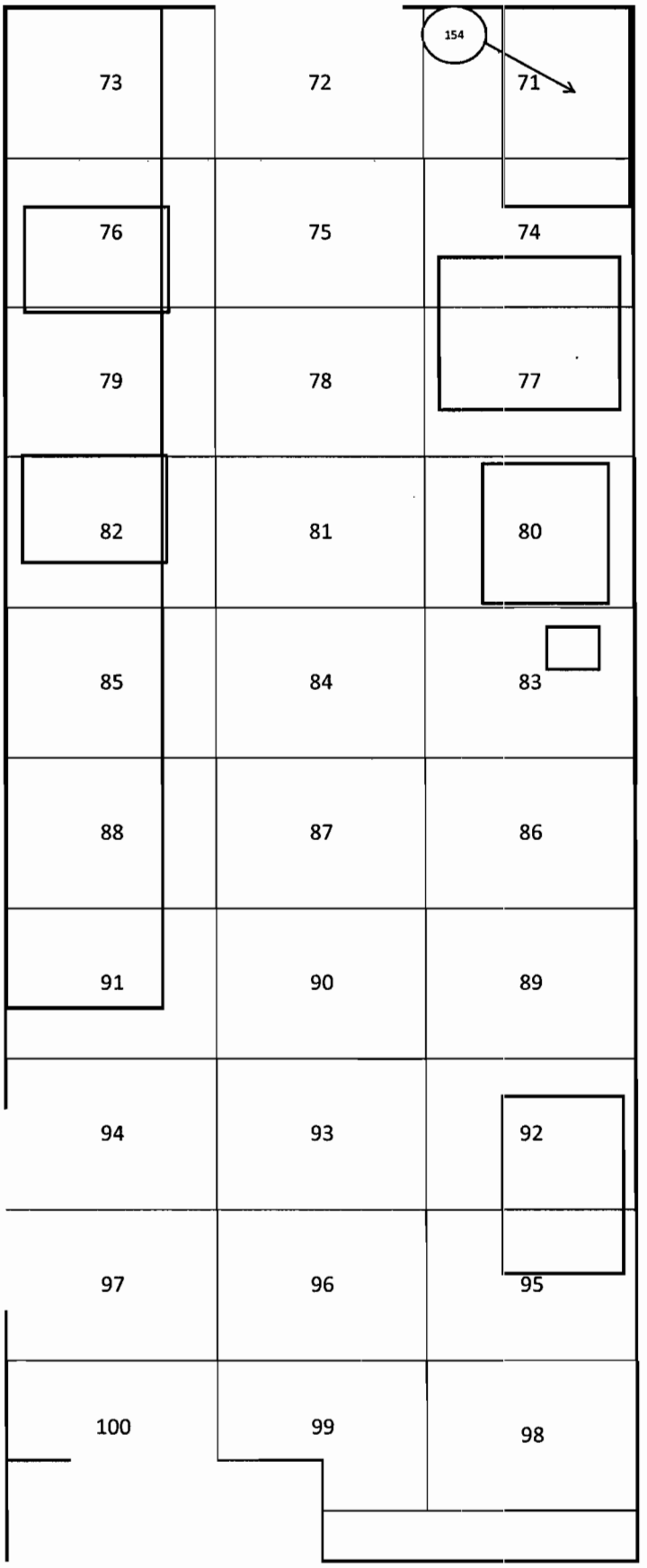
Calculated by RadCalc version 1.1 on 8/8/2011 at 5:18:08 PM

ATTACHMENT C

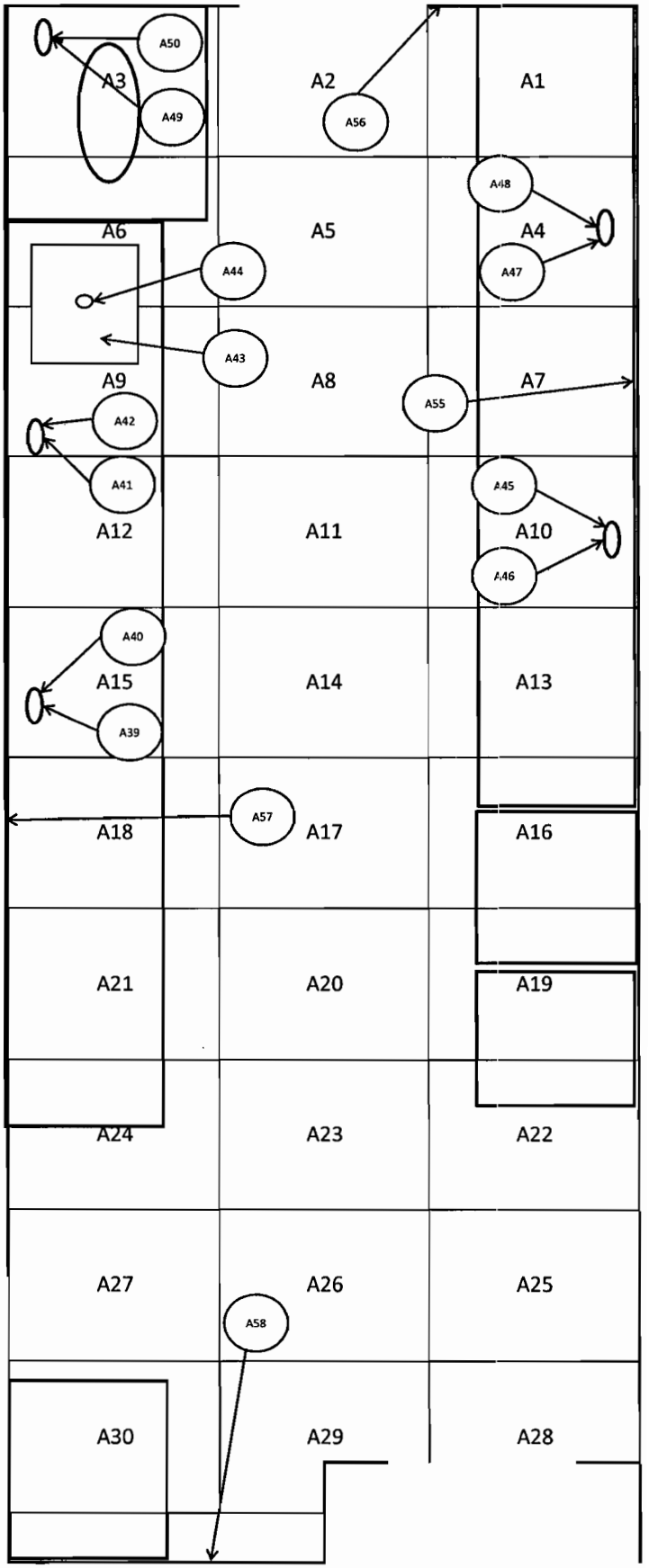
Survey Area Maps



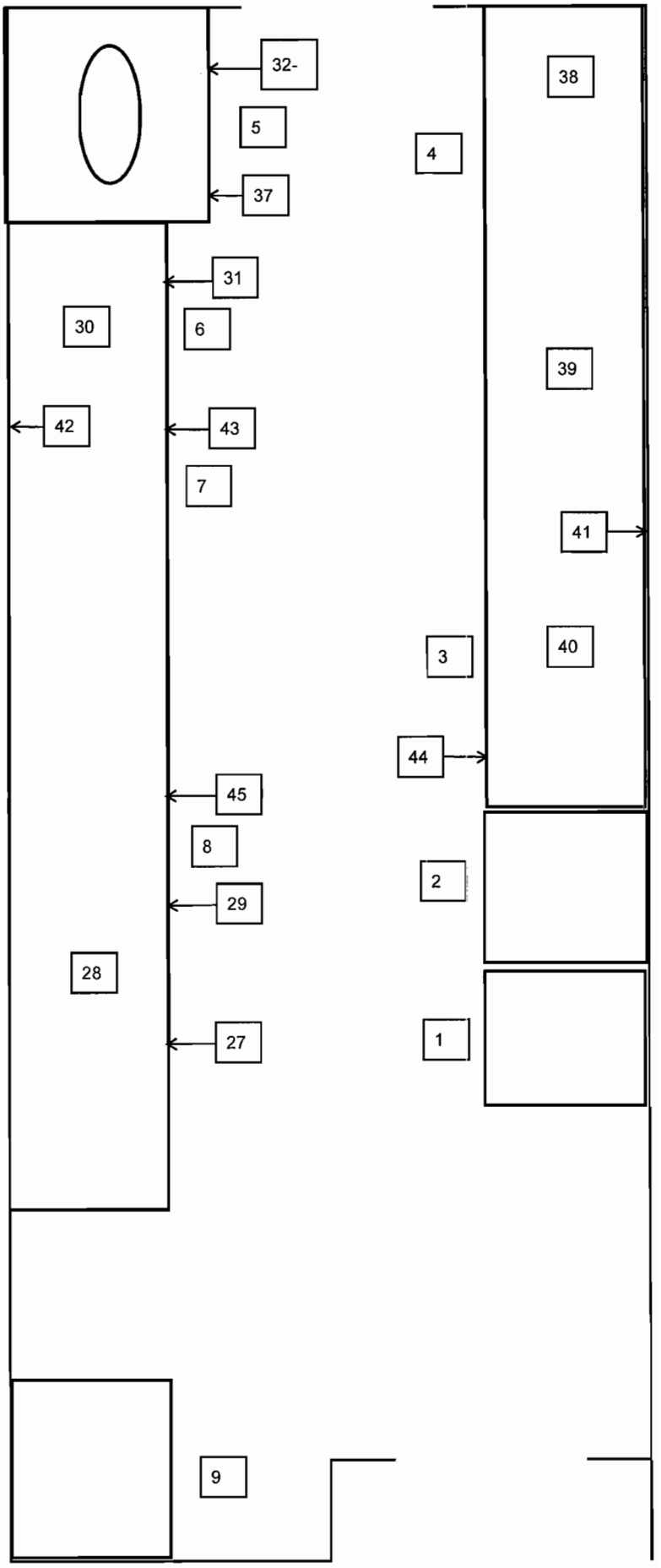
C11 Wipe Locations



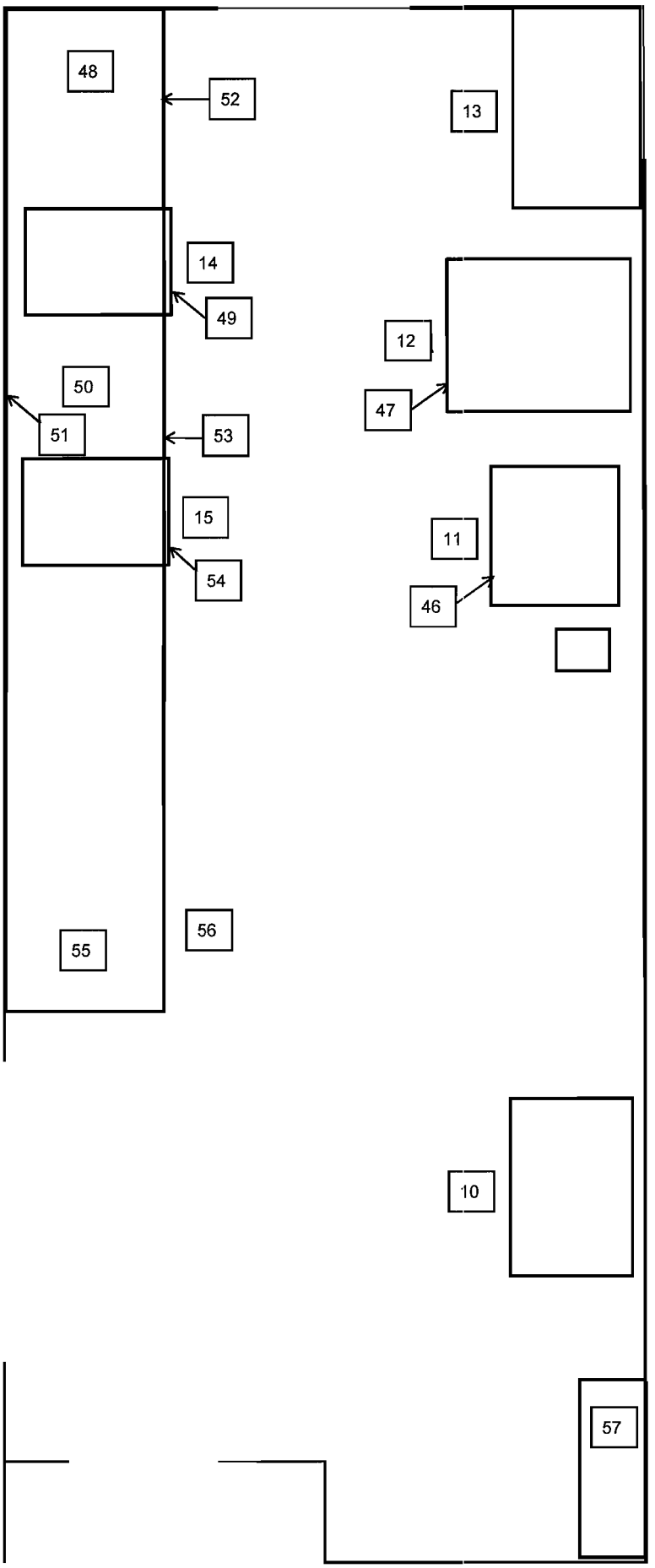
C9 Wipe Locations



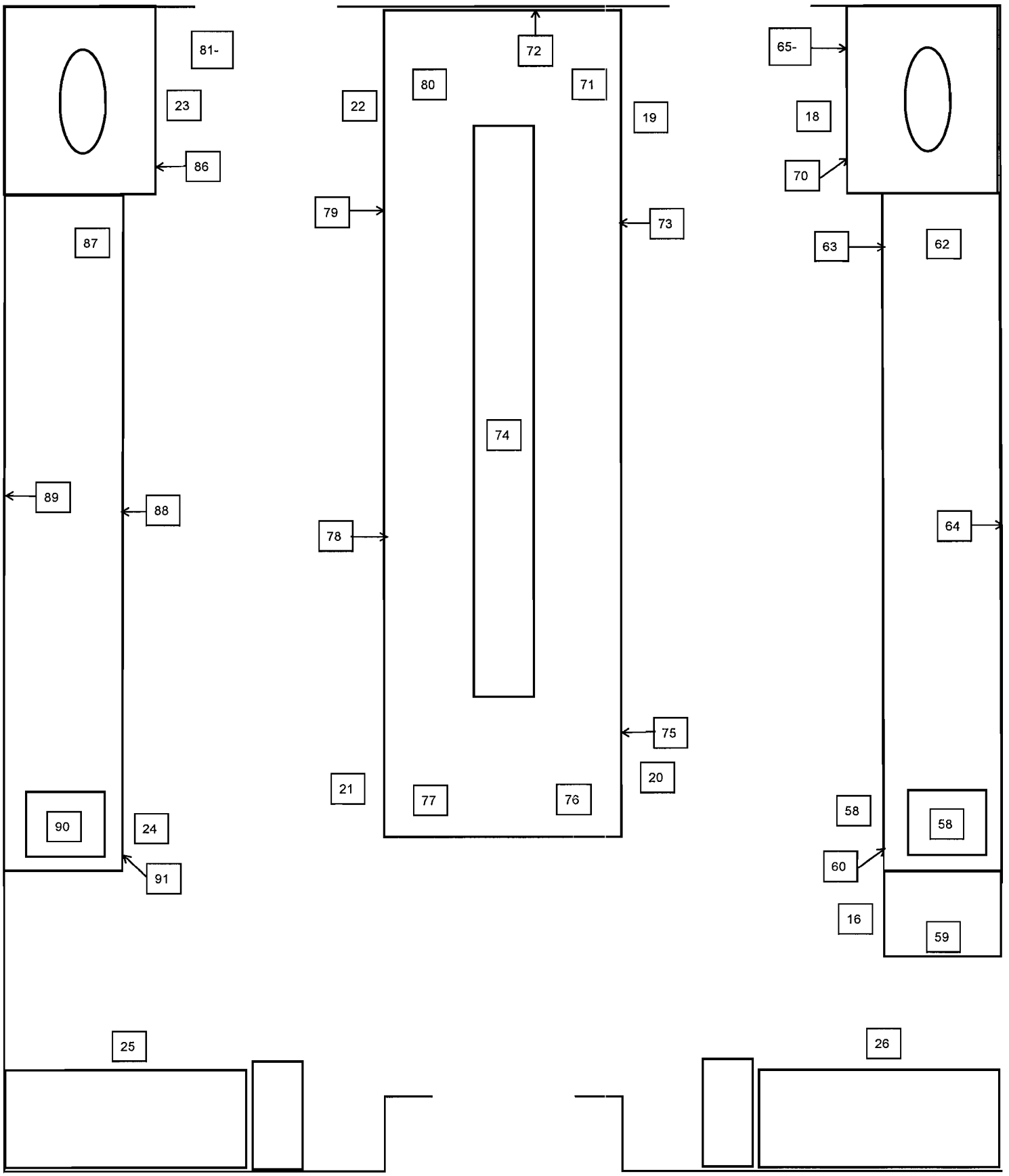
A2 Wipe Locations



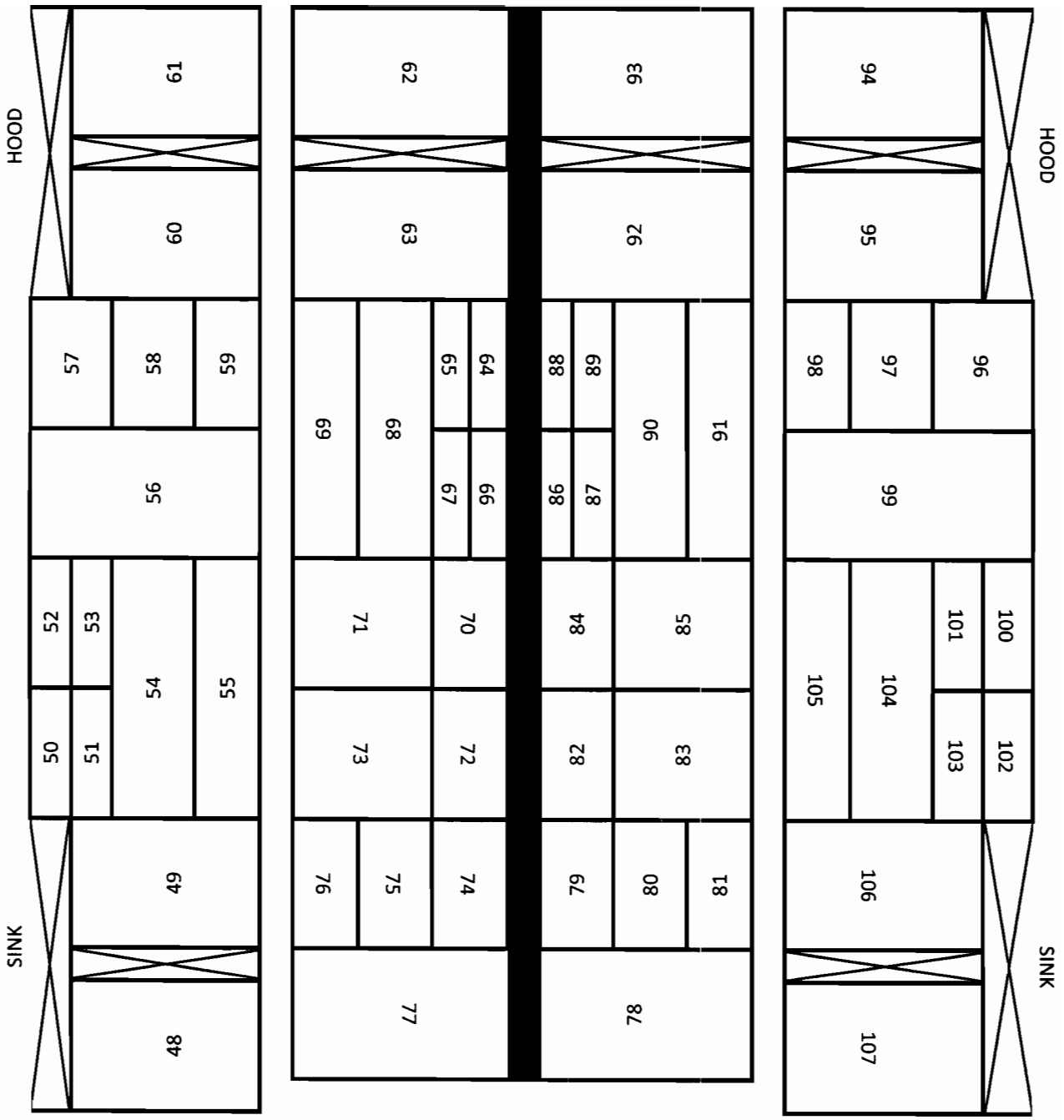
A2 -- Direct Measurement Locations



C9 -- Direct Measurement Locations



C11 -- Direct Measurement Locations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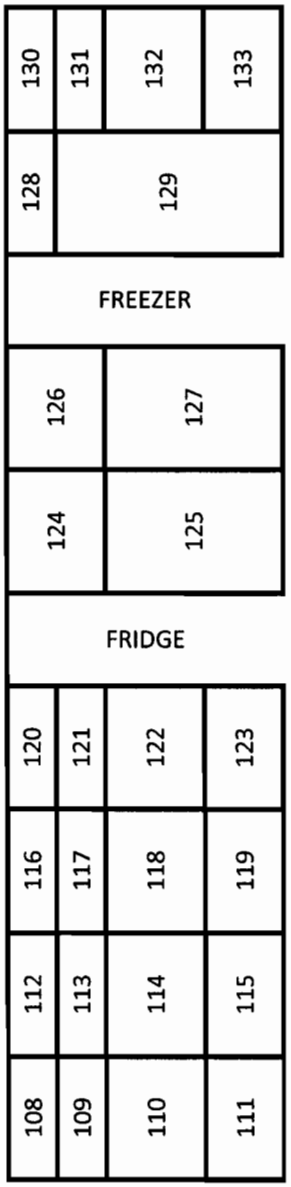
HOOD
SINK

C11 DRAWERS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FREEZER
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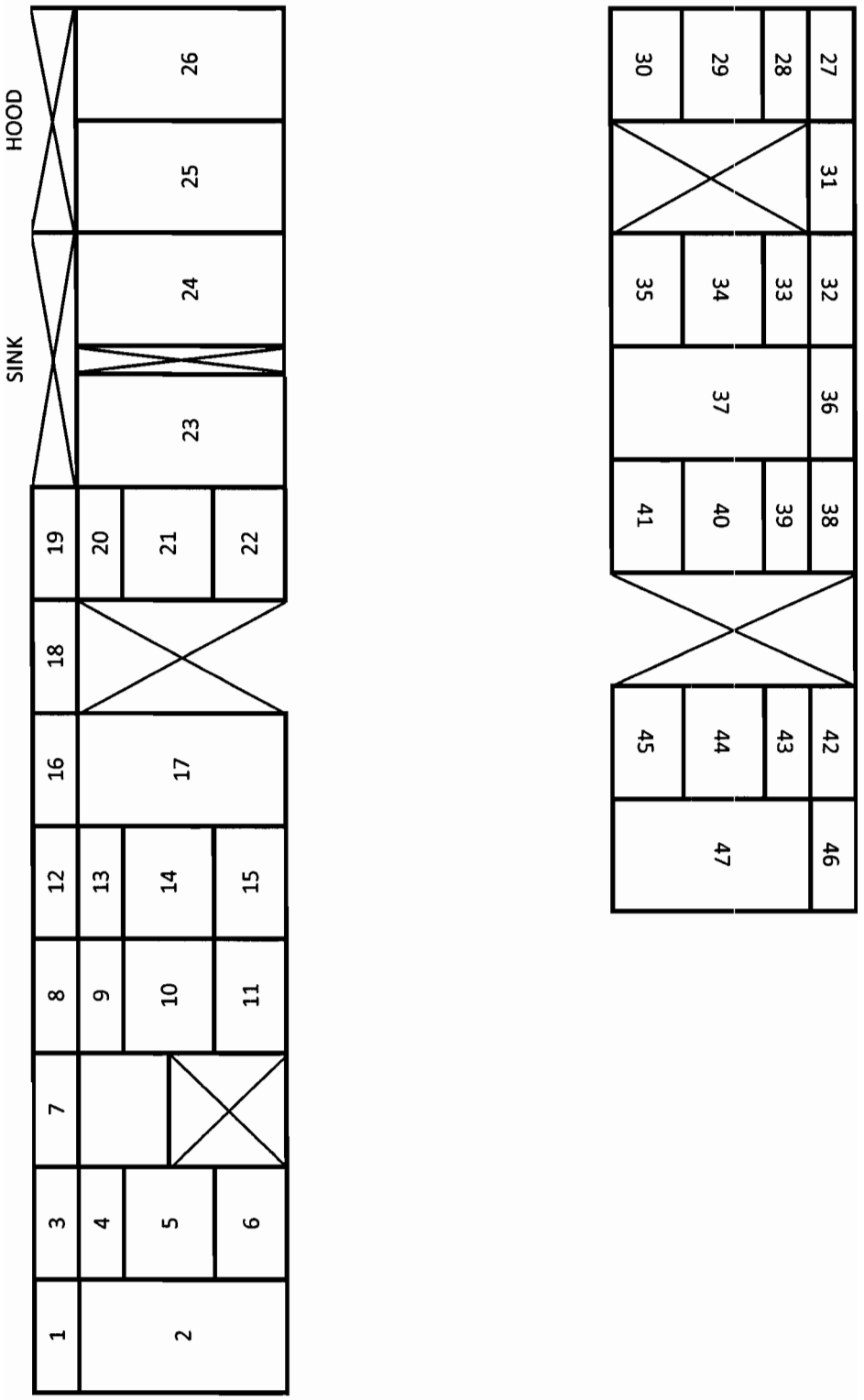
C9 DRAWERS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HOOD
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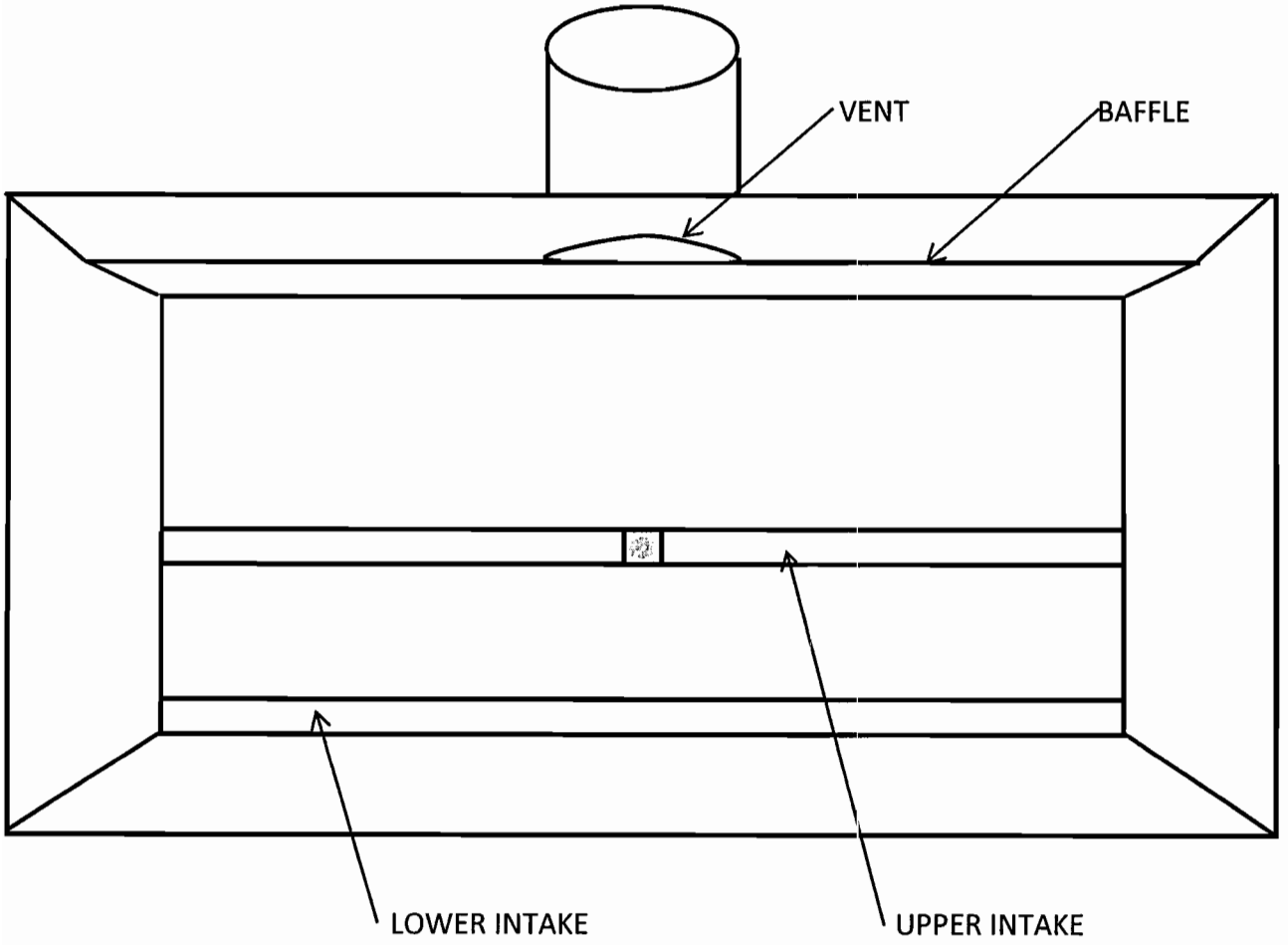
A2 DRAWERS

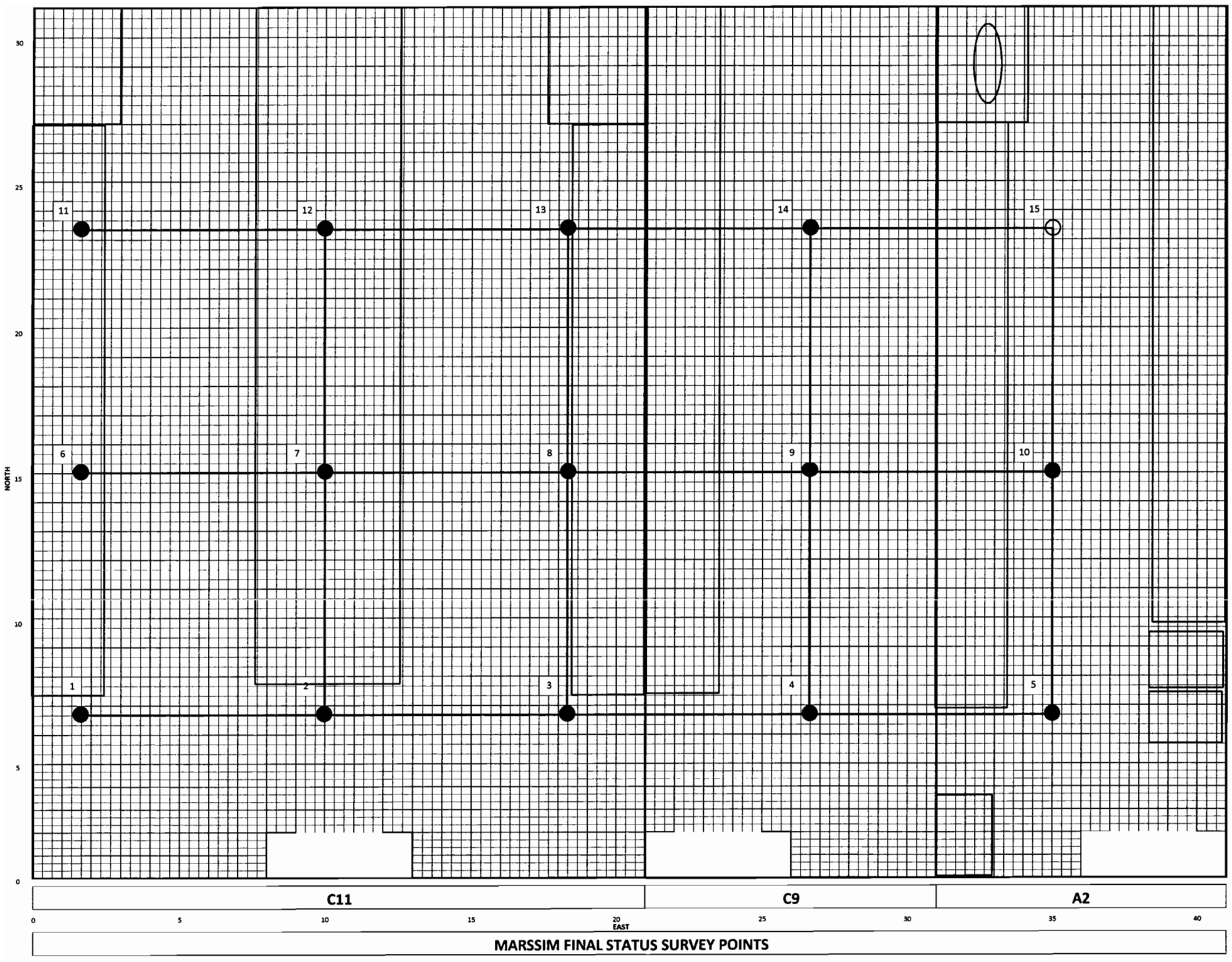


HOOD DIAGRAM WITH IDENTIFICATION OF SAMPLING POINTS

MARSIMM FINAL STATUS GRID SAMPLING POINTS

POINT #	NORTH	EAST
1	1' 8"	6' 8"
2	10' 0"	6' 8"
3	18'4"	6' 8"
4	5'8"	6' 8"
5	4' 0"	6' 8"
6	1' 8"	15' 0"
7	10' 0"	15' 0"
8	18'4"	15' 0"
9	5'8"	15' 0"
10	4' 0"	15' 0"
11	1' 8"	23' 4"
12	10' 0"	23' 4"
13	18'4"	23' 4"
14	5'8"	23' 4"
15	**4' 0"**	**23' 4"**

BOLD = RANDOM START POINT



MARSSIM FINAL STATUS SURVEY POINTS

ATTACHMENT D

Survey Results

Arch Chemical Survey Object Descriptions

ROOM	OBJECT	DESCRIPTION
C-11	1	New Brunswick Incub/Shaker
C-11	2	Biological Oxidizer
C-11	3	Computer 11 CPU15
C-11	4	Key Board, Mouse, Monitor AITC-P&-300132
C-11	5	Plastic Tray
C-11	6	Packard Radiomatic Detector
C-11	7	Waters Detector 2996
C-11	8	Waters 2707 Auto Sampler
C-11	9	HPLC 11 HPLC-1
C-11	10	Plastic Tray
C-11	11	Agilent Chromatography Unit 11-CE-1
C-11	12	Computer CPU 11-CPU-18 (Keyboard & Monitor)
C-11	13	HP LaserJet Printer
C-11	14	HP Series 1050
C-11	15	Plexiglas Balance Cover
C-11	16	AND Balance 11 BAL-16
C-9	17	Packard LSC 11 LSA-1
C-9	18	Epperdorf Mini CFJ
C-9	19	Mini Fridge 11 REF 4
C-9	20	Mini Freezer 11 FRZ 2
C-9	21	Pipette Stand
C-9	22	Storage Boxes
C-9	23	Freezer 11 FRZ 3
C-9	24	Incubator 11 INC 7
C-9	25	Rad Waste Box
C-9	26	Shaker
C-9	27	Plastic Tray
C-9	30	Plexiglas Shield
A-2	28	Refrigerator 11 REF 1
A-2	29	Freezer 11 FRZ 4

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Radiochemistry Analysis Data Sheet

Report No. **Report 1**

Customer: **Arch Chemical**

Customer Samp No. **N/A**

Location: **350 Knotter Drive, Cheshire, CT**

RSA Lab Sample No. **30409**

Project: **Lab Decommissioning**

Date Collected: **7/26/2011**

Samp. Description: **Wipes**

Date Counted: **7/26/2011**

Matrix: **Wipes**

H-3 LLD dpm= 83.32

C-14 LLD dpm= 38.46

RSA ID#	CUST. ID#	Location	H-3 CPM	H-3 DPM	C-14 CPM	C-14 DPM	HE Beta CPM	
BG		BACKGROUND	9.00		12.61		10.09	
30409-1	1	C-11 Object 1	3.00	11.00	1.95	2.66	3.91	
30409-2	2	C-11 Object 2	5.00	20.00	0.00	0.00	0.00	
30409-3	3	C-11 Object 3	4.00	12.00	3.06	4.14	0.95	
30409-4	4	C-11 Object 4	5.00	18.00	0.39	0.43	0.00	
30409-5	5	C-11 Object 5	422.00	1357.00	398.75	548.20	0.00	
30409-6	6	C-11 Object 6	0.00	0.00	6.39	8.85	0.00	
30409-7	7	C-11 Object 7	0.00	0.00	0.00	0.00	0.00	
30409-8	8	C-11 Object 8	0.00	1.00	0.00	0.00	0.00	
30409-9	9	C-11 Object 9	0.00	0.00	1.39	1.92	0.00	
30409-10	10	C-11 Object 10	5.00	20.00	0.00	0.00	2.91	
30409-11	11	C-11 Object 11	0.00	1.00	0.00	0.00	0.91	
30409-12	12	C-11 Object 12	4.00	11.00	5.09	6.91	0.91	
30409-13	13	C-11 Object 13	4.00	16.00	0.00	0.00	7.91	
30409-14	14	C-11 Object 14	0.00	0.00	0.00	0.00	0.00	
30409-15	15	C-11 Object 15	0.00	0.00	0.39	0.54	1.91	
30409-16	16	C-11 Object 16	0.00	0.00	3.39	4.70	0.00	
30409-17	17	C-9 Object 17	2.00	0.00	9.39	12.94	5.91	
30409-18	18	C-9 Object 18	1771.00	3288.00	3871.95	5303.83	2.91	
30409-19	19	C-9 Object 19 Right	0.00	0.00	0.00	0.00	0.00	
30409-20	20	C-9 Object 19 Left	1.00	5.00	0.00	0.00	0.91	
30409-21	21	C-9 Object 19 Front	0.00	0.00	4.39	6.05	2.91	
30409-22	22	C-9 Object 19 Inside Left	2.00	7.00	0.00	0.00	2.91	
30409-23	23	C-9 Object 19 Back	2.00	1.00	8.89	12.16	1.91	
QC H-3	QC H-3	QC H-3	38666.00	190216.00	728.37	0.00	0.00	
30409-24	24	C-9 Object 19 Inside Right	0.00	0.00	2.39	3.30	0.00	
30409-25	25	C-9 Object 19 Bottom	2.00	0.00	7.39	10.17	6.91	
30409-26	26	C-9 Object 19 Inside Door	0.00	0.00	7.39	10.22	0.00	
30409-27	27	C-9 Object 19 Top	0.00	0.00	0.12	0.17	0.00	
30409-28	28	C-9 Object 20 Right	5.00	17.00	1.39	1.81	0.00	
30409-29	29	C-9 Object 20 Left	0.00	0.00	2.39	3.31	0.00	
30409-30	30	C-9 Object 20 Top	2.00	7.00	0.00	0.00	2.91	
30409-31	31	C-9 Object 20 Front	1.00	5.00	0.00	0.00	4.91	
30409-32	32	C-9 Object 20 Inside Left	4.00	0.00	22.09	30.31	0.91	
30409-33	33	C-9 Object 20 Back	0.00	0.00	1.39	1.91	6.91	
30409-34	34	C-9 Object 20 Inside Right	0.00	0.00	0.00	0.00	0.00	

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Radiochemistry Analysis Data Sheet

RSA ID#	CUST. ID#	LOCATION	H-3 CPM	H-3 DPM	C-14 CPM	C-14 DPM	HE Beta CPM	HE Beta DPM
30409-35	35	C-9 Object 20 Bottom	11.00	18	27.03	37.29	3.91	
30409-36	36	C-9 Object 20 Inside Door	19.00	44.00	33.39	45.68	1.91	
30409-37	37	C-9 Object 21	18.00	57.00	16.43	22.32	0.00	
30409-38	38	C-9 Object 22	35.00	90.00	52.68	72.18	0.00	
30409-39	39	C-9 Object 23 Right	31.00	94.00	27.71	37.49	0.91	
30409-40	40	C-9 Object 23 Left	4.00	15.00	0.00	0.00	0.91	
30409-41	41	C-9 Object 23 Top	7.00	20.00	10.40	14.32	0.00	
30409-42	42	C-9 Object 23 Front	2.00	6.00	0.39	0.50	0.00	
30409-43	43	C-9 Object 23 Inside Left	0.00	0.00	0.00	0.00	0.00	
30409-44	44	C-9 Object 23 Back	3.00	10.00	0.00	0.00	1.91	
30409-45	45	C-9 Object 23 Inside Right	3.00	10.00	0.00	0.00	1.91	
30409-46	46	C-9 Object 23 Bottom	3.00	11.00	0.00	0.00	0.00	
QC C-14	QC C-14	QC C-14	25621.00	1492.00	92545.90	134144.00	90.03	
30409-47	47	C-9 Object 23 Inside Door	2.00	8.00	2.39	3.27	0.00	
30409-48	48	C-9 Object 24 Right	0.00	0.00	0.00	0.00	0.00	
30409-49	49	C-9 Object 24 Left	0.00	0.00	0.00	0.00	3.91	
30409-50	50	C-9 Object 24 Top	31.00	76.00	48.42	66.59	0.00	
30409-51	51	C-9 Object 24 Front	0.00	0.00	6.53	9.01	4.91	
30409-52	52	C-9 Object 24 Inside Left	8.00	25.00	4.39	5.87	0.00	
30409-53	53	C-9 Object 24 Back	4.00	0.00	19.77	27.21	0.00	
30409-54	54	C-9 Object 24 Inside Right	4.00	0.00	18.39	25.38	0.91	
30409-55	55	C-9 Object 24 Bottom	6.00	18.00	4.39	5.98	0.91	
30409-56	56	C-9 Object 24 Inside Door	17.00	17.00	53.09	74.47	0.00	
30409-57	57	C-9 Object 25	1428.00	1626.00	4178.22	5782.52	0.00	
30409-58	58	C-9 Object 26	0.00	0.00	0.39	0.54	0.00	
30409-59	59	C-9 Object 27	1.00	5.00	0.39	0.51	0.00	
30409-60	60	C-9 Object 30	0.00	0.00	6.39	8.84	3.91	
30409-61	61	A-2 Object 28 Right	2.00	8.00	0.00	0.00	0.91	
30409-62	62	A-2 Object 28 Left	6.00	24.00	0.00	0.00	0.00	
30409-63	63	A-2 Object 28 Top	0.00	0.00	0.64	0.93	0.00	
30409-64	64	A-2 Object 28 Front	2.00	6.00	3.54	4.82	2.91	
30409-65	65	A-2 Object 28 Freezer Inside Left	0.00	0.00	4.39	6.07	7.91	
30409-66	66	A-2 Object 28 Freezer Back	0.00	0.00	0.00	0.00	0.00	
30409-67	67	A-2 Object 28 Freezer Inside Righ	0.00	0.00	5.67	7.82	4.91	
30409-68	68	A-2 Object 28 Freezer Bottom	3.00	10.00	0.00	0.00	2.91	
30409-69	69	A-2 Object 28 Freezer Inside Doo	0.00	0.00	2.39	3.31	0.00	
QC BL	QC BL	QC BL	0.00	0.00	0.00	0.00	0.00	
30409-70	70	A-2 Object 28 Fridge Inside Left	3.00	12.00	0.00	0.00	0.00	
30409-71	71	A-2 Object 28 Fridge Back	0.00	0.00	2.39	3.30	0.00	
30409-72	72	A-2 Object 28 Fridge Inside Right	0.00	0.00	3.39	4.68	0.00	
30409-73	73	A-2 Object 28 Fridge Bottom	0.00	0.00	0.00	0.00	0.91	
30409-74	74	A-2 Object 28 Fridge Inside Door	0.00	0.00	0.00	0.00	0.00	
30409-75	75	A-2 Object 29 Right Side	0.00	0.00	2.39	3.30	0.00	
30409-76	76	A-2 Object 29 Left Side	0.00	0.00	0.00	0.00	0.00	
30409-77	77	A-2 Object 29 Top	0.00	0.00	4.39	6.33	0.00	
30409-78	78	A-2 Object 29 Front	0.00	0.00	0.00	0.00	0.00	
30409-79	79	A-2 Object 29 Inside Left	1.00	3.00	0.00	0.00	4.91	

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Radiochemistry Analysis Data Sheet

RSA ID#	CUST. ID#	LOCATION	H-3 CPM	H-3 DPM	C-14 CPM	C-14 DPM	HE Beta CPM	HE Beta DPM
30409-80	80	A-2 Object 29 Back	0.00	0.00	1.58	2.18	1.91	
30409-81	81	A-2 Object 29 Inside Right	5.00	20.00	0.00	0.00	1.91	
30409-82	82	A-2 Object 29 Bottom	0.00	0.00	11.81	16.35	2.49	
30409-83	83	A-2 Object 29 Inside Door	5.00	19.00	2.39	3.18	2.91	

ATTACHMENT C

Minimum Detectable Activities have been calculated using RadCalc Version 1.1.

Arch Chemical – 43-68.txt

Arch Chemical – Cheshire, CT
Ludlum 224-1 s/n 129459 w/43-68 s/n 111315

DETECTION LIMITS – SURFACE CONTAMINATION

INPUT DATA:
Background Count = 2425 total counts
Background Counting Time = 5 minutes
Sample Counting Time = 2 minutes
Detector Efficiency = 7.2 %
Detector Area = 100 cm^2

RESULTS:
Critical Level (Lc) = 30.31 cpm above bkgd.
Detection Limit (Ld)) = 62.12 cpm above bkgd.
Minimum Detectable Activity (MDA) = 862.777 dpm/detector
Minimum Detectable Activity (MDA) = 862.777 dpm/100 cm^2
Minimum Detectable Activity (MDA) = 14.3796 Bq/detector
Minimum Detectable Activity (MDA) = 0.143796 Bq/1 cm^2

All Values calculated to 95% CL via MARSSIM methods

Calculated by RadCalc version 1.1 on 8/8/2011 at 5:20:10 PM

Arch Chemical - 43-37.txt

Arch Chemical – Cheshire, CT
Ludlum 2224-1 s/n 129459 w/43-37 s/n 103776

DETECTION LIMITS – SURFACE CONTAMINATION

INPUT DATA:
Background Count = 1695 total counts
Background Counting Time = 5 minutes
Samples Counting Time = 2 minutes
Detector Efficiency = 4.6%
Detector Area = 430 cm^2

RESULTS:
Critical Level (Lc) = 25.3405 cpm above bkgd.
Detection Limit (Ld) = 52.181 cpm above bkgd.
Minimum Detectable Activity (MDA) = 1134.37 dpm/detector
Minimum Detectable Activity (MDA) = 263.807 dpm/100 cm^2
Minimum Detectable Activity (MDA) = 18.9061 Bq/detector
Minimum Detectable Activity (MDA) = 0.0439678 Bq/1 cm^2

All Values calculated to 95% CL via MARSSIM methods

Calculated by RadCalc version 1.1 on 8/8/2011 at 5:18:08 PM

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Radiochemistry Analysis Data Sheet

Report No. **Report 2**

Customer: **Arch Chemical**

Customer Samp No. **N/A**

Location: **350 Knotter Drive, Cheshire, CT**

RSA Lab Sample No. **30410 -30412**

Project: **Lab Decommissioning**

Date Collected: **7/27/2011**

Samp. Description: **Wipes**

Date Counted: **7/27/2011**

Matrix: **Wipes**

H-3 LLD dpm= 77.24

C-14 LLD dpm= 39.98

RSA ID#	CUST. ID#	Location	H-3 CPM	H-3 DPM	C-14 CPM	C-14 DPM	HE Beta CPM	
BG		BACKGROUND	7.50		13.80		10.20	
30410-1	1	C-11 Hood Counter	4.50	7	8.42	11.54	0.00	
30410-2	2	C-11 Floor	0.00	0.00	0.21	0.28	1.80	
30410-3	3	C-11 Floor	0.64	0.00	4.31	5.94	0.00	
30410-4	4	C-11 Coutertop	0.64	2.39	0.00	0.00	0.00	
30410-5	5	C-11 Coutertop	7.07	26.03	0.00	0.00	4.80	
30410-6	6	C-11 Floor	3.22	5.95	5.34	7.29	0.00	
30410-7	7	C-11 Hood Counter	4.50	13.06	3.29	4.42	0.00	
30410-8	8	C-11 Coutertop	0.00	0.00	0.21	0.29	4.80	
30410-9	9	C-11 Floor	5.79	10.91	9.45	12.90	4.80	
30410-10	10	C-11 Floor	5.79	21.39	0.21	0.13	0.00	
30410-11	11	C-11 Coutertop	4.50	17	0.21	0.17	0.00	
30410-12	12	C-11 Coutertop	0.00	0.00	2.26	3.12	5.80	
30410-13	13	C-11 Floor	0.00	0.00	0.00	0.00	7.80	
30410-14	14	C-11 Coutertop	7.07	26.85	0.00	0.00	0.00	
30410-15	15	C-11 Coutertop	4.50	16.83	0.21	0.16	1.80	
30410-16	16	C-11 Floor	0.00	0.00	2.26	3.12	1.80	
30410-17	17	C-11 Floor	7.09	20.27	5.34	7.19	4.80	
30410-18	18	C-11 Coutertop	19.93	59.28	13.55	18.24	1.80	
30410-19	19	C-11 Coutertop	5.79	19.08	2.26	2.97	0.00	
30410-20	20	C-11 Floor	9.65	29.97	5.34	7.13	0.00	
30410-21	21	C-11 Coutertop	1.93	6.04	1.23	1.67	0.00	
30410-22	22	C-11 Coutertop	4.50	16.79	0.00	0.00	0.00	
30410-23	23	C-11 Floor	1.93	4.68	2.26	3.08	0.00	
QC H-3	QC H-3	QC H-3	44745.00	199763.00	974.50	15.71	11.80	
30410-24	24	C-11 Floor	4.50	0.39	14.58	20.01	0.00	
30410-25	25	C-11 Coutertop	5.79	15.77	5.34	7.26	5.80	
30410-26	26	C-11 Coutertop	1.93	7.21	0.00	0.00	0.00	
30410-27	27	C-11 Floor	3.22	2.50	8.42	11.55	0.00	
30410-28	28	C-11 Coutertop	7.07	18.55	7.39	10.12	2.80	
30410-29	29	C-11 Coutertop	7.07	23.43	3.29	4.39	0.00	
30410-30	30	C-11 Floor	0.64	0.00	5.34	7.37	0.80	
30410-31	31	C-11 Floor	4.50	13.05	3.29	4.42	4.80	
30410-32	32	C-11 Coutertop	3.22	4.84	6.37	8.78	0.00	
30410-33	33	C-11 Coutertop	0.00	0.00	0.00	0.00	0.00	
30410-34	34	C-11 Floor	10.93	39.23	1.23	1.42	0.00	

RSA Laboratories

A Division of Radiation Safety Associates

Radiochemistry Analysis Data Sheet

RSA ID#	CUST. ID#	LOCATION	H-3 CPM	H-3 DPM	C-14 CPM	C-14 DPM	HE Beta CPM	HE Beta DPM
30410-35	35	C-11 Coutertop	0.00	0	0.21	0.29	0.00	
30410-36	36	C-11 Sink Surround	3.22	11.96	0.00	0.00	1.80	
30410-37	37	C-11 Floor	7.07	26.17	0.00	0.00	0.00	
30410-38	38	C-11 Floor	0.64	2.40	0.00	0.00	4.80	
30410-39	39	C-11 Coutertop	0.00	0.00	0.00	0.00	0.00	
30410-40	40	C-11 Coutertop	7.07	23.98	2.26	2.94	1.80	
30410-41	41	C-11 Floor	0.00	0.00	0.00	0.00	0.00	
30410-42	42	C-11 Coutertop	0.64	0.00	10.47	14.47	0.00	
30410-43	43	C-11 Floor	1.93	0.00	6.37	8.77	3.80	
30410-44	44	C-11 Floor	0.00	0.00	0.21	0.28	0.00	
30410-45	45	C-11 Floor	0.00	0.00	0.00	0.00	0.00	
30410-46	46	C-11 Floor	5.79	21.51	0.00	0.00	0.00	
QC C-14	QC C-14	QC C-14	31431.90	2367.20	94223.00	135107.00	100.80	
30410-47	47	C-11 Floor	0.00	0.00	2.26	3.12	0.80	
30410-48	48	C-11 Floor	3.22	0.17	10.47	14.40	0.00	
30410-49	49	C-11 Floor	0.00	0.00	1.23	1.73	0.00	
30410-50	50	C-11 Floor	8.36	31.12	0.00	0.00	0.00	
30410-51	51	C-11 Floor	0.00	0.00	1.23	1.71	1.80	
30410-52	52	C-11 Floor	0.00	0.00	2.26	3.12	8.80	
30410-53	53	C-11 Floor	4.50	3.80	11.50	15.80	0.00	
30410-54	54	C-11 Floor	3.22	4.80	6.37	8.70	3.80	
30410-55	55	C-11 Floor	0.00	0.00	2.26	3.12	0.80	
30410-56	56	C-11 Floor	3.22	7.19	4.31	5.90	0.00	
30410-57	57	C-11 Floor	4.50	14.24	2.26	3.01	2.80	
30410-58	58	C-11 Floor	0.00	0.00	0.00	0.00	0.00	
30410-59	59	C-11 Floor	4.50	13.42	3.29	4.46	0.80	
30410-60	60	C-11 Floor	0.00	0.00	7.39	10.23	3.80	
30410-61	61	C-11 Floor	0.64	2.41	0.00	0.00	0.00	
30410-62	62	C-11 Floor	0.64	1.01	1.23	1.69	0.00	
30410-63	63	C-11 Floor	4.50	16.74	0.00	0.00	0.00	
30410-64	64	C-11 Desk	0.00	0.00	0.21	0.28	0.00	
30410-65	65	C-11 Bookcase	0.00	0.00	6.37	8.80	0.00	
30410-66	66	C-11 Bookcase	0.00	0.00	2.26	3.12	0.00	
30410-67	67	C-11 Floor	0.00	0.00	0.00	0.00	1.80	
30410-68	68	C-11 File Cabinet	0.00	0.00	2.26	3.13	0.80	
30410-69	69	C-11 Desk	0.00	0.00	8.42	11.70	2.80	
QC BL	QC BL	QC BL	3.22	2.33	8.42	11.75	0.00	
30410-70	70	C-11 Floor	0.64	0.00	8.42	11.71	0.00	
30410-71	71	C-9 Floor	0.00	0.00	7.39	10.21	7.80	
30410-72	72	C-9 Floor	0.00	0.00	2.26	3.14	0.00	
30410-73	73	C-9 Countertop	0.64	2.54	0.00	0.00	0.00	
30410-74	74	C-9 Floor	0.00	0.00	12.53	17.31	0.00	
30410-75	75	C-9 Floor	4.50	8.41	7.39	10.08	0.00	
30410-76	76	C-9 Countertop	3.22	10.94	1.23	1.63	0.00	
30410-77	77	C-9 Floor	8.36	27.56	3.29	4.33	0.80	
30410-78	78	C-9 Floor	0.00	0.00	0.00	0.00	2.80	
30410-79	79	C-9 Countertop	0.00	0.00	11.50	15.90	0.80	

RSA Laboratories

A Division of Radiation Safety Associates

Radiochemistry Analysis Data Sheet

RSA ID#	CUST. ID#	LOCATION	H-3 CPM	H-3 DPM	C-14 CPM	C-14 DPM	HE Beta CPM	HE Beta DPM
30410-80	80	C-9 Floor	0.00	0.00	6.37	9.03	2.80	
30410-81	81	C-9 Floor	0.64	0.00	3.29	4.53	0.00	
30410-82	82	C-9 Countertop	7.07	21.50	4.31	5.78	0.00	
30410-83	83	C-9 Floor	4.50	8.46	7.39	10.12	0.00	
30410-84	84	C-9 Floor	3.22	7.14	4.31	5.88	3.80	
30410-85	85	C-9 Countertop	0.00	0.00	2.26	3.16	0.00	
30410-86	86	C-9 Floor	1.93	7.15	0.00	0.00	0.00	
30410-87	87	C-9 Floor	0.00	0.00	7.39	10.24	0.00	
30410-88	88	C-9 Countertop	4.50	14.01	3.29	4.51	1.80	
30410-89	89	C-9 Floor	1.93	7.20	0.00	0.00	7.80	
30410-90	90	C-9 Floor	5.79	21.69	0.00	0.00	0.80	
30410-91	91	C-9 Countertop	8.36	19.98	10.47	14.42	3.80	
30410-92	92	C-9 Floor	0.00	0.00	9.45	13.10	0.00	
QC BL	QC BL	QC BL	35392.10	197402.00	863.62	99.84	7.80	
30410-93	93	C-9 Floor	4.50	10.79	5.34	7.27	0.00	
30410-94	94	C-9 Floor	3.22	12.12	0.00	0.00	4.80	
30410-95	95	C-9 Floor	0.00	0.00	3.29	4.55	0.00	
30410-96	96	C-9 Floor	0.00	0.00	0.00	0.00	4.80	
30410-97	97	C-9 Floor	5.79	13.32	7.39	10.09	2.80	
30410-98	98	C-9 Cabinet	5.79	16.67	4.31	5.81	2.80	
30410-99	99	C-9 Floor	0.00	0.00	10.47	14.55	0.00	
30410-100	100	C-9 Floor	0.00	0.00	0.21	0.28	0.80	
30410-101	101	C-11 Hood 1 Left Side	0.00	0.00	0.00	0.00	0.00	
30410-102	102	C-11 Hood 1 Back	7.07	23.66	3.29	4.40	0.80	
30410-103	103	C-11 Hood 1 Right Side	5.79	21.67	0.00	0.00	0.80	
30410-104	104	C-11 Hood 1 Lower Intake	0.00	0.00	0.21	0.29	0.00	
30410-105	105	C-11 Hood 1 Upper Intake	4.50	2.13	12.53	17.60	0.00	
30410-106	106	C-11 Hood 1 Baffel	3.22	6.20	5.34	7.45	0.00	
30410-107	107	C-11 Hood 1 Vent Opening	3.22	0.14	9.45	13.13	2.80	
30410-108	108	C-11 Hood 2	5.79	20.35	1.23	1.55	3.80	
30410-109	109	C-11 Hood 2 Left Side	0.64	0.00	2.26	3.11	0.00	
30410-110	110	C-11 Hood 2 Back	0.64	0.00	6.37	8.83	0.00	
30410-111	111	C-11 Hood 2 Right Side	71.38	170.95	88.50	121.64	0.80	
30410-112	112	C-11 Hood 2 Lower Intake	86.81	230.55	104.92	148.06	0.00	
30410-113	113	C-11 Hood 2 Upper Intake	22.51	69.45	22.79	32.46	2.80	
30410-114	114	C-11 Hood 2 Baffel	7.07	20.38	7.39	10.69	0.00	
30410-115	115	C-11 Hood 2 Vent Opening	1.93	5.83	1.23	1.65	0.00	
QC C-14	QC C-14	QC C-14	32421.40	1450.52	89844.50	135728.00	35.80	
30410-116	116	Sink 1 Bowl	0.00	0.00	0.21	0.29	0.00	
30410-117	117	Sink 1 Drain	7.07	18.14	7.39	10.05	0.00	
30410-118	118	Sink 2 Bowl	0.00	0.00	0.00	0.00	0.00	
30410-119	119	Sink 2 Drain	4.50	7.40	8.42	11.65	0.00	
30410-120	120	Sink 3 Bowl	1.93	3.76	3.29	4.66	0.00	
30410-121	121	Sink 3 Drain	3.22	2.44	8.42	11.62	0.80	
30410-122	122	Sink 4 Bowl	0.64	0.00	9.45	13.21	1.80	
30410-123	123	Sink 4 Drain	0.00	0.00	5.34	7.43	0.00	
30410-124	124	Sink 5 Bowl	0.00	0.00	0.21	0.29	0.00	

RSA Laboratories

A Division of Radiation Safety Associates

Radiochemistry Analysis Data Sheet

RSA ID#	CUST. ID#	LOCATION			C-14 CPM	C-14 DPM	HE Beta CPM	HE Beta DPM
30410-125	125	Sink 5 Drain	7.07	24.32	2.26	2.95	0.00	
30410-126	126	Sink 6 Bowl	1.93	2.32	4.31	5.99	3.80	
30410-127	127	Sink 6 Drain	1.93	0.00	10.47	14.48	0.00	
30410-128	128	Sink 7 Bowl	7.07	22.91	4.31	5.87	0.00	
30410-129	129	Sink 7 Drain	3.22	8.95	3.29	4.56	0.00	
30410-130	130	Hood 1 Cup Left	0.00	0.00	4.31	6.15	0.00	
30410-131	131	Hood 1 Drain Left	9.65	22.12	12.53	17.15	0.00	
30410-132	132	Hood 1 Cup Right	1.93	7.72	0.00	0.00	2.80	
30410-133	133	Hood 1 Drain Right	9.65	29.21	6.37	8.58	4.80	
30410-134	134	Hood 2 Cup Left	0.00	0.00	10.47	14.77	0.00	
30410-135	135	Hood 2 Drain Left	8.36	5.35	22.79	31.41	0.00	
30410-136	136	Hood 2 Cup Right	5.79	8.84	11.50	16.17	0.80	
30410-137	137	Hood 2 Drain Right	4.50	7.29	8.42	11.53	0.00	
30410-138	138	C-11 Drawer 49	3.22	3.65	7.39	10.16	0.00	
QC BL	QC BL	QC BL	5.79	20.62	3.29	4.54	0.80	
30410-139	139	C-11 Drawer 54	7.07	26.50	0.00	0.00	4.80	
30410-140	140	C-11 Drawer 64	0.00	0.00	14.58	20.13	0.00	
30410-141	141	C-11 Drawer 71	8.36	27.44	32.90	4.32	0.00	
30410-142	142	C-11 Drawer 75	4.50	8.48	7.39	10.13	0.00	
30410-143	143	C-11 Drawer 80	3.22	8.53	2.26	3.00	0.00	
30410-144	144	C-11 Drawer 86	3.22	8.27	3.29	4.46	0.00	
30410-145	145	C-11 Drawer 93	1.93	7.19	0.00	0.00	0.00	
30410-146	146	C-11 Drawer 101	9.65	36.41	0.00	0.00	1.80	
30410-147	147	C-11 Drawer 104	5.79	17.88	3.29	4.39	0.00	
30410-148	148	C-9 Drawer 113	0.64	0.00	5.34	7.37	0.00	
30410-149	149	C-9 Drawer 122	0.00	0.00	0.00	0.00	2.80	
30410-150	150	C-9 Drawer 127	0.00	0.00	9.45	13.11	0.00	
30410-151	151	C-11 Wall 1	12.22	35.79	8.42	11.30	0.00	
30410-152	152	C-11 Wall 2	7.07	14.53	10.47	14.28	6.80	
30410-153	153	C-11 Wall 3	12.22	27.86	15.61	21.24	10.80	
30410-154	154	C-9 Under Case	0.00	0.00	21.77	30.85	0.00	
30410-155	155	C-11 Object 5 Rewipe	8.36	0.00	28.95	39.79	0.00	
30410-156	156	C-11 Object 18 Rewipe	283.58	349.73	627.49	857.81	2.80	
30410-157	157	C-11 Object 25 Rewipe	3.22	3.65	7.39	10.15	0.00	
		Intentionally Missing Vial			0.00	0.00		
30411-1	A1	A Countertop	0.00	0.00	7.39	10.24	3.80	
30411-2	A2	A Floor	4.50	16.78	0.00	0.00	4.80	
30411-3	A3	Hood Counter	4.50	15.60	1.23	1.59	0.00	
QC H-3	QC H-3	QC H-3	25296.80	195539.00	643.92	106.86	4.80	
30411-4	A-4	Countertop	1.93	7.27	0.00	0.00	3.80	
30411-5	A-5	Floor	3.22	4.80	6.37	8.70	1.80	
30411-6	A-6	Countertop	8.36	29.75	1.23	1.48	2.80	
30411-7	A-7	Countertop	7.07	26.61	0.00	0.00	2.80	
30411-8	A-8	Floor	0.00	0.00	3.29	4.54	0.00	
30411-9	A-9	Countertop	0.00	0.00	4.31	6.02	0.00	
30411-10	A-10	Counter	0.64	0.00	5.34	7.40	0.80	
30411-11	A-11	Floor	10.93	39.40	1.23	1.42	0.00	

RSA Laboratories

A Division of Radiation Safety Associates

Radiochemistry Analysis Data Sheet

RSA ID#	CUST. ID#	LOCATION	H-3 CPM	H-3 DPM	C-14 CPM	C-14 DPM	HE Beta CPM	HE Beta DPM
30411-12	A-12	Counter	0.00	0.00	8.42	11.65	0.80	
30411-13	A-13	Counter	0.00	0.00	0.00	0.00	0.00	
30411-14	A-14	Floor	0.00	0.00	1.23	1.70	2.80	
30411-15	A-15	Counter	1.93	7	0.00	0.00	0.00	
30411-16	A-16	Counter	0.00	0.00	3.29	4.58	0.00	
30411-17	A-17	Floor	5.79	19.07	2.26	2.97	0.00	
30411-18	A-18	Counter	0.00	0.00	5.34	7.40	0.00	
30411-19	A-19	Floor	3.22	8.50	3.29	4.49	0.80	
30411-20	A-20	Floor	5.79	11.01	9.45	12.96	0.00	
30411-21	A-21	Counter	3.22	8.30	3.29	4.46	0.00	
30411-22	A-22	Top of Fridge	3.22	9.80	2.26	3.07	0.00	
30411-23	A-23	Floor	1.93	1.16	5.34	7.34	0.00	
30411-24	A-24	Floor	5.79	20.42	1.23	1.55	0.00	
30411-25	A-25	Bookcase	10.93	40.95	0.00	0.00	0.00	
30411-26	A-26	Floor	0.00	0.00	4.31	5.97	0.00	
QC C-14	QC C-14	QC C-14	33933.10	466.33	84634.40	136363.00	8.80	
30411-27	A-27	Floor	7.07	24.34	2.26	2.95	0.00	
30411-28	A-28	Floor	4.50	15.69	1.23	1.59	0.00	
30411-29	A-29	Floor	10.93	34.77	5.34	7.10	0.80	
30411-30	A-30	Desk	8.36	12.44	16.63	22.85	2.80	
30411-31	A-31	A-2 Hood 3	0.00	0.00	9.45	13.12	0.00	
30411-32	A-32	A-2 Hood 3 Left	0.00	0.00	2.26	3.24	0.00	
30411-33	A-33	A-2 Hood 3 Back	1.93	4.80	2.26	3.11	0.00	
30411-34	A-34	A-2 Hood 3 Right	0.00	0.00	0.00	0.00	2.80	
30411-35	A-35	A-2 Hood 3 Lower Vent	0.64	2.75	0.00	0.00	0.00	
30411-36	A-36	A-2 Hood 3 Upper Vent	0.00	0.00	12.53	17.82	0.00	
30411-37	A-37	A-2 Hood 3 Baffel	0.00	0.00	0.00	0.00	8.80	
30411-38	A-38	A-2 Hood 3 Vent Opening	0.64	0.00	6.37	8.84	0.00	
30411-39	A-39	Sink 1 Bowl	0.64	2	0.21	0.27	0.00	
30411-40	A-40	Sink 1 Drain	5.79	23.71	0.00	0.00	0.00	
30411-41	A-41	Sink 2 Bowl	5.79	24.17	0.00	0.00	0.00	
30411-42	A-42	Sink 2 Drain	7.07	26.23	1.23	1.53	0.00	
30411-43	A-43	Sink 3 Bowl	4.50	13.19	4.31	6.01	1.80	
30411-44	A-44	Sink 3 Drain	7.07	26.26	1.23	1.53	0.00	
30411-45	A-45	Sink 4 Bowl	14.79	42.49	14.58	20.31	0.00	
30411-46	A-46	Sink 4 Drain	1.93	7.25	0.21	0.23	0.00	
30411-47	A-47	Sink 5 Bowl	10.93	39.78	4.31	5.81	3.80	
30411-48	A-48	Sink 5 Drain	3.22	0.00	10.47	14.62	0.00	
30411-49	A-49	Hood Sink Bowl	0.00	0.00	4.31	6.10	0.80	
QC BL	QC BL	QC BL	3.22	4.84	6.37	8.78	0.00	
30411-50	A-50	Hood Sink Drain	0.64	0.00	2.26	3.12	0.00	
30411-51	A-51	Drawer 4	0.00	0.00	0.00	0.00	2.80	
30411-52	A-52	Drawer 14	0.00	0.00	5.34	7.44	0.00	
30411-53	A-53	Drawer 33	4.50	18.17	0.00	0.00	0.00	
30411-54	A-54	Drawer 44	0.00	0.00	5.34	7.48	0.00	
30411-55	A-55	Wall 1	7.07	23.14	3.29	4.38	5.80	
30411-56	A-56	Wall 2	7.07	15.35	10.47	14.60	1.80	

RSA Laboratories

A Division of Radiation Safety Associates

Radiochemistry Analysis Data Sheet

RSA ID#	CUST. ID#	LOCATION			C-14 CPM	C-14 DPM		
30411-57	A-57	Wall 3	0.00	0.00	3.29	4.57	0.00	
30411-58	A-58	Wall 4	0.64	2.61	0.00	0.00	1.80	
30411-59	A-59	Loading Dock	0.00	0.00	7.39	10.33	8.80	
30411-60	A-60	Loading Dock	3.22	19.06	0.00	0.00	7.80	
30411-61	A-61	Loading Dock	1.93	4.69	2.26	3.08	1.80	
30411-62	A-62	Loading Dock	0.00	0.00	11.50	15.91	1.80	
		Intentionally Missing Vial			0.00	0.00		
30412-1	FS-1	Final Status Sample Point 1	0.64	0.00	3.29	4.56	0.00	
30412-2	FS-2	Final Status Sample Point 2	7.07	26.59	0.00	0.00	0.00	
30412-3	FS-3	Final Status Sample Point 3	3.22	10.66	1.23	1.62	1.80	
30412-4	FS-4	Final Status Sample Point 4	5.79	16.88	4.31	5.83	0.00	
30412-5	FS-5	Final Status Sample Point 5	0.00	0.00	3.29	4.55	0.00	
30412-6	FS-6	Final Status Sample Point 6	13.50	45.57	4.31	5.61	6.80	
30412-7	FS-7	Final Status Sample Point 7	0.64	1.01	1.23	1.69	0.80	
30412-8	FS-8	Final Status Sample Point 8	7.07	20.52	5.34	7.21	0.80	
30412-9	FS-9	Final Status Sample Point 9	5.79	21.81	0.00	0.00	5.80	
QC H-3	QC H-3	QC H-3	14138.90	188764.00	385.20	49.55	6.80	
30412-10	FS-10	Final Status Sample Point 10	0.64	0.00	4.31	5.95	0.00	
30412-11	FS-11	Final Status Sample Point 11	3.22	0.00	22.79	31.71	0.00	
30412-12	FS-12	Final Status Sample Point 12	1.93	4.73	2.26	3.09	1.80	
30412-13	FS-13	Final Status Sample Point 13	0.64	2.18	0.21	0.27	0.00	
30412-14	FS-14	Final Status Sample Point 14	3.22	6.06	5.34	7.35	3.80	
30412-15	FS-15	Final Status Sample Point 15	1.93	7.24	0.00	0.00	0.00	

RSA Laboratories

A Division of Radiation Safety Associates

Radiochemistry Analysis Data Sheet

Report No. **Report 3**

Customer: **Arch Chemical**

Customer Samp No. **N/A**

Location: **350 Knotter Drive, Cheshire, CT**

RSA Lab Sample No. **30437**

Project: **Lab Decommissioning**

Date Collected: **8/10/2011**

Samp. Description: **Wipes**

Date Counted: **8/10/2011**

Matrix: **Wipes**

H-3 LLD dpm= 81.36

C-14 LLD dpm= 42.17

RSA ID#	CUST. ID#	Location	H-3 CPM	H-3 DPM	C-14 CPM	C-14 DPM	HE Beta CPM	
BG		BACKGROUND	8.50		15.60		11.70	
30437-1	111R-1	C-11 Hood 2 Right Side Re-wipe	8.38	25	5.55	7.48	0.00	
30437-2	111R-2	C-11 Hood 2 Right Side Re-wipe	0.00	0.00	11.71	16.24	0.00	
30437-3	112R-1	C-11 Hood 2 Lower Intake Re-wipe	0.00	0.00	7.60	10.61	2.30	
30437-4	112R-2	C-11 Hood 2 Lower Intake Re-wipe	8.38	31.49	0.00	0.00	0.00	
QC H-3	QC H-3	QC H-3	44071.20	198743.00	940.01	0.00	3.30	
QC C-14	QC C-14	QC C-14	31552.20	2058.61	94468.40	1357.39	102.30	
QC BL	QC BL	QC BL	10.95	22.56	17.87	25.34	4.30	

Arch Chemical -- Cheshire, CT
Direct Measurements -- Room A2
Date: 7/26/2011

Meter #1: Ludlum 2224-1 s/n 129459 w/43-68 s/n 111315
MDA: 863 dpm/100 cm^2
C-14 efficiency (%): 7.2
Background (5 min. count): 2425 **Beta cpm:** 485

#	Location	Gross Beta (2 min. count)	Gross Beta cpm	Beta dpm
27	cabinet #2	1022	511	361
28	counter	1009	504.5	271
29	under counter shelf	1017	508.5	326
30	sink	991	495.5	146
31	sink cabinet	1048	524	542
32	hood - base	906	453	-444
33	hood - left wall	980	490	69
34	hood - right wall	1000	500	208
35	hood - back wall	1000	500	208
36	hood - ceiling	1026	513	389
37	hood - cabinet	1016	508	319
38	counter opp. Hood	980	490	69
39	exhaust hose T2	1022	511	361
40	exhaust hose T1	1014	507	306
41	wall - right	1022	511	361
42	wall - left	986	493	111
43	drawer #18	950	475	-139
44	drawer #44	988	494	125
45	drawer #9	1010	505	278

Arch Chemical -- Cheshire, CT
Direct Measurements -- Room A2
Date: 7/26/2011

Meter #2: Ludlum 2224-1 s/n 129459 w/43-37 s/n 103776
MDA: 264 dpm/100 cm^2
C-14 efficiency (%): 4.6
Background (5 min. count): 1695 **Beta cpm:** 339

#	Location	Gross Beta (2 min. count)	Gross Beta cpm	Beta dpm
1	floor - fridge	702	351	61
2	floor - fridge	686	343	20
3	floor - work station	682	341	10
4	floor - work station	682	341	10
5	floor - hood	610	305	-174
6	floor - sink	657	328.5	-54
7	floor - work station	791	395.5	289
8	floor - work station	666	333	-31
9	floor - desk	711	355.5	84

Arch Chemical -- Cheshire, CT
Direct Measurements -- Room C9
Date: 7/26/2011

Meter #1: Ludlum 2224-1 s/n 129459 w/43-68 s/n 111315
MDA: 863 dpm/100 cm^2
C-14 efficiency (%): 7.2
Background (5 min. count): 2425 **Beta cpm:** 485

#	Location	Gross Beta (2 min. count)	Gross Beta cpm	Beta dpm
46	fridge bottom self	993	496.5	160
47	fridge shelf	1054	527	583
48	counter opp. rad cage	898	449	-500
49	mini fridge - top	951	475.5	-132
50	counter opp. Fridges	932	466	-264
51	wall - left	970	485	0
52	drawer #131	934	467	-250
53	drawer #124	927	463.5	-299
54	mini fridge - bottom	979	489.5	63
55	counter opp. LSC	932	466	-264
56	drawer #117	984	492	97
57	top cabinet	984	492	97

Meter #2: Ludlum 2224-1 s/n 129459 w/43-37 s/n 103776
MDA: 264 dpm/100 cm^2
C-14 efficiency (%): 4.6
Background (5 min. count): 1695 **Beta cpm:** 339

#	Location	Gross Beta (2 min. count)	Gross Beta cpm	Beta dpm
10	LSC	614	307	-164
11	fridge	720	360	107
12	fridge	599	299.5	-202
13	rad cage	743	371.5	166
14	mini fridge	705	352.5	69
15	mini fridge	725	362.5	120

Arch Chemical -- Cheshire, CT
Direct Measurements -- Room C11
Date: 7/26/2011

Meter #1: Ludlum 2224-1 s/n 129459 w/43-68 s/n 111315
MDA: 863 dpm/100 cm^2
C-14 efficiency (%): 7.2
Background (5 min. count): 2425 **Beta cpm:** 485

#	Location	Gross Beta (2 min. count)	Gross Beta cpm	Beta dpm
58	sink	1010	505	278
59	weigh table	966	483	-28
60	sink cabinet	960	480	-69
61	drawer #102	974	487	28
62	counter adj. hood	978	489	56
63	drawer #98	914	457	-389
64	wall	980	490	69
65	hood - base	987	493.5	118
66	hood - left wall	976	488	42
67	hood - right wall	1008	504	264
68	hood - back wall	941	470.5	-201
69	hood - ceiling	1024	512	375
70	hood - cabinet	940	470	-208
71	counter opp. hood	970	485	0
72	wall	986	493	111
73	drawer #89	970	485	0
74	counter shelf	996	498	181
75	drawer #81	1022	511	361
76	counter opp. sink	974	487	28
77	counter opp. sink	966	483	-28
78	cabinet #71	959	479.5	-76
79	drawer #65	936	468	-236
80	counter opp. hood	942	471	-194
81	hood - base	951	475.5	-132
82	hood - left wall	923	461.5	-326
83	hood - right wall	1020	510	347
84	hood - back wall	984	492	97
85	hood - ceiling	990	495	139
86	hood - cabinet	992	496	153
87	counter adj. hood	985	492.5	104
88	drawer #54	986	493	111
89	wall	961	480.5	-63
90	sink	999	499.5	201
91	sink cabinet	985	492.5	104

Arch Chemical -- Cheshire, CT
Direct Measurements -- Room C11
Date: 7/26/2011

Meter #2: Ludlum 2224-1 s/n 129459 w/43-37 s/n 103776
MDA: 264 dpm/100 cm^2
C-14 efficiency (%): 4.6
Background (5 min. count): 1695 **Beta cpm:** 339

#	Location	Gross Beta (2 min. count)	Gross Beta cpm	Beta dpm
16	floor - weigh table	654	327	-61
17	floor - sink	673	336.5	-13
18	floor - hood	633	316.5	-115
19	floor - opp. hood	639	319.5	-100
20	floor - opp. sink	622	311	-143
21	floor - opp. sink	644	322	-87
22	floor - opp. hood	661	330.5	-43
23	floor - hood	596	298	-210
24	floor - sink	672	336	-15
25	floor - desk	631	315.5	-120
26	floor - desk	652	326	-66

Arch Chemical -- Cheshire, CT
Direct Measurements -- MARSSIM
Date: 7/26/2011

Meter #1: Ludlum 2224-1 s/n 129459 w/43-68 s/n 111315
MDA: 863 dpm/100 cm^2
C-14 efficiency (%): 7.2
Background (5 min. count): 2425 **Beta cpm:** 485

#	Location	Gross Beta (2 min. count)	Gross Beta cpm	Beta dpm
6	C11 - counter	999	499.5	201
7	C11 - counter	954	477	-111
8	C11 - counter	938	469	-222
11	C11 - counter	985	492.5	104
12	C11 - counter	968	484	-14
13	C11 - counter	978	489	56

Meter #2: Ludlum 2224-1 s/n 129459 w/43-37 s/n 103776
MDA: 264 dpm/100 cm^2
C-14 efficiency (%): 4.6
Background (5 min. count): 1695 **Beta cpm:** 339

#	Location	Gross Beta (2 min. count)	Gross Beta cpm	Beta dpm
1	C11 - floor	624	312	-138
2	C11 - floor	608	304	-179
3	C11 - floor	652	326	-66
4	C9 - floor	614	307	-164
5	A2- floor	710	355	82
9	C9 - floor	582	291	-246
10	A2- floor	650	325	-72
14	C9 - floor	720	360	107
15	A2- floor	657	328.5	-54

SOP033 **ATTACHMENT 1**

Wipe Test Survey

Page 1 of 1

Purpose (routine, spill, etc.): routine (End of Day)

Date and Time: 01-29-02, 2:00 PM Room Number: C9, C11, and B6

Scintillation Counter Manufacturer: Packard

Model Number: 1900TR Serial Number: 404799

Isotope Counted: C-14 Background dpm: 28

Area Wiped	DPM	Decontamination Procedure [1]	DPM [2]
① C9, Benchtop, Left	ECI EAG 01-29-02 ~~28~~ 35		
② C9, Benchtop, Center	34		
③ C9, Benchtop, Right	36		
④ C9, Floor near Rear door	62		
⑤ C9, Benchtop	34		
⑥ C11, Balance Table, outside hood	54		
⑦ C11, Balance Table, inside hood	41		
⑧ C11, Balance, Inside and outside	44		
⑨ C11, Floor By Balance	73		
⑩ C11, Inside Hood #2	24		
⑪ C11, Floor by the hood	59		
⑫ C11, Hood #1	4468	wiped with Ethanol, 2 times	31
⑬ C11, Micro Centrifuge	231	wiped with Ethanol, 1 time	41
⑭ B6, Inside oven	133	wiped with Ethanol, 1 time	33
⑮ B6, Benchtop outside oven	57		
⑯ B6, Floor by oven	78	wiped with Ethanol, 1 time	32

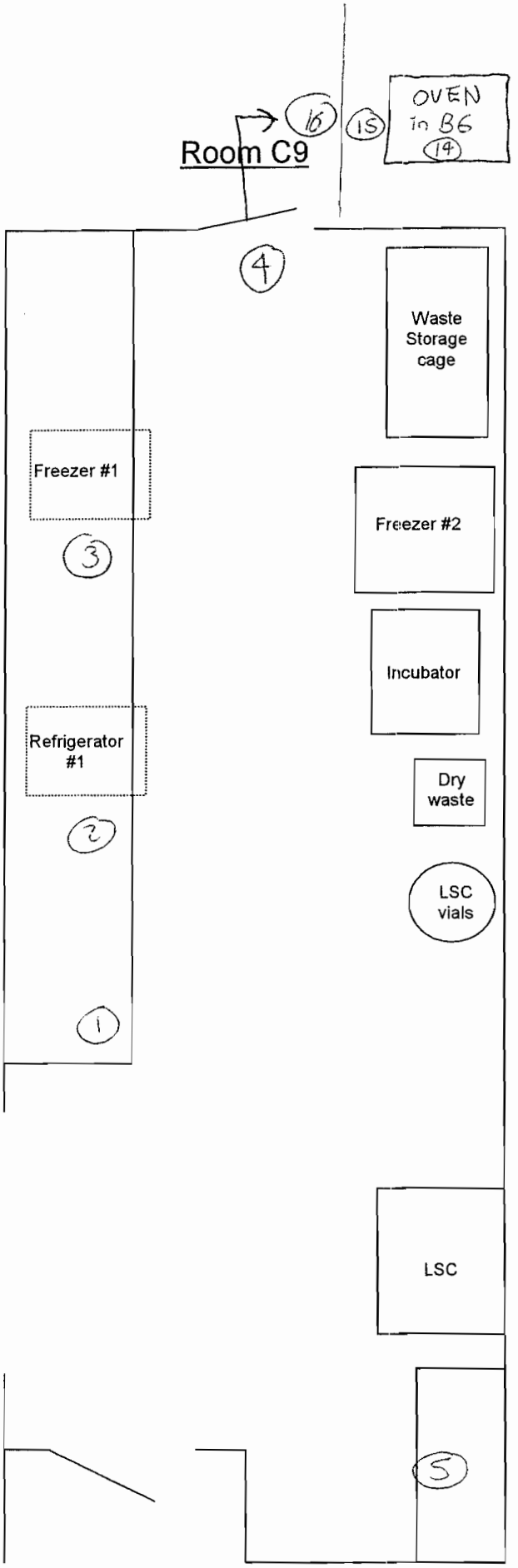
[1] Necessary if dpm exceed 2,200 over background

Rev. J. [illegible] 2/8/02

[2] After decontamination

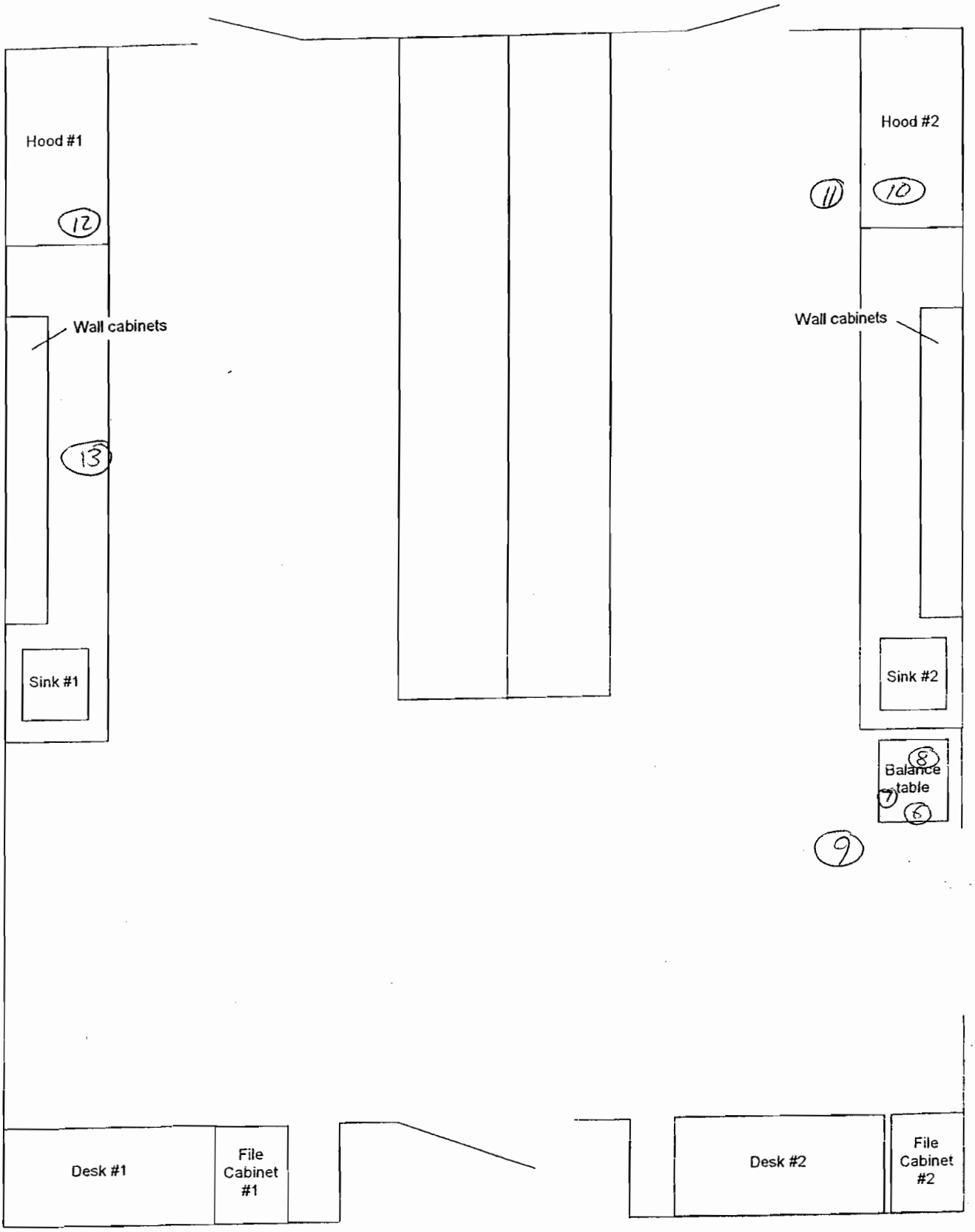
Signature: [illegible] Date: 01-29-02

rev. 05/04/98


Room C9
16
15
OVEN in B6
14
4
Waste Storage cage
Freezer #1
3
Freezer #2
Incubator
Refrigerator #1
2
Dry waste
LSC vials
1
LSC
5

01-29-02

Room C11



01-29-02

Instrument #: 1 Nameplate [illegible]

Region A: [illegible] Time = 0 Bkg= 0.00 X2 Sigma=0.00

Region B: [illegible] Time = 0 Bkg= 0.00 X2 Sigma=0.00

Region C: [illegible] Time = 0 Bkg= 0.00 X2 Sigma=0.00

Time = 2.00 DIP = 4815/ASC SS Terminator = Count

Wipe Test, 01-29/02, C9 - C11, and B6

Use Editorial DPM

Nuclide 1 = 123000

Date:Application Dri = ? Path =

Save Data Filename =

01-29-02

S#	PID	TIME	CPM	BKG	EFF	%EFF	1-TOX	%	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	94.5	24.43	12	[illegible]	1
3	17.0	2.0	30	74	671	94.6	25.00	14	[illegible]	2
4	29.0	2.0	[illegible]	[illegible]	652	94.5	24.55	11	[illegible]	3
5	17.0	2.0	32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	6
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	94.6	21.87	[illegible]	[illegible]	8
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	594	[illegible]	[illegible]	[illegible]	[illegible]	9
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10
17	4.0	2.0	34	46	639	94.4	10.98	11	[illegible]	11
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	741	94.4	[illegible]	[illegible]	[illegible]	12
18	6.0	2.0	218	87	643	94.6	9.58	[illegible]	231	13
(1 missing vial)										
17	6.0	2.0	126	83	660	94.5	12.62	6	177	14
18	6.0	2.0	54	51	652	94.4	19.25	22	57	15
19	6.0	2.0	73	68	590	94.1	16.55	17	79	16

Protocol #: 1 Name:jim 29-Jan-2002 16:[illegible]
Region A: LL-UL= 0.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 4.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=[illegible]
Time = 2.00 DIP = [illegible] EE Termination = Total
Ips Test, [illegible] 02, [illegible], [illegible] 96
Instrument [illegible]
Multiline [illegible]
Data/Application Drive & Path =
Save Data Filename =

S#	PID	TIME	CPM/A	BIG	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(12) re-wiped
(13) with Ethanol
(14)

01-29-02

[illegible]

Region A: LL-UL= [illegible] Lum= [illegible] Bkg= 0.00 %2 Sigma=0.00

Region B: LL-UL= 4.0-156. Lum= [illegible] Bkg= 0.00 %2 Sigma=0.00

Region C: LL-UL= 0.0- 0.0 Lum= 0 Bkg= 0.00 %2 Sigma=0.00

Time = 1.00 Div = 4SIB/AEC ED Terminator = Count

Vibe Test, 01/29/02, 19, Oil, [illegible] %

Conventional DPM

Nuclide [illegible]

Late Application Level % Path =

Bin = Data Filename =

SH	PID	TIME	DPM	SIG	BGIE	%EFF	A:DS%	LUM	FLAG	DPM
1	19.[illegible]	0.0	[illegible]	[illegible]	[illegible]	[illegible]	25.41	[illegible]		[illegible]
2	19.[illegible]	1.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	18		[illegible]

(18)

01-29-02

Wipe Test Survey

Page 1 of 1

Purpose (routine, spill, etc.): routine (End of Day)

Date and Time: 02-01-02, 2:30 PM Room Number: C9, C11, and B6

Scintillation Counter Manufacturer: Packard

Model Number: 1900TR Serial Number: 404799

Isotope Counted: C-14 Background dpm: 24

Area Wiped	DPM	Decontamination Procedure [1]	DPM [2]
① C11, Balance Table, inside hood	67		
② C11, Balance, Inside and outside	75		
③ C11, Inside Hood #2	41		
④ C11, Glass container (used to hold vials in oven)	34		
⑤ C11, Floor by balance	39		
⑥ C11, Inside Micro Centrifuge	49		
⑦ C11, Outside Micro Centrifuge	65		
⑧ C9, Benchtop	39		
⑨ C9, Floor	71		
⑩ C9, Benchtop	46		
⑪ B6, Inside oven (Base)	17		
⑫ B6, Inside oven (walls)	26		

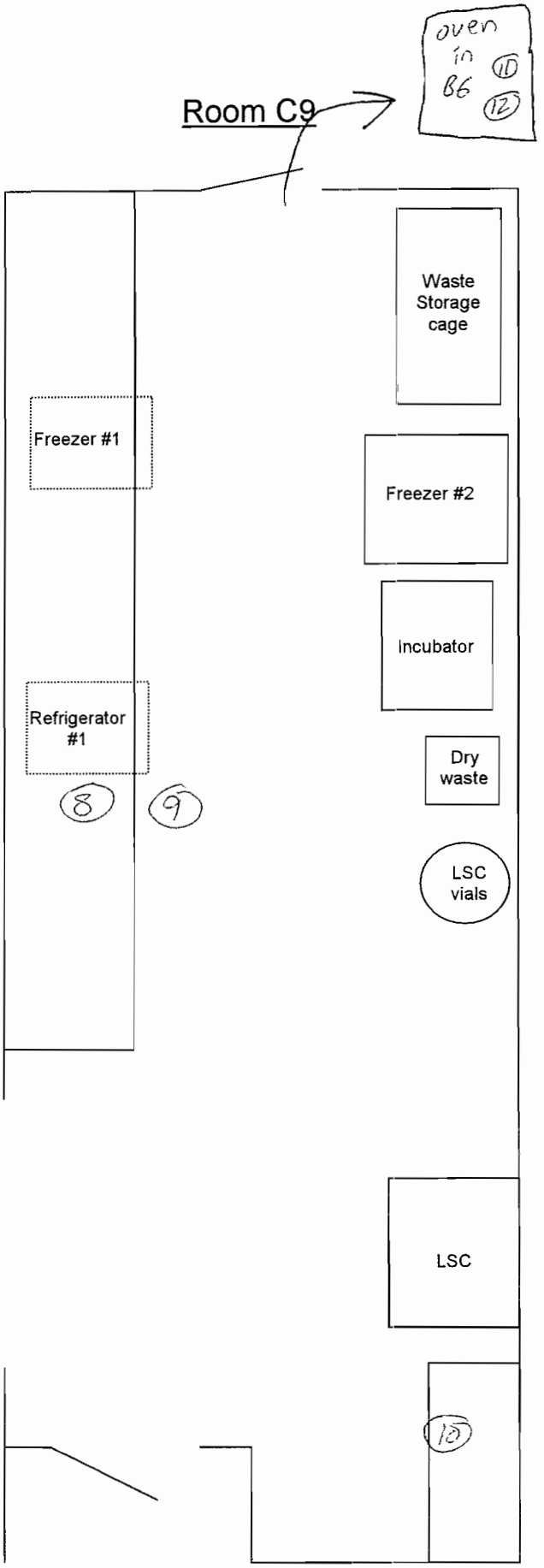
[1] Necessary if dpm exceed 2,200 over background

Rev. J. [illegible] 2/8/02

[2] After decontamination

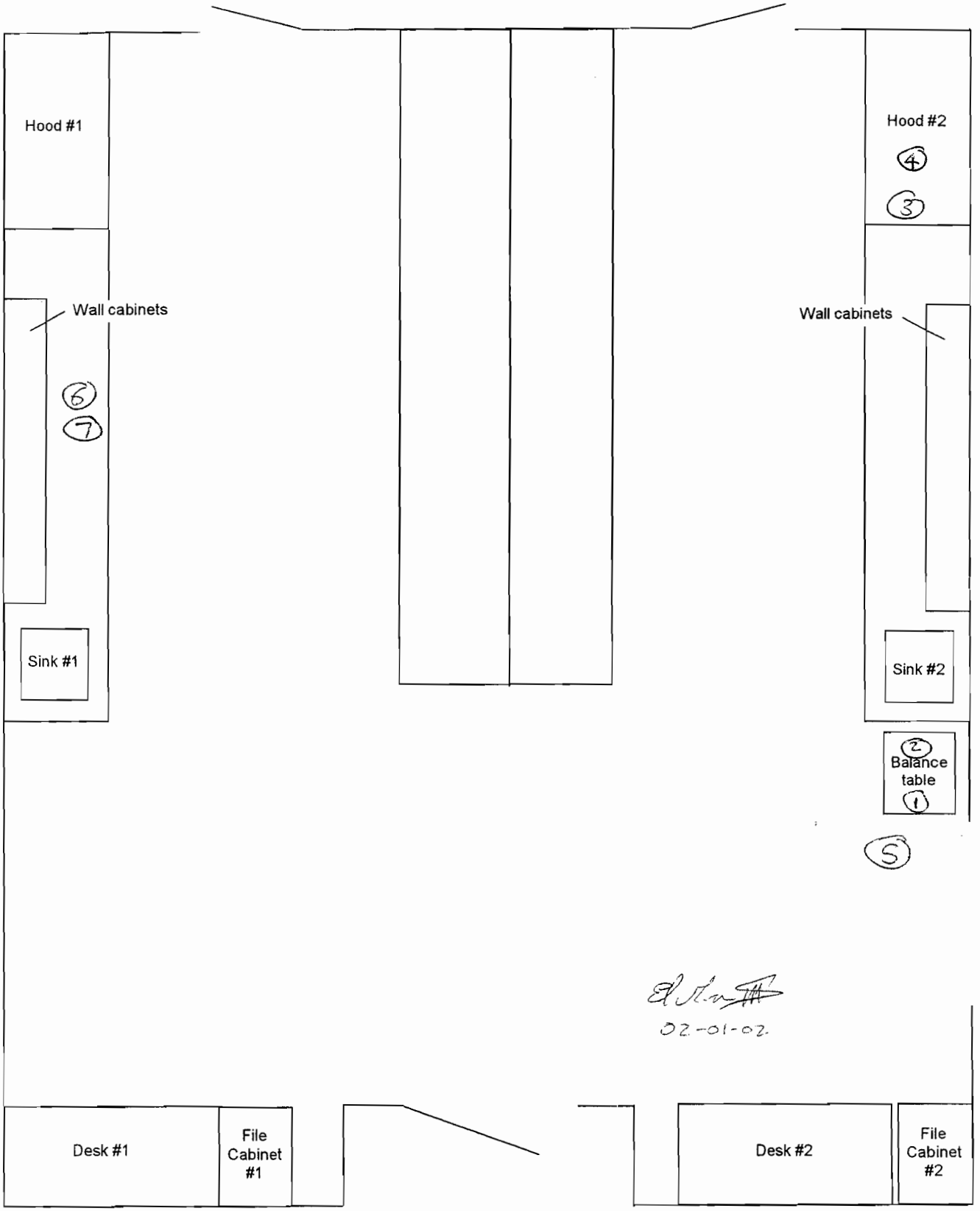
Signature: [illegible] Date: 02-01-02

rev. 05/04/98


Room C9
oven in B6
10
12
Waste Storage cage
Freezer #1
Freezer #2
Incubator
Refrigerator #1
Dry waste
8
9
LSC vials
LSC
10

02-01-02

Room C11


Hood #1
Hood #2
4
3
Wall cabinets
Wall cabinets
6
7
Sink #1
Sink #2
2
Balance table
1
5
02-01-02
Desk #1
File Cabinet #1
Desk #2
File Cabinet #2

[illegible] Analysis 01-Feb-2002 15:48

Region A: LL-UL= [illegible].0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 4.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 DIP = tSIS/ASD TS Terminator = Count
Vial Test # 02/0[illegible]/02, (C9, C1[illegible] [illegible]
Convention: DPM
Nuclide 1 = 1[illegible]
Data/Application D [illegible] Path
Save Data Filename =

S#	S10	TIME	DPM1	S19	tSIS	%SPP	A:2S%	LUM	FLAG	DPM1
1	19.0	2.0	33	73	624	94.3	29.49	11		2[illegible]
2	19.0	2.0	53	67	556	94.6	17.92	7		67
3	19.0	2.0	71	37	677	94.6	16.79	13		[illegible]
4	19.0	2.0	39	59	5[illegible]	94.5	22.45	20		[illegible]
5	19.0	2.0	32	40	675	94.5	24.01	38		34
6	19.0	2.0	[illegible]	[illegible]	[illegible]	94.5	25.33	18		32
7	19.0	2.0	47	56	541	94.4	20.74	16		49
8	19.0	2.0	61	55	613	94.7	18.11	5		63
9	19.0	2.0	77	37	651	94.5	23.41	39		70
10	19.0	2.0	97	17	781	[illegible]	[illegible]	[illegible]		[illegible]
11	19.0	2.0	45	21	771	[illegible]	[illegible]	[illegible]		[illegible]
12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19		[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]

02-01-02

SOP033 **ATTACHMENT 1**

Wipe Test Survey

Page 1 of 1

Purpose (routine, spill, etc.): routine (end of Day)

Date and Time: 06-13-02, 2:45PM Room Number: B6, C9, and C11

Scintillation Counter Manufacturer: Packard

Model Number: 1900 TR Serial Number: 404799

Isotope Counted: C-14 Background dpm: 27

Area Wiped	DPM	Decontamination Procedure [1]	DPM [2]
① B6, Inside the oven	EC1 06-13-02 EAG ~~63~~ 37		
② C9, Floor	40		
③ C9, Left side of Benchtop	31		
④ C9, Left side of Benchtop	37		
⑤ C11, Floor	28		
⑥ C11, inside balance	38		
⑦ C11, Left side of Balance in hood	364	wiped with Ethanol, 1 time	54 EC13 EAG 06-14-02
⑧ C11, right side of Balance outside of hood	33		
⑨ C11, Micro centrifuge	38		

[1] Necessary if dpm exceed 2,200 over background

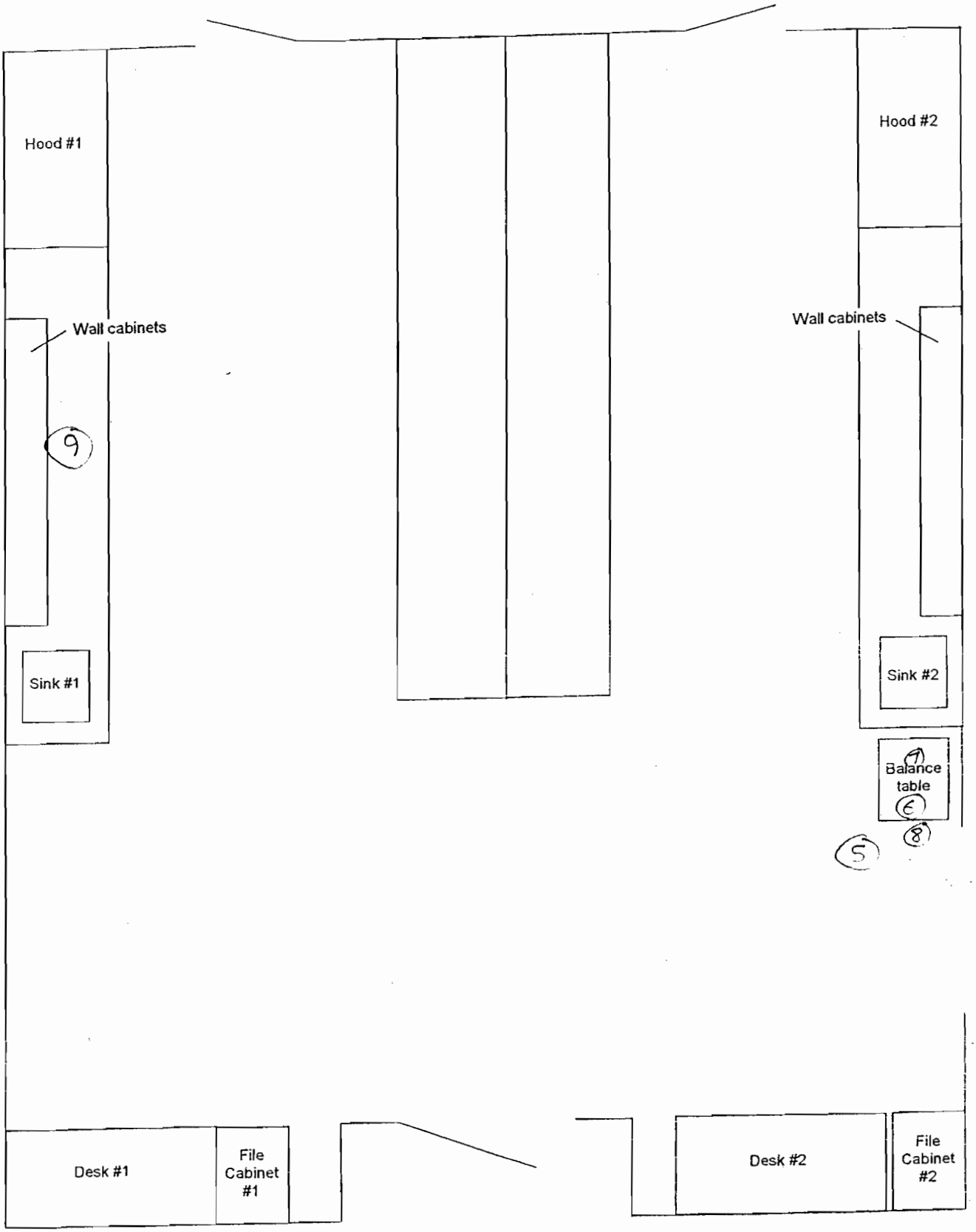
[2] After decontamination

06-13-02

6/14/02

rev. 05/04/98

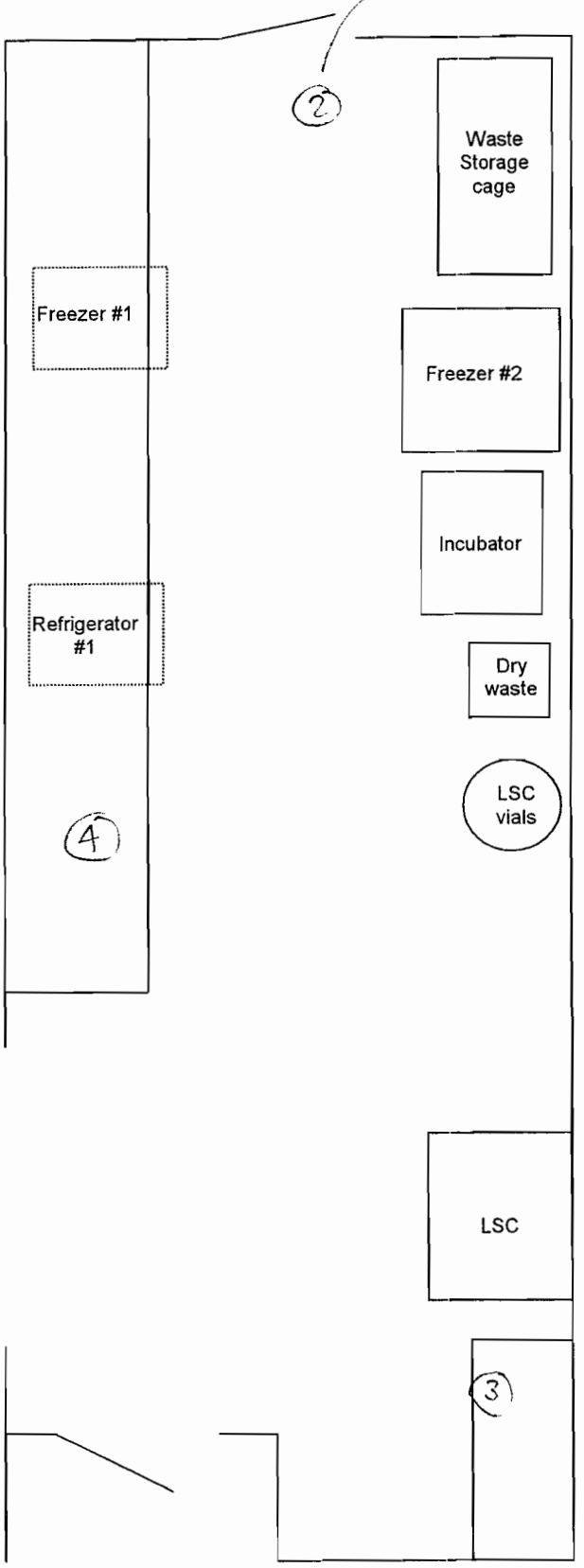
Room C11



06-13-02

Inside
OVEN in Lab
B6 (1)

Room C9



06-13-02

Background (counts on High Side)

1
2
3
4
5
6
7
8
9

Background (2nd Time)

06-13-02

Protocol #: 1 Name:JIM 14-Jun-2002 09:17
Region A: LL-UL= 0.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 4.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
wipe test for B6, C9, C11
Conventional DPM
Nuclide 1 = 122000

S#	PID	TIME	CPMA	SIS	tSIE	%EFF	A:2S%	LUM	FLAG	DPM1	
1	8.0	2.0	27	78	628	94.8	27.47	6		28	Background
2	8.0	2.0	51	65	634	94.9	19.80	9		54	7

Ed Mrak III
06-14-02

SOP033 **ATTACHMENT 1**

Wipe Test Survey

Page 1 of 2

Purpose (routine, spill, etc.): Post-work wipe tests B6, C9, C11

Date and Time: Oct. 13, 2003 1:15pm Room Number: B6, C9, C11

Scintillation Counter Manufacturer: Packard

Model Number: 1900TR Serial Number: 404799

Isotope Counted: ^{14}C Background dpm: 34

Area Wiped	DPM	Decontamination Procedure [1]	DPM [2]
B6 - Computer	37		
B6 - Pump & Ejector outside	28		
B6 - Inj. inside	45		
B6 - Carousel	71		
B6 - PDA	34		
B6 - Radiomatic Detector.	46		
See maps for following locations:	—		
(1) C9 - Balance	62		
(2) C9 - Bench	48		
(3) C9 - Bench	41		
(4) C9 - Freezer Door	39		
(5) C9 - Freezer Door	45		
(6) C9 - Incubator Door	44		
(7) Dump C9 - Dry waste	49		
(8) C9 - LSC cover	34		
(9) C9 - LSC Keyboard	38		
(10) C9 - Scint. Cocktail Pipettor	39		
(11) C9 - Bench	87		
(12) C9 - Door	44		
(13) C11 - Door	36		
(14) C11 - Desk #2	36		
(15) C11 - Desk #1	22		
(16) C11 - File Cabinet #1	33		
(17) C11 - File Cabinet #2	35		

[1] Necessary if dpm exceed 2,200 over background

[2] After decontamination

Rev. 2 [illegible] 11/17/03

Wipe Test Survey

Purpose (routine, spill, etc.): Post-work wipe tests

Date and Time: Oct 13, 2003 1:15 Pm Room Number: B6, C9, C11

Scintillation Counter Manufacturer: Packard

Model Number: 1900 TR Serial Number: 404799

Isotope Counted: 14C Background dpm: 34

Area Wiped	DPM	Decontamination Procedure [1]	DPM [2]
(18) C11 - Balance Table	33		
(19) C11 - Balance	77		
(20) C11 - Bench	54		
(21) C11 - Bench	31		
(22) C11 - Injector	27		
(23) C11 - Computer	23		
(24) C11 - Centrifuge	28		
(25) C11 - Gray Cart	28		

[1] Necessary if dpm exceed 2,200 over background

[2] After decontamination

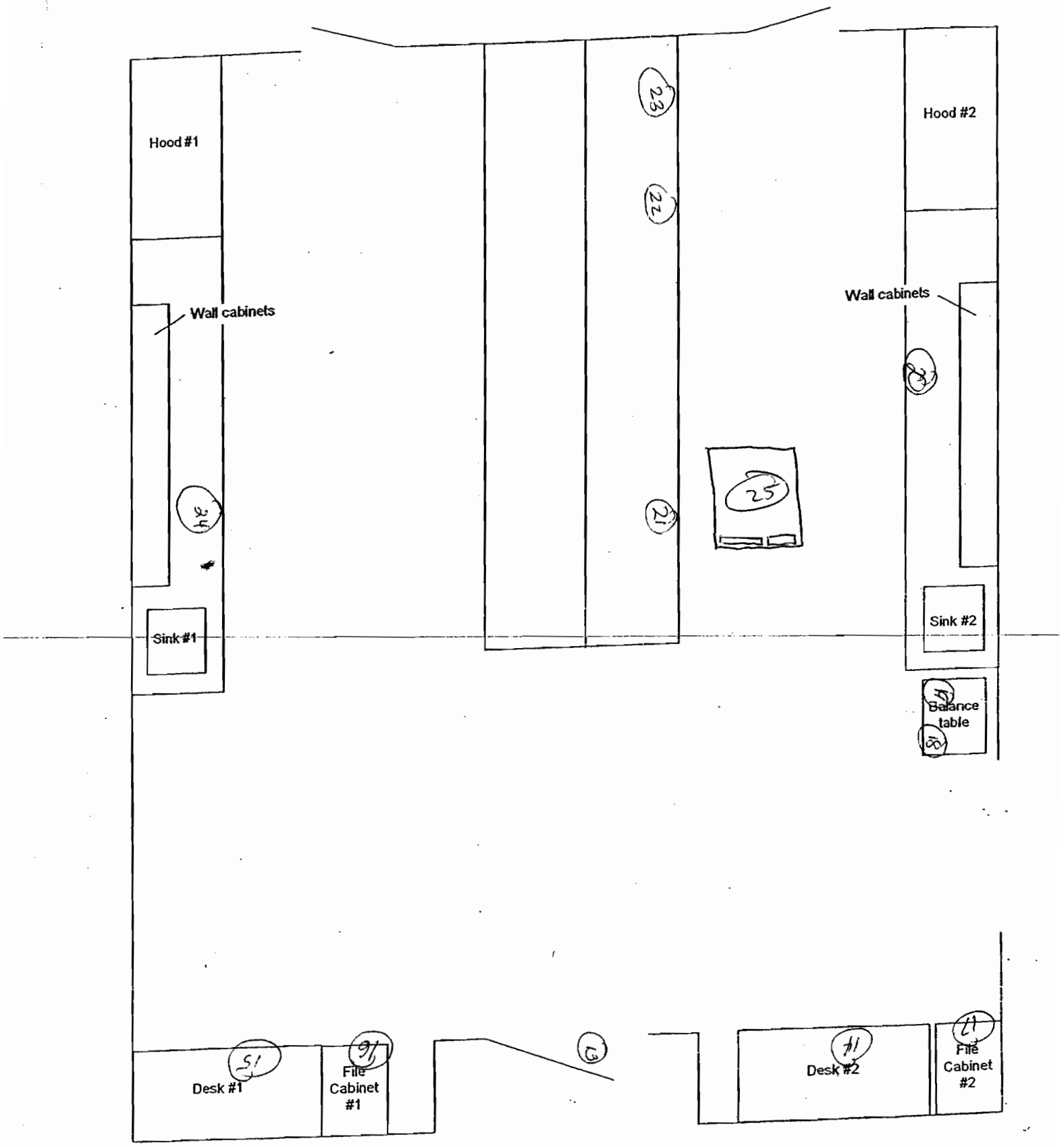
Rev. 2 [illegible] 11/17/03

Protocol #: 1 Name:JIM 13-Oct-2003 12:51
Region A: LL-UL= 0.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region B: LL-UL= 4.0-156. Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Region C: LL-UL= 0.0- 0.0 Lcr= 0 Bkg= 0.00 %2 Sigma=0.00
Time = 2.00 QIP = tSIE/AEC ES Terminator = Count
wipe tests B6, C9, C11
Conventional DPM
Nuclide 1 = 138100

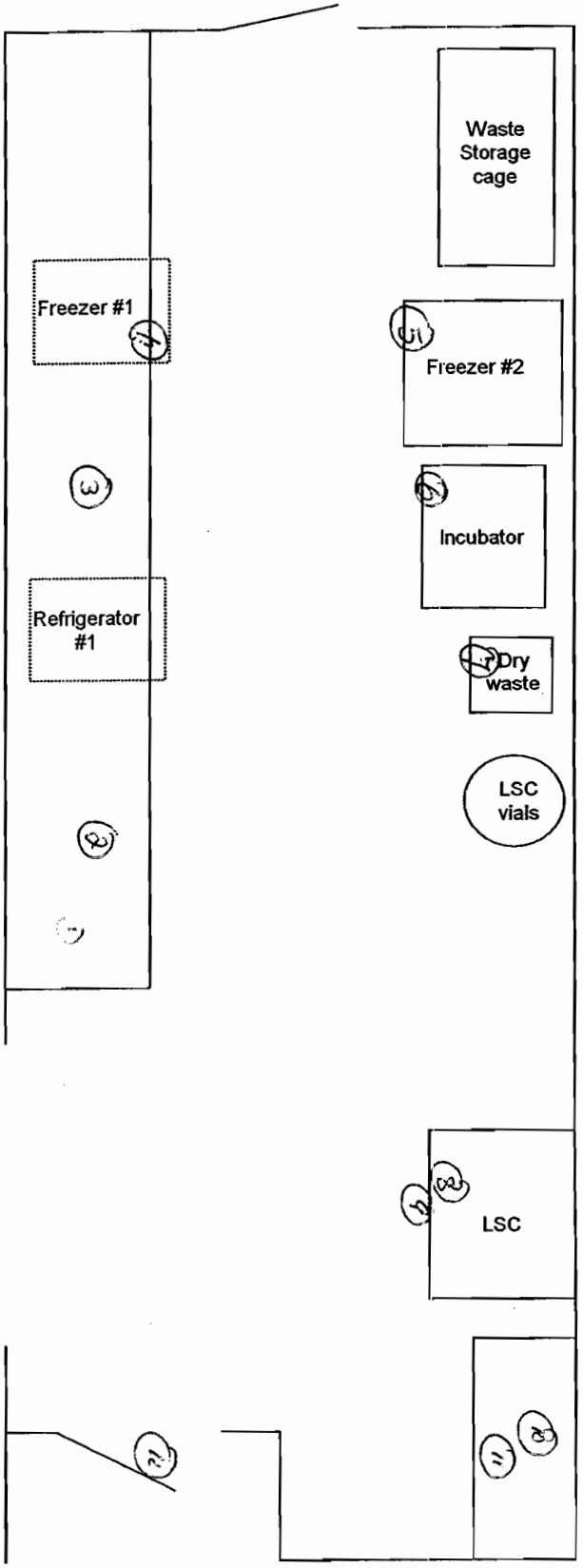
10/14/03

S#	PID	TIME	CPMA	SIS	tSIE	%EFF	A:2S%	LUM	FLAG	DPM1	
1	6.0	2.0	33	46	650	94.8	24.81	11		34	BKG
2	6.0	2.0	35	53	668	94.9	23.90	14		37	Comp.
3	6.0	2.0	27	60	666	94.9	27.47	15		28	Pump & Inj outside
4	6.0	2.0	43	59	629	94.6	21.69	6		45	~~PO~~ Inj inside
5	6.0	2.0	68	31	642	94.7	17.21	7		71	carousel
6	6.0	2.0	32	36	637	94.7	25.00	6		34	PDA
7	6.0	2.0	44	50	662	94.9	21.44	13		46	Radiomatic
8	6.0	2.0	59	33	666	94.9	18.49	9		62	1
9	6.0	2.0	45	68	638	94.7	21.08	13		48	2
10	6.0	2.0	39	69	652	94.8	22.65	27		41	3
11	6.0	2.0	37	53	661	94.9	23.25	12		39	4
12	6.0	2.0	43	61	656	94.8	21.57	12		45	5
13	17.0	2.0	42	41	662	94.9	21.82	12		44	6
14	17.0	2.0	46	56	657	94.8	20.85	11		49	7
15	17.0	2.0	33	49	660	94.8	24.81	12		34	8
16	17.0	2.0	37	50	665	94.9	23.41	12		38	9
17	17.0	2.0	37	58	662	94.9	23.25	19		39	10
18	17.0	2.0	93	73	628	94.6	15.57	5		97	11
19	17.0	2.0	42	46	659	94.8	21.82	13		[illegible]	12
20	17.0	2.0	34	75	677	94.7	24.25	31		[illegible]	13
21	17.0	2.0	35	49	660	94.8	24.08	17		36	14
22	17.0	2.0	31	48	657	94.8	[illegible]	31		32	15
23	17.0	2.0	32	42	656	94.8	25.40	17		33	16
24	17.0	2.0	34	52	657	94.8	24.41	13		35	17
25	14.0	2.0	32	56	654	94.8	25.20	24		33	18
26	14.0	2.0	73	83	642	94.7	16.55	8		77	19
27	14.0	2.0	52	48	651	94.8	19.71	12		54	20
28	14.0	2.0	30	54	658	94.8	26.04	29		31	21
29	14.0	2.0	26	70	661	94.9	27.74	35		27	22
30	14.0	2.0	32	51	658	94.8	30.15	32		33	23
31	14.0	2.0	27	51	654	94.8	27.22	30		28	24
32	14.0	2.0	27	60	646	94.8	27.47	34		28	25

Room C11


Hood #1
Wall cabinets
Sink #1
Hood #2
Wall cabinets
Sink #2
Balance table
Desk #1
File Cabinet #1
Desk #2
File Cabinet #2

Room C9


Waste Storage cage
Freezer #1
Freezer #2
Incubator
Refrigerator #1
Dry waste
LSC vials
LSC

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CTD980916779
2. Page 1 of: 1
3. Emergency Response Phone: 800-424-9300
4. Manifest Tracking Number: 001872148 JJK

5. Generator's Name and Mailing Address: ARCH Chemicals, INC. 350 Knotter Dr, Cheshire, CT 06410
Generator's Site Address (if different than mailing address):
Generator's Phone: 203-271-4076

6. Transporter 1 Company Name: SJ TRANSPORTATION CO
U.S. EPA ID Number: NJD071629976

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address: NSSI INC 5711 Etheridge Rd, Houston, TX 77087
U.S. EPA ID Number: TXD982560294
Facility's Phone: 713-641-0391

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. UN-2915, WASTE RADIOACTIVE MATERIAL, TYPE A PACKAGE, 7, (3)(6.1)	001	DM	52	K	D001		
X	2. UN-2031, WASTE NITRIC ACID SOLUTION, 8, (5.1), (7), PG II (LIMITED QUANTITY RADIOACTIVE MATERIAL)	001	DF	4	K	D001	D002	
X	3. UN-1993, WASTE FLAMMABLE LIQUIDS, N.O.S., 3, PG II (TOLUENE)	001	DM	2.5	K	D001	F005	
	4.							

14. Special Handling Instructions and Additional Information: Reference NSSI # 07131101.907 & 08011193
See manifest # NS-2011-203 for Nuclide information
96.1
ERG# 163 962 ERG# 157 963 ERG# 128 ChemTrec Cust # 4395

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. if export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: JOHN LESKY
Signature: John Lesky
Month 8 Day 10 Year 11

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: D. Joseph Grenier
Signature: D Joseph Grenier
Month 8 Day 10 Year 11

Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Signature: Month Day Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

NSSI/RECOVERY SERVICES, INC. WASTE PROFILE FORM

P.O. BOX 34042 HOUSTON, TX 77234 TEL 713-641-0391 FAX 713-641-6153 TXD 982560294 TX REG. 38669

GENERATOR NAME Arch Chemicals, Inc.
FACILITY ADDRESS 350 Knotter Drive
Cheshire, CT 06410
CONTACT John Lesky
PHONE 203-271-4076 FAX
USEPA ID. NO. CTD980916779 STATE ID NO.

BROKER NAME Chase Environmental Group, Inc.
BROKER ADDRESS 109 Flint Road
Oak Ridge, TN 37830
CONTACT Janet Baker
PHONE 865-481-8801 FAX 865-481-8818

WASTE STREAM NAME Flammable Labpack

PROCESS GENERATING WASTE

PHYSICAL CHARACTERISTICS OF WASTE

COLOR	ODOR	PHYSICAL STATE @ 70 DEG F	LAYERS
Varied	✓ NONE __ MILD STRONG DESCRIBE	__ SOLID __ SLUDGE ✓ LIQUID __ POWDER	✓ HOMOGENOUS __ BI __ MULTILAYERED
FREE LIQUIDS __ YES __ NO VOLUME _____ %	pH __ N/A __ ≤2 __ 2.1-4 __ 4-7 __ 7-10 __ 10-12.4 __ ≥12.5	SPECIFIC GRAVITY __ N/A RANGE	FLASH POINT CLOSED OPEN CUP NO FLASH

CHEMICAL COMPOSITION (TOTAL MUST ADD TO 100%) ATTACH ANALYTICAL AND SPECIAL INFORMATION

See Attached	%		%
	%		%
	%		%

METALS TOTAL (PPM) __ TCLP (MG/L) __ ANALYTICAL(ATTACHED) X GENERATOR KNOWLEDGE

ARSENIC N/A	BARIUM N/A	CADMIUM N/A	CHROMIUM N/A
CHROMIUM-HEX N/A	LEAD N/A	MERCURY N/A	SELENIUM N/A
SILVER N/A	COPPER N/A	NICKEL N/A	ZINC N/A
THALLIUM N/A			

OTHER COMPONENTS TOTAL (PPM) __ ANALYTICAL (ATTACHED) X GENERATOR KNOWLEDGE

CYANIDES N/A	SULFIDES N/A	PCB'S N/A	PHENOLICS N/A
CHLORIDES N/A %	FLUORIDES N/A	PHOSPHATES N/A	NA+/K+ N/A

HAZARDOUS CHARACTERISTICS __ USEPA HAZARDOUS WASTE __ STATE HAZARDOUS WASTE

REACTIVITY:	NONE	PYROPHORIC	SHOCK SENSITIVE	EXPLOSIVE	WATER REACTIVE	OTHER
OTHER HAZARDS:		RADIOACTIVE ✓	ETIOLOGICAL	PESTICIDE	OTHER	

EPA WASTE CODES: D001 STATE WASTE CODES:

SHIPPING INFORMATION X DOT HAZARDOUS MATERIAL

SHIPPING DESCRIPTION: Waste, Radioactive Material, Type A Package	HAZARD CLASS 7 (3, 6.1)	UN/NA NO. 2915	R.Q.
SHIPPING METHOD Chase Truck	DRUM (TYPE/SIZE) 30 gal. Steel	BULK LIQUID	BULK SOLID
ANTICIPATED VOLUME:	GALS	CUBIC YARDS	OTHER

FREQUENCY:	ONE TIME ✓	WEEK	MONTH	QUARTER	YEAR

I HEREBY CERTIFY THAT ALL INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS IS COMPLETE AND ACCURATE, WITH DISCLOSURE OF ALL KNOWN OR SUSPECTED HAZARDS.

AUTHORIZED SIGNATURE John Lesky DATE 8/10/11

CFR 40 264.12(b) NSSI has the appropriate permit(s) to accept and receive the above profiled material

Authorized Signature _____ Date _____ PROFCHEM.DOC

Isotope	Activity	Physical Form	Chemical constituents	Volume	Notes	labeled constituent
C-14	9.4 e+5 dpm/ml	Liquid	1 pentanol 1,3 butanedol	20ml		Pentanol
C-14	9.4 e+5 dpm/ml	Liquid	1 pentanol 1,3 butanedol	20ml		Pentanol
C-14	0.05 mCi	Liquid	ETOH:Toluene:DDT	40ML	9:1 ratio	DDT
C-14	0.05 mCi	Liquid	ETOH:Toluene:DDT	Empty bottle		DDT
C-14	9 mCi	Liquid	triphenylboronpiridine	50ml	#6974	triphenylboronpiridine
C-14	0.968 mCi	Liquid	Zinc Omadine	1/2ml	suspension	Zinc Omadine
H-3	1mCi	Liquid	Water	1/2 ml		Water
H-3	80 uCi	Liquid	Water	30 ml		Water
C-14	0.89 mCi	Liquid	dibutyl phalate carboxyl	2 ml	Ampule	dibutyl phalate carboxyl
C-14	5.26 mCi	Solid	3-1000-2-propynl-n-butyl-carbamate			3-1000-2-propynl-n-butyl-carbamate
C-14	4.57 mCi	Liquid	pyridine-21,6-c-14 copper omadine	1/2 ml		pyridine-21,6-c-14 copper omadine
C-14	0.05 mCi ea	Empty	Toluene		qty 4	Toluene
C-14	0.1 mCi	Dried out	Chloroform			Chloroform
C-14	0.13 mCi	Liquid	Glucose in 3% ethanol water solution	1 ml		Glucose
C-14	0.13 mCi	Liquid	Glucose in 3% ethanol water solution	1 ml		Glucose
C-14	1.9 mCi	Liquid	Copper Omadine[Pyridine-2-6-c14]	2 ml		Copper Omadine[Pyridine-2-6-c14]
C-14	0.87 mCi	Liquid	Zinc Omadine [pyridine-2-6-C14]	2 ml		Zinc Omadine [pyridine-2-6-C14]
C-14	0.55 mCi	Liquid	zinc omadine in water	2 ml		zinc omadine in water
C-14	2.6 mCi	Liquid	DMSO solution	1/2 ml		DMSO
C-14	0.51 mCi	Liquid	Methanol-water solution	20 ml		Methanol
C-14	0.53 mCi	Liquid	Methanol-water solution	20 ml		Methanol
C-14	0.45 mCi	Liquid	Methanol-water solution	20 ml		Methanol
C-14	0.0067 mCi	Liquid	Trichloroacetic acid	1/2 ml		Trichloroacetic acid
C-14	0.002 mCi	solid	zinc pyrithione	1/8 gram		zinc pyrithione
C-14	5 uCi	solid	copper pyrithione	1 mg		copper pyrithione
C-14	20 uCi	Liquid	sodium pyrithione in water	2 ml		sodium pyrithione in water
C-14	1 uCi each	Liquid	Soduim Bicarbonate in water	1/2 ml	Qty 48	Soduim Bicarbonate in water
C-14	869 uCi	Liquid	Aqueous/1% methanol	2058.43 g net wt		Methanol
C-14	0.0080 uCi	Liquid	Aqueous/1% methanol	970.92 g net wt		Methanol
C-14	0.0110 uCi	Liquid	Aqueous/1% methanol	970.22 g net wt		Methanol
C-14	0.004 uCi	Liquid	Aqueous/1% methanol	885.54 g net wt		Methanol
C-14	0.003 uCi	Liquid	Aqueous/1% methanol	1001.34 g net wt		Methanol
C-14	145 uci	Liquid	Aqueous/1% methanol	895.03 g net wt		Methanol
C-14	1686 uCi	Liquid	Aqueous/1% methanol	365.53 g net wt		Methanol
C-14	0.934 uCi	Liquid	Aqueous/1% methanol	3980 g net wt		Methanol
C-14	0.805 uCi	Liquid	Aqueous/1% methanol	3851 g net wt		Methanol

NSSI/RECOVERY SERVICES, INC. WASTE PROFILE FORM

P.O. BOX 34042 HOUSTON, TX 77234 TEL 713-641-0391 FAX 713-641-6153 TXD 982560294 TX REG. 38669

GENERATOR NAME Arch Chemicals, Inc. FACILITY ADDRESS 350 Knotter Drive Cheshire, CT 06410 CONTACT John Lesky PHONE 203-271-4076 FAX USEPA ID. NO. CTD980916779 STATE ID NO.	BROKER NAME Chase Environmental Group, Inc. BROKER ADDRESS 109 Flint Road Oak Ridge, TN 37830 CONTACT Janet Baker PHONE 865-481-8801 FAX 865-481-8818
WASTE STREAM NAME Nitric Acid Solution	PROCESS GENERATING WASTE

PHYSICAL CHARACTERISTICS OF WASTE

COLOR Clear	ODOR X NONE __ MILD STRONG DESCRIBE	PHYSICAL STATE @ 70 DEG F __ SOLID __ SLUDGE X LIQUID __ POWDER	LAYERS X HOMOGENOUS __BI__ MULTILAYERED
FREE LIQUIDS X YES __ NO VOLUME 100 %	pH __ N/A X ≤2 __ 2.1-4 __ 4-7 __ 7-10 __ 10-12.4 __ ≥12.5	SPECIFIC GRAVITY __ N/A RANGE	FLASH POINT CLOSED OPEN CUP NO FLASH X

CHEMICAL COMPOSITION (TOTAL MUST ADD TO 100%) ATTACH ANALYTICAL AND SPECIAL INFORMATION

Uranium - Natural	1 %		%
Nitric Acid	99 %		%
	%		%

METALS TOTAL (PPM) __ TCLP (MG/L) __ ANALYTICAL(ATTACHED) X GENERATOR KNOWLEDGE

ARSENIC N/A	BARIUM N/A	CADMIUM N/A	CHROMIUM N/A
CHROMIUM-HEX N/A	LEAD N/A	MERCURY N/A	SELENIUM N/A
SILVER N/A	COPPER N/A	NICKEL N/A	ZINC N/A
THALLIUM N/A			

OTHER COMPONENTS TOTAL (PPM) __ANALYTICAL (ATTACHED) X GENERATOR KNOWLEDGE

CYANIDES N/A	SULFIDES N/A	PCB'S N/A	PHENOLICS N/A
CHLORIDES N/A %	FLUORIDES N/A	PHOSPHATES N/A	NA+/K+ N/A

HAZARDOUS CHARACTERISTICS X USEPA HAZARDOUS WASTE __STATE HAZARDOUS WASTE

REACTIVITY:	NONE	PYROPHORIC	SHOCK SENSITIVE	EXPLOSIVE	WATER REACTIVE	OTHER
OTHER HAZARDS:		RADIOACTIVE X	ETIOLOGICAL	PESTICIDE	OTHER	

EPA WASTE CODES: D001, D002 STATE WASTE CODES:

SHIPPING INFORMATION X DOT HAZARDOUS MATERIAL

SHIPPING DESCRIPTION: Waste, Nitric acid solution		HAZARD CLASS 8(5.1,7)	UN/NA NO. 2031	R.Q.
SHIPPING METHOD Chase Truck	DRUM (TYPE SIZE) 5-gal poly	BULK LIQUID	BULK SOLID	
ANTICIPATED VOLUME:	<1 GALS	CUBIC YARDS	OTHER	
FREQUENCY:	ONE TIME ✓	WEEK	MONTH	QUARTER	YEAR

I HEREBY CERTIFY THAT ALL INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS IS COMPLETE AND ACCURATE, WITH DISCLOSURE OF ALL KNOWN OR SUSPECTED HAZARDS.

AUTHORIZED SIGNATURE John Lesky DATE 8/10/11

CFR 40 264.12(b) NSSI has the appropriate permit(s) to accept and receive the above profiled material

Authorized Signature _____ Date _____ PROFCHEM.DOC

NSSI/RECOVERY SERVICES, INC. WASTE PROFILE FORM

P.O. BOX 34042 HOUSTON, TX 77234 TEL 713-641-0391 FAX 713-641-6153 TXD 982560294 TX REG. 38669

GENERATOR NAME Arch Chemicals, Inc.
FACILITY ADDRESS 350 Knotter Drive
Cheshire, CT 06410
CONTACT John Lesky
PHONE 203-271-4076 FAX
USEPA ID. NO. CTD980916779 STATE ID NO.

BROKER NAME Chase Environmental Group, Inc.
BROKER ADDRESS 109 Flint Road
Oak Ridge, TN 37830
CONTACT Janet Baker
PHONE 865-481-8801 FAX 865-481-8818

WASTE STREAM NAME Toluene Standards

PROCESS GENERATING WASTE

PHYSICAL CHARACTERISTICS OF WASTE

COLOR	ODOR	PHYSICAL STATE @ 70 DEG F	LAYERS
Clear	NONE ✓ MILD STRONG DESCRIBE Solvent	__ SOLID __ SLUDGE ✓ LIQUID __ POWDER	✓ HOMOGENOUS __ BI __ MULTILAYERED
FREE LIQUIDS ✓ YES __ NO VOLUME 100 %	pH ✓ N/A __ ≤2 __ 2.1-4 __ 4-7 __ 7-10 __ 10-12.4 __ ≥12.5	SPECIFIC GRAVITY __ N/A RANGE	FLASH POINT CLOSED OPEN CUP NO FLASH

CHEMICAL COMPOSITION (TOTAL MUST ADD TO 100%) ATTACH ANALYTICAL AND SPECIAL INFORMATION

Toluene	100 %		%
	%		%
	%		%

METALS TOTAL (PPM) __ TCLP (MG/L) __ ANALYTICAL(ATTACHED) X GENERATOR KNOWLEDGE

ARSENIC N/A	BARIUM N/A	CADMIUM N/A	CHROMIUM N/A
CHROMIUM-HEX N/A	LEAD N/A	MERCURY N/A	SELENIUM N/A
SILVER N/A	COPPER N/A	NICKEL N/A	ZINC N/A
THALLIUM N/A			

OTHER COMPONENTS TOTAL (PPM) __ ANALYTICAL (ATTACHED) X GENERATOR KNOWLEDGE

CYANIDES N/A	SULFIDES N/A	PCB'S N/A	PHENOLICS N/A
CHLORIDES N/A %	FLUORIDES N/A	PHOSPHATES N/A	NA+/K+ N/A

HAZARDOUS CHARACTERISTICS X USEPA HAZARDOUS WASTE __ STATE HAZARDOUS WASTE

REACTIVITY:	NONE	PYROPHORIC	SHOCK SENSITIVE	EXPLOSIVE	WATER REACTIVE	OTHER
OTHER HAZARDS:		RADIOACTIVE X	ETIOLOGICAL	PESTICIDE	OTHER	

EPA WASTE CODES: STATE WASTE CODES:

SHIPPING INFORMATION X DOT HAZARDOUS MATERIAL

SHIPPING DESCRIPTION: Waste Flammable liquids n.o.s.	HAZARD CLASS 3	UN/NA NO. 1993	R.Q.
SHIPPING METHOD Chase Truck	DRUM (TYPE/SIZE) 5-gal. Steel	BULK LIQUID	BULK SOLID
ANTICIPATED VOLUME:	< 1 GALS	CUBIC YARDS	OTHER
FREQUENCY:	ONE TIME ✓	WEEK	MONTH	QUARTER	YEAR

I HEREBY CERTIFY THAT ALL INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS IS COMPLETE AND ACCURATE, WITH DISCLOSURE OF ALL KNOWN OR SUSPECTED HAZARDS.

AUTHORIZED SIGNATURE John Lesky DATE 8/10/11

CFR 40 264.12(b) NSSI has the appropriate permit(s) to accept and receive the above profiled material

Authorized Signature _____ Date _____ PROFCHEM.DOC

NSSI/RECOVERY SERVICES, INC.
BOX 34042
HOUSTON, TX 77234
TEL 713 641-0391 FAX 713 641-6153

SUPPLEMENTAL RADIOACTIVE WASTE PROFILE FORM

Generator Arch Chemicals, Inc. **Phone** (203) 271-4076
Address 350 Knotter Drive **Fax** ( )
E-mail
City Cheshire **State** CT **Zip** 06410 **USEPA ID No.** CTD980916779

DRUM NO.	WASTE TYPE	CONT SIZE (gal)	WASTE STREAM NAME	NUCLIDE	TOTAL ACTIVITY mCi	CONCENTRATION (As applicable) uCi/milliliter	uCi/gram
NS-LP-E-11-488	10	30	Flammable labpack	C-14 / H-3	3.16E+01 / 1.08E+00		
NS-LP-E-11-489	10	5	Nitric Acid Solution	U(nat)	4.29E-04		
NS-LP-E-11-490	10	5	Toluene Standards	C-14 / H-3	1.20E-03 / 2.40E-03		

[ ] THE ABOVE LISTED WASTE MATERIAL(S) ARE LIQUID SCINTILLATION OR ANIMAL TISSUE, OR WERE GENERATED FROM IN-VITRO OR IN-VIVO LABORATORY TESTING OR RESEARCH ACTIVITIES.

WASTE TYPES:

02. SCINTILLATION VIALS
02P. SCINTILLATION PLATES/PAPERS
02B. BULK SCINTILLATION LIQUID
03. BACTEC VIALS
04. BULK ORGANIC LIQUID
05. BULK AQUEOUS LIQUID
06. URANIUM/THORIUM COMPOUNDS
07. DRY NON-COMPACTED
07C. DRY COMPACTED
07N. DRY NON-COMPACTABLE
08. ANIMAL CARCASS
09. SEALED SOURCES
10. LABPACKED CONTAINERS
99.

AUTHORIZED SIGNATURE John Jerky
TITLE EHS Mgr. DATE 8/10/11

RADPROF.WPD

NSSI/RECOVERY SERVICES, INC.

5711 ETHERIDGE ST. HOUSTON, TX 77087
TXD982560294 TEL 713-641-0391 FAX 713-641-6153

LAND DISPOSAL NOTIFICATION AND CERTIFICATION FORM

GENERATOR: Arch Chemicals, Inc. **MANIFEST DOCUMENT NO.:**

STATE MANIFEST DOCUMENT NO.: 001872148551C

1. This waste is a [X] non-wastewater [ ] wastewater (40 CFR 268.2)
2. This waste is subject to any California List restrictions which are checked below:
[ ] HOC's [ ] PCB's [ ] Acid [ ] Metals [ ] Cyanides
3. Identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261. For each waste code, identify the corresponding subdivision, or check NONE if the waste code has no subdivision. Also check which treatment standards apply.

ITEM	US EPA HAZARDOUS WASTE CODE(S)	SUBDIVISION ENTER THE SUBDIVISION DESCRIPTION IF NOT APPLICABLE SIMPLY CHECK NONE NONE DESCRIPTION	CONCENTRATION IN MG/KG UNLESS NOTED AS MG/L TCLP OR TREATMENT TECHNOLOGY	MGMT MTHD
1	D001	Ignitable Characteristic Wastes	DEACT	A
2	D002	Corrosive Characteristic Wastes	DEACT	A
3	F005	Toluene	10	A

MANAGEMENT METHODS (MGMT MTHD)

A **RESTRICTED WASTE REQUIRES TREATMENT**
THIS WASTE MUST BE TREATED TO THE APPLICABLE TREATMENT STANDARDS SET FORTH IN 40 CFR PART 268 SUBPART D 268.32 OR RCRA SECTION 3004(D)

B **NON RCRA (APPENDIX IV OR V) LAB PACKS**
I CERTIFY UNDER PENALTY OF LAW THAT I PERSONALLY HAVE EXAMINED AND AM FAMILIAR WITH THE WASTE AND THAT THE LAB PACK DOES NOT CONTAIN ANY WASTES IDENTIFIED AT 268.42 (c)(2) I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING A FALSE CERTIFICATION, INCLUDING THE POSSIBILITY OF A FINE AND IMPRISONMENT " (268.7(b)(8))

C **RESTRICTED WASTES FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY (AND THE WASTE HAS BEEN TREATED BY THAT TECHNOLOGY)**
I CERTIFY UNDER PENALTY OF LAW THAT THE WASTE HAS BEEN TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF 40 CFR 268.42 I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING A FALSE CERTIFICATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT " (268.7(b)(5))

D. **RESTRICTED WASTE SUBJECT TO A VARIANCE**
THIS WASTE IS SUBJECT TO A NATIONAL CAPACITY VARIANCE A TREATABILITY VARIANCE, OR A CASE-BY-CASE EXTENSION

E **WASTE IS NOT CURRENTLY SUBJECT TO PART 268 RESTRICTIONS**
THIS WASTE IS A NEWLY IDENTIFIED WASTE THAT IS NOT CURRENTLY SUBJECT TO ANY 40 CFR PART 268 RESTRICTIONS.

I CERTIFY UNDER PENALTY OF LAW THAT I PERSONALLY HAVE EXAMINED AND AM FAMILIAR WITH THE WASTE THROUGH THE ANALYSIS AND TESTING OR THROUGH KNOWLEDGE OF THE WASTE TO SUPPORT THIS CERTIFICATION AS REQUIRED BY THE TREATMENT STANDARDS SPECIFIED IN 40 CFR 268 SUBPART D AND ALL APPLICABLE PROHIBITIONS SET FORTH IN 40 CFR 268.32 OR RCRA 3004 (d). I BELIEVE THAT THE INFORMATION I SUBMITTED IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING A FALSE CERTIFICATION, INCLUDING THE POSSIBILITY OF FINE OR IMPRISONMENT (268.7(a)(2)(i))

SIGNATURE John Jesky TITLE EHS Mgr. DATE 8/10/11

NRC FORM 540

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBE (INCLUDE AREA CODE): 800-424-9300

ORGANIZATION: Chemtrec — WSDS #: CHEN03MXWST

[ ] YES [X] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 3

[X] YES [ ] NO

EPA MANIFEST NUMBER: 001872148JJ1

5. SHIPPER- NAME AND FACILITY
Chase Environmental Group, Inc.
11450 Watterson Court
Louisville, KY 40299

SHIPPER ID #: N/A

X COLLECTOR
PROCESSOR

USER PERMIT NUMBER: T-KY003-L11
SHIPMENT #: N/A

CONTACT: Janet Baker
TELEPHONE #: 865-250-4593

6. CARRIER NAME AND ADDRESS
SJ Transportation Co., Inc.
PO Box 169
Woodstown, NJ 08098

EPA ID #: NJD071629976

SHIPPING DATE: 8/10/2011

CONTACT: Kevin Elder
TELEPHONE #: 856-769-2741

SIGNATURE: D Joseph Gremis
DATE: 8/10/11

PAGE 1 OF
.1 PAGE(S)
__1__PAGE(S)
__1__PAGE(S)
None PAGE(S)

8. Manifest Number
(Use the number on all continuation pages)
NS-2011-203

9. CONSIGNEE-NAME AND FACILITY ADDRESS
NSSI, Inc.
5711 Etheridge Road
Houston, TX 77087

Contact: Bob Gallagher
Telephone Number (Include area code): 713-641-0391

SIGNATURE: Authorized consignee acknowledging waste receipt

Date

10. Certification

AUTHORIZED SIGNATURE: D Joseph Gremis
TITLE: Technician
DATE: 8/10/11

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (including proper shipping name, hazard class, UN ID number and any additional information)	12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY IN MBq	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME m^3	19. ID NUMBER OF PACKAGE
UN2915, Waste Radioactive material, Type A package, 7 (3, 6.1) One drum with mixed waste for disposal	White-I	NA	Liquid/solvent	C-14; H-3	1.21E+03	NA	0.114	NS-LP-E-11-488
UN2031, Waste Nitric acid solution, 8 (5.1, 7), PG II, Limited quantity radioactive material Nitric acid solution for disposal	NA	NA	Liquid/acid	U (nat)	1.59E-02	NA	0.019	NS-LP-E-11-489
UN1993, Waste Flammable liquids, n.o.s., 3, PG II (Conains toluene) Toluene standards for disposal	NA	NA	Liquid/solvent	C-14; H-3	1.33E-01	NA	0.019	NS-LP-E-11-490

CONSIGNEE ORIGINAL (MUST ACCOMPANY WASTE IN TRANSIT)

NRC FORM 541 — U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

1. MANIFEST TOTALS

NUMBER OF PACKAGES	NET WASTE VOL. m3	NET WASTE WGHT kg	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
3	0.152	58.5	NP	NP	NP	NP

ACTIVITY (MBq/mCi) ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)
1.21E+03 MBq	4.00E+01	1.17E+03	NP	NP	6.04E-04
3.26E+01 mCi	1.08E+00	3.16E+01			

2. MANIFEST NUMBER NS-2011-203

3 PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME Chase Env. Group

SHIPPER ID NUMBER N/A

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR NUMBER	6. CONTAINER DESCRIPTION (See Note 1)	7. VOLUME (m3)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL X uSv/hr ___ mSv/hr	10. SURFACE CONTAMINATION MBq/100 cm2 ALPHA	BETA GAMMA	11. WASTE DESCRIPTOR (See Note 2)	12. Approximate waste volume in container (m3)	13. SORBENT SOLIDIFICATION STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM CHELATING AGENT	WEIGHT % CHELATING AGENT (< 0.1%)	15. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT) Nuclide	MBq	mCi	16. WASTE CLASS A STABLE A UNSTABLE B CLASS B C CLASS C
NS-LP-E-11-488 0542	4	0.114	52	<5.00	<3.67E-6	<3.67E-5	28, 59 Flammable Toxic labpack	0.114	89 absorbent pads	Solvent/NP	NP	C-14 H-3 **Package total**	1.17E+03 4.00E+01 **1.21E+03**	3.16E+01 1.08E+00 **3.26E+01**	NA
NS-LP-E-11-489 0542	3	0.019	4	<5.00	<3.67E-6	<3.67E-5	28, 59 Nitric acid solution	0.019	89 absorbent pads	Acid/NP	NP	U (nat) [6.04E-04 kg] **Package total**	1.59E-02 **1.59E-02**	4.29E-04 **4.29E-04**	NA
NS-LP-E-11-490 0542	3	0.019	25	<5.00	<3.67E-6	<3.67E-5	28, 59 Toluene standards	0.019	89 absorbent pads	Solvent/NP	NP	C-14 H-3 **Package total**	4.44E-02 8.88E-02 **1.33E-01**	1.20E-03 2.40E-03 **3.60E-03**	NA

NOTE 1 Container Description Codes: For containers/ waste requiring disposal in approved structural overpacks, the numerical code must be followed by "OP."

1 Wooden Box or Crate
2 Metal Box
3 Steel Drum or Pail
4 Metal Drum or Pail
5 Metal Tank or Liner
6 Concrete Tank or Liner
7 Polyethylene Tank or Liner
8 Fiberglass Tank or Liner
9 Dewaterizer
10 Gas Cylinder
11 Bulk, Unpackaged Waste
12 Unpackaged Components
13 High Integrity Container
14 Other (describe in item 6, or additional page)

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

20 Charcoal
21 Incinerator Ash
22 Soil
23 Gas
24 Oil
25 Aqueous Liq
26 Filter Media
27 Mechanical
28 FDA or State Hazardous
29 Demolition Rubble
30 Cation Ion Exchange Media
31 Anion Ion Exchange Media
32 Mixed Ion Exchange Media
33 Contaminated Equipment
34 Organic Liquid (Except Oil)
35 Glassware or Labware
36 Sewage Sludge/Sewage
37 Plant or Animal
38 Evaporator Bottoms/Sludges/Concentrates
39 Compactable Trash
40 Noncompactable Trash
41 Animal Carcass
42 Biological Material (Except Animal Car
43 Activated Material
99 Other (Describe in Item 11, or Additional Page)

Note 3 For solidification media that meet disposal site structural stability requirements, the numerical code must be followed by "S."

For all solidification media, the vendor (manufacturer) and brand name must also be identified in item 13. Code 100 (NONE IS SUITED)

Sorption

60 Speedi Dri
61 Celetom
62 Floor Dry/ Superfine
63 Hi Dri
64 Safe-T-Sorb
65 Safe-N-Dri
66 Floor
67 Floor-X
68 Solid-A-Sorb
69 Chemrat 30
70 Chemrat 50
71 Chemrat 3030
72 Decapet HP200
73 Decapet HP40
74 Celmatrix
75 Celmatrix II
76 Aquamat
77 Aquamat II
99 Other (Describe in Item 11, or additional page)

Solidification

90 Cement
91 Concrete (Describe in item 11)
92 Bitumen
93 Vinyl Chloride
94 Vinyl Ester Styrene
99 Other (Describe in item 11, or Additional Page)

100 None Required

NRC FORM 542 U.S. NUCLEAR REGULATORY COMMISSION
(5-1998)

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

MANIFEST INDEX AND REGIONAL COMPACT TABULATION

List all original "PROCESSED WASTE," before "COLLECTED WASTE"

1 WASTE COLLECTOR/PROCESSOR
NAME: Chase Environmental Group, Inc.
IDENTIFICATION NUMBER: T-KY003-L11
SHIPPING DATE: 8/10/2011

SHIPPER USE ONLY

2 MANIFEST NUMBER: NS-2011-203

3 PAGE 1 OF 1 PAGE(S)

4 GENERATOR IDENTIFICATION NUMBER	5. GENERATOR NAME PERMIT NUMBER AND TELEPHONE NUMBER	6 GENERATOR FACILITY ADDRESS	7. PRE-PROCESSED WASTE (BY MATERIAL) VOLUME (m3)	8 WASTE NUMBER	9 WASTE CODE	10	11 AS PROCESSED/COLLECTED TOTAL A. SOURCE MATERIAL (kg)	B. SNM (g)	C. ACTIVITY (MBq)	D. VOLUME (m3)
0542	Arch Chemicals, Inc. 203-271-4076	350 Knotter Drive Cheshire, CT 06410	0.152	NA	C	CT	6.04E-04	NP	1.21E+03	0.152
TOTALS OF ALL PAGES (NRC FORMS 542 AND 542A)							6.04E-04	0.000	1.21E+03	0.152

NRC FORM 540

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBER (INCLUDE AREA CODE): 800-424-9300

ORGANIZATION: Chemtrec WSDS #: CHEN01RAD

[ ] YES [X] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 1

[ ] YES [x] NO

EPA MANIFEST NUMBER: NA

5. SHIPPER- NAME AND FACILITY
Chase Environmental Group, Inc.
11450 Watterson Court
Louisville, KY 40299

SHIPPER ID #: N/A

X COLLECTOR
PROCESSOR

USER PERMIT NUMBER: T-KY003-L11

SHIPMENT #: N/A

CONTACT: Janet Baker

TELEPHONE #: 865-481-8801

6. CARRIER NAME AND ADDRESS
SJ Transportation Co., Inc.
PO Box 169
Woodstown, NJ 08098

EPA ID #: NJD071629976

SHIPPING DATE: 8/4/2011

CONTACT: Kevin Elder

TELEPHONE #: 856-769-2741

SIGNATURE: D Joseph Grenier

DATE: 8/10/11

PAGE 1 1 PAGE(S)
OF 1 PAGE(S)
1 PAGE(S)
None PAGE(S)

8. Manifest Number
(Use the number on all continuation pages.)
TO-2011-202

9. CONSIGNEE NAME AND FACILITY ADDRESS
TOXCO, Inc.
109 Flint Road
Oak Ridge, TN 37830

Contact: Rick Low

Telephone Number (Include area code): 865-482-5532

SIGNATURE Authorized consignee acknowledging waste receipt

Date

10. Certification

AUTHORIZED SIGNATURE: D Joseph Grenier

TITLE: Technician

DATE: 8/10/11

11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number and any additional information)	12. DOT LABEL RADIOACTIVE	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM	15. INDIVIDUAL RADIONUCLIDES	16. TOTAL PACKAGE ACTIVITY IN MBq	17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME m^3	19. ID NUMBER OF PACKAGE
UN2910, Radioactive material, excepted package-limited quantity of material, 7 One drum with dry active waste for disposal	NA	NA	Solid/oxide	C-14; U (nat)	2.09E+00	NA	0.212	TO-CT-E-11-491
Non DOT Regulated Material One drum with non-hazardous LSV for disposal	NA	NA	Liquid/scintillation fluid	C-14	1.67E+00	NA	0.019	TO-VL-E-11-492

Generator Certification Statement:
The constituents of the waste manifested herein are known to the generator. There are no EPA RCRA, pathogenic or other hazards present other than those specifically listed on the Form 541.

John Leiky — Print name
John Leiky — Signature
8/10/11 — Date

CONSIGNEE ORIGINAL (MUST ACCOMPANY WASTE IN TRANSIT)

NRC FORM 541 US NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

1. MANIFEST TOTALS

NUMBER OF PACKAGES	NET WEIGHT VOLUME (m3)	NET WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
1	0.231	35	NP	NP	NP	NP

ACTIVITY (MBq/mCi) ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)
3.75E+00 MBq	NP	1.70E+00	NP	NP	7.80E-02
1.01E-01 mCi		4.60E-02			

2. MANIFEST NUMBER TO-2011-202

3 PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME Chase Env. Group

SHIPPER ID NUMBER N/A

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR NUMBER	6 CONTAINER DESCRIPTION (See Note 1)	7 VOLUME (m3)	8 WASTE AND CONTAINER WEIGHT (kg)	9 SURFACE RADIATION LEVEL X mSv/hr	10 SURFACE CONTAMINATION MBq/100 cm2 ALPHA	BETA GAMMA	11 WASTE DESCRIPTION (See Note 2)	12 Approximate WASTE VOLUME (m3)	13 WASTE SOLIDIFICATION STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT	15. RADIOLOGICAL DESCRIPTION INDIVIDUAL PARTICLES AND ACTIVITY (MBq) AND CONTAINER TOTAL ACTIVITY AND PARAMETRIC PLACEMENT Nuclide	MBq	mCi	16. WASTE CLASS AS A STABLE AND UNSTABLE BLENDED CLASS
TO-CT-E-11-491 0542	4	0.212	29	<5.00	<3.67E-6	<3.67E-5	39	0.212	100	Oxide/NP	NP	C-14	3.70E-02	1.00E-03	NA
												U (nat) [7.80E-02 kg]	2.05E+00	5.54E-02	
												Package total	2.09E+00	5.64E-02	
TO-VL-E-11-492 0542	4	0.019	6	<5.00	<3.67E-6	<3.67E-5	59 non-haz LSV	0.019	100	Scintillation fluid/NP	NP	C-14	1.67E+00	4.50E-02	NA
												Package total	1.67E+00	4.50E-02	

NOTE 1: Container Description Codes: For containerized waste requiring disposal in approved structural overpacks, the numerical code must be followed by "OP".

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

Note 2: Waste Description Codes. (Give up to three which predominate by volume.)

20 Charcoal
21 Incinerator Ash
22 Soil
23 Gas
24 Oil
25 Aqueous Liquid
26 Filter Media
27 Mechanical Hazardous
28 PVA or Slide
29 Demolition Rubble
30 Cellulose Filter Media
31 Anion Ion Exchange Media
32 Mixed Bed Ion Exchange Media
33 Contaminated Equipment
34 Organic Liquid (Except Oil)
35 Glassware or Labware
36 Sealed Sources/Devices
37 Pipe or Piping
38 Evaporator Bottoms/Sludges/Concentrates
39 Compactible Trash
40 Noncompactible Trash
41 Animal Carcasses
42 Biological Material (Except Animal Carcasses)
43 Activated Material
44 Other (Describe in Item 11, or Additional Page)

Note 3: For solidification media that meet disposal site structural stability requirements, the numerical code must be followed by "S".
For all solidification media, the vendor (manufacturer) and brand name must also be identified in Item 15. Code 100 - 120 RESERVED

Solidification

60. Sperdi Dri
61. Celetom
62. Hoca Dry/ Superlate
63. Hi Dri
64. Safe T Sorb
65. Safe-N-Dri
66. Tasco
67. Tasco A
68. Sand A Sorb
69. Chemical 30
70. Chemical 40
71. Chemical 30/40
72. Dupont HP200
73. Dupont HP300
74. Petroset
75. Petroset B
76. Aquaset
77. Aquaset B
78. Other (Describe in Item 11, or Additional page)
79. Cement
80. Concrete (Encapsulation)
81. Bitumen
82. Vinyl Chloride
83. Vinyl Ester Styrene
84. Other (Describe in Item 11, or Additional Page)
100. None Required

NRC FORM 542 U.S. NUCLEAR REGULATORY COMMISSION
(5-1998)

UNIFORM NARM RADIOACTIVE WASTE MANIFEST

MANIFEST INDEX AND REGIONAL COMPACT TABULATION

List all original "PROCESSED WASTE" before "COLLECTED WASTE"

1 WASTE COLLECTOR/PROCESSOR
NAME: Chase Environmental Group, Inc.
IDENTIFICATION NUMBER: T-KY003-L11
SHIPPING DATE: 8/10/2011

SHIPPER USE ONLY

2 MANIFEST NUMBER: TO-2011-202

3 PAGE 1 OF 1 PAGE(S)

4 GENERATOR IDENTIFICATION NUMBER	5 GENERATOR NAME PERMIT NUMBER AND TELEPHONE NUMBER	6 GENERATOR FACILITY ADDRESS	7 PRE-PROCESSED WASTE (OR MATERIAL) VOLUME (m3)	8 [illegible]	9 WASTE CODE	10 [illegible]	11 AS PROCESSED/COLLECTED TOTAL A SOURCE MATERIAL (kg)	B SNM (g)	C ACTIVITY (MBq)	D VOLUME (m3)
0542	Arch Chemicals, Inc. 203-271-4076	350 Knotter Drive Cheshire, CT 06410	0.231	NA	C	CT	7.80E-02	NP	3.75E+00	0.231
TOTALS OF ALL PAGES (NRC FORMS 542 AND 542A)							7.80E-02	0.000	3.75E+00	0.231

From: (203) 271-4078
James Ritter
Arch Chemicals, Inc.
350 Knotter Drive

Cheshire, CT 06410

Origin ID: BNHA

FedEx Express

J11201104290225

Ship Date: 11AUG11
ActWgt: 1.0 LB
CAD: 102107046/INET3180

Delivery Address Bar Code

SHIP TO: (610) 337-5000 BILL SENDER

Nuclear Materials Safety Branch
U.S. Nuclear Regulatory Commission
475 ALLENDALE RD

KING OF PRUSSIA, PA 19406

Licensing Assistant Section

Ref # 1561990
Invoice #
PO #
Dept #

FRI - 12 AUG A2
PRIORITY OVERNIGHT

TRK# 7950 6924 4018
0201

ZR KPDA

19406
PA-US
PHL

50FG1/EEE7/F5F4

After printing this label:
1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.

This is to acknowledge the receipt of your letter/application dated

8/10/2011, and to inform you that the initial processing which includes an administrative review has been performed.

Termination (06-08166-03)

☒ There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

☐ Please provide to this office within 30 days of your receipt of this card

_____.

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 575795.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (RI)
(6-96)

Sincerely,
Licensing Assistance Team Leader