UNIVERSITY OF WASHINGTON

ENVIRONMENTAL HEALTH AND SAFETY
201 Hall Health Center Box 354400
Seattle, Washington 98195-4400
Phone 206.543.0463 FAX 206.543.3351
www.ehs.washington.edu

February 26, 2007

Alexander Adams
US Nuclear Regulatory Commission
Mail Stop
O – 12 – G -15
One White Flint North
11555 Rockville Pike
Rockville, Maryland 20852-2738

Re: Termination of NRC License # R-73

Dear Alexander:

The University is pleased to submit the revised Final Status Survey Report for the University of Washington More Hall Annex Decommissioning Project. We believe the enclosed controlled copy demonstrates that the conditions and requirements of 10CFR 50.82 B6 have been met, and addresses the NRC Request for Additional Information dated February 7, 2007. The responses to your questions of February 7, 2007, along with necessary back-up documentation, are attached to this letter and, where appropriate, corresponding changes to the Final Status Survey are indicated with a vertical bar in the left hand margin.

We believe the final status survey process has established that the More Hall Annex is now suitable for release from radiological controls. The enclosed revised Final Status Survey Report provides the necessary documentation demonstrating the radiological condition of the facility and responds to the NRC review comments. This document also supports the conclusion that the University of Washington has complied with NRC decommissioning requirements. Based on this, the University of Washington is now requesting termination of United States Nuclear Commission License number R-73. Please contact me with any questions about this request.

Sincerely,

Stanley J Addison

Stanley J. Addison, M.S.
UW Radiation Safety Officer

I declare under penalty of perjury that, to the best of my knowledge, the forgoing is true and correct. Executed 2/26/07

Copy: Marty Howlett, Project Manager, Capital Projects Office
Jeff Angeley, Associate Construction Manager, Capital Projects Office

A020

REQUEST FOR ADDITIONAL INFORMATION
UNIVERSITY OF WASHINGTON RESEARCH REACTOR
FINAL STATUS SURVEY REPORT
DOCKET NO. 50-139

1. The cited nominal efficiency values for Alpha Gas Proportional detectors in Tables 5-1 and 5-2 and the text in Section 5.3.1.1 are inconsistent. The nominal efficiency values should be consistent in the document, and the associated Minimum Detectable Activities (and Probabilities of Detection) should be calculated using the same efficiency value for a given instrument combination/measurement type. Please update this information to be consistent.

2. Section 5.3.2, Instrument Calibration, does not include a discussion of calibration sources (isotope, material, and geometry) and source-to-detector distance for each type of radiation measurement (alpha, beta, gamma). Please provide this information.

3. Section 7.1.3.3 describes the use of a 50 cm^2 air proportional detector for assessing total alpha activity inside the fuel storage tubes (10 cm diameter). Table 7-2 describes three elevated alpha activity results and the associated weighted average. Please provide the source-to-detector distance and the method of determining the net results in dpm/100 cm^2 (e.g., was the measurement result doubled since the detector is 50 cm^2 in area?). Discuss if the source-to-detector distance results in an underestimation or overestimation in the efficiency and results.

4. Section 4.3.2 of the Decommissioning Plan states that "For direct methods of surface monitoring, the scanning speed will be slow enough to ensure a source detection probability of at least 25% of the guideline level." The calculated scan MDC for beta surface activity, as specified in Table 3-3 of the Final Site Survey Plan (FSSP), is less than 25% of the release criteria for gas proportional detectors, but is not less than 25% of the release criteria for beta friskers. Furthermore, the scan MDC for alpha surface activity specified in Table 3-3 of the FSSP is 160 dpm/100 cm^2, which is not less than 25% of the release criteria. Standard final site survey instrumentation is typically not capable of detecting radioactivity at 25% of the Regulatory Guide 1.86 release criteria when utilized for scanning, nor is there a regulatory requirement that scanning instrumentation should be capable of detecting radioactivity at these levels. Please develop and submit a technical basis to justify the deviation from the requirements of the DP or revise the DP accordingly. If you revise the DP, please submit a copy of the revision paperwork.

5. Because of your revision to release criteria that occurred after NRC's site visit to account for tritium, please collect and submit additional measurements around two locations of interest on the bioshield floor (grid location B,1) and bioshield interior south wall (grid location E,-1), to verify that the square-meter average is less than the modified average beta contamination limit of 1,700 dpm/100 cm^2. The individual measurement results for these locations were 3,700 and 1,800 dpm/100 cm^2, respectively.

SERVICES

UW More Hall Annex Decommissioning Project Document Comments Form

ENERCON Services, Inc.

Document		**Final Status Survey Report**	**Document No.: UW-MCP-OP-13 Rev. 1**
Commenter(s)		**NRC Docket # 50-139 RAI (February 7, 2007)**	**Document Date: December 6, 2006**
			Project Number 10492
Comment No.	**Section/ Page**	**Comments**	**Responses**
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2	5.3.2	ORISE recommends the section 5.3.2, Instrument Calibration, include a discussion of calibration sources (isotope, material, and geometry) and source-to-detector distance for each type of radiation measurement (alpha, beta, gamma).	A short description of the daily response checks and the associated sources has been added to Section 5.3.2 of the FSS report.
3	7.1.3.3	Section 7.1.3.3 describes the use of a 50 cm^2 air proportional detector for assessing total alpha activity inside the fuel storage tubes (10 cm diameter). Table 7-2 describes three elevated alpha activity results and the associated weighted average. ORISE recommends including additional information in the report that describes 1) the source-to-detector distance and 2) the method of determining net results in dpm/100 cm^2 (e.g. was the measurement result doubled since the detector is 50 cm^2 in area?). The additional information should support the premise that the source-to-detector distance did not result in an overestimation in the efficiency, and therefore underestimation of the result.	A discussion has been added to Section 7.1.3.3 of the FSSR on the use of the 50-cm^2 detector in the fuel storage tubes. Section 6.2 of the FSSR details the data conversion process which includes detector area correction for all measurements based upon the detector utilized.

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1. Purpose

The NRC letter dated 1/31/06 (Re: Authority to Make Changes to the Decommissioning Plan) establishes the conditions under which the licensee may make changes to the facility, decommissioning plan or related procedures without NRC approval. The More Hall Annex Decommissioning Plan has been approved by the NRC. During the decommissioning process it may be subject to modifications to accommodate alternate contractor methods, address unforeseen site conditions or safety considerations.

This procedure provides the means for the University of Washington, as licensee, to evaluate and accept changes to the facility or procedures, methods of performing or controlling in accordance with the NRC letter dated 1/31/06 and thereby without obtaining NRC approval.

2. Applicability

2.1 This procedure is not intended to modify aspects of the Decommissioning Plan related to the DECON decommissioning option such as:

- 2.1.1 The criteria for unrestricted release of the facility and the site,
- 2.1.2 The Technical Safety Committee
- 2.1.3 Radiation exposure limits as required under 10 CFR Part 20.

Therefore, the following sections of the Decommissioning Plan are specifically exempt from this modification procedure and will require NRC approval prior to modification.

Reference	Topic
1.3.1	Selected Method
1.3.7.1	Surface contamination shall be below the limits specified in Table 1, "Acceptable Surface Contaminations Levels," of USNRC Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors."
1.3.7.2	Residual radioactivity shall not cause area dose levels to exceed 5 urem/hr above background at 1 meter above the surface of the radioactive materials.
2.1	Decommissioning Alternative
2.3.2	Technical and Safety Committee
2.6	Radioactive Materials Unrestricted Release Criteria
3.2.2	Occupational Radiation Exposure Limits

2.2 In accordance with paragraph 10.0(b)(1) of the Decommissioning Plan (as amended), the University may make changes in the facility or in procedures as described in the Decommissioning Plan where:

- 2.2.1 A change to the technical specification as incorporated in the license is not required and
- 2.2.2 None of the conditions in paragraph 2.3.1 through 2.3.6 listed below will result.

2.3 In accordance with paragraph 10.0(b)(2) of the Decommissioning Plan (as amended), the University must obtain NRC approval prior to implementing a proposed change where the change may result in any of the following conditions:

- 2.3.1 Results in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the Decommissioning Plan

2.3.2 Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the Decommissioning Plan.

2.3.3 Result in more than a minimal increase in the consequences of an accident previously evaluated in the Decommissioning Plan.

2.3.4 Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the Decommissioning Plan.

2.3.5 Create a possibility for an accident of a different type than any previously evaluated in the Decommissioning Plan.

2.3.6 Result in a departure from a method of evaluation described in the Decommissioning Plan used in establishing the design bases or in the safety analyses.

2.4 In accordance with paragraph 10.0(a)(1) of the Decommissioning Plan (as amended), a change to the Decommissioning Plan will refer to:

2.4.1 A modification or addition to, or removal from, the facility or procedures that affect a design function, method of performing or controlling the function, or an evaluation that demonstrates that intended functions will be accomplished.

2.4.2 Departure from a method of evaluation described in the Decommissioning Plan (as amended) used in establishing the design basis or in the safety analysis will mean:

i. Changing any of the elements of the method(s) described in the Decommissioning Plan (as amended) unless the result of the analysis are conservative or essentially the same.

ii. Change to a method described in the Decommissioning Plan (as amended) to another method, unless that proposed method has been approved by the NRC for the intended application.

3. Evaluation Process

3.1 The Safety Evaluation form found in Appendix A of this procedure shall be completed to address the applicable criteria.

3.2 Appendix A Part A must clearly define the proposed change, citing the existing document and substitution.

3.3 Applicability of the NRC letter dated 1/31/06 is determined by Part B of the evaluation form. A "Yes" answer to any of the questions in Part B invalidates the use of this procedure for Decommissioning Plan change approval.

3.4 Once it is determined that a given activity meets the evaluation criteria under this procedure, Part C will be reviewed for acceptance by the licensee Technical Safety Committee.

4. Recordkeeping

a. The University will submit, as specified in 10 CFR 50.4 and in accordance with the paragraph 10.0(c)(2) of the Decommissioning Plan (as amended), a report containing a brief description of any changes that are adopted, including a summary of the evaluation of each. A report will be submitted to the NRC at intervals not to exceed 24 months.

b. The University will maintain records of all changes in the facility or procedures as adopted under this procedure. The records will be maintained until termination of facility license R-73 has been issued by the NRC or at least 5 years, whichever is longer.

APPENDIX A MORE HALL REACTOR DECOMMISSIONING PLAN CHANGE EVALUATION FORM

INSTRUCTIONS:
The requestor will complete this checklist. For each question, sufficient information must be provided to substantiate the response. This information must be provided on a separate form and attached to this checklist.

PART A DESCRIPTION OF PROPOSED CHANGE

REQUESTOR: TODD BRATTIGAM

SIGNATURE: Todd A. Brattigam TITLE: FSS COORDINATOR DATE: 11/09/2006

PROPOSED CHANGE DESCRIPTION (ATTACH ADDITIONAL INFORMATION AS NECESSARY:

CHANGE SECTION 4.3.2 PARAGRAPH 2 SENTENCE 2 TO READ AS FOLLOWS:

"FOR DIRECT METHODS OF SURFACE MONITORING, THE SCANNING SPEED WILL BE SLOW ENOUGH TO ENSURE A SOURCE DETECTION PROBABILITY OF AT LEAST 25% OF THE GUIDELINE LEVEL FOR BETA EMITTERS AND LESS THAN THE UPPER GUIDELINE LEVEL FOR ALPHA EMITTERS."

DISCUSSION SUPPORTING THIS CHANGE REQUEST IS ATTACHED.

PART B APPLICABILITY

1.	Will the change result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the Decommissioning Plan?	☐ Yes X No
2.	Will the change result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component important to safety previously evaluated in the Decommissioning Plan?	☐ Yes X No
3.	Will the change result in more than a minimal increase in the consequences of an accident previously evaluated in the Decommissioning Plan?	☐ Yes X No
4.	Will the change result in more than a minimal increase in the consequences of a malfunction of a structure, system or component important to safety as previously evaluated in the Decommissioning Plan?	☐ Yes X No

PART C CRITERIA FOR ACCEPTANCE

1.	Will the proposed change require a change to the *Final Status Survey Plan*?	☐ Yes X No
2.	Will the proposed change involve the potential to have an adverse effect on the environment?	☐ Yes X No
3.	Does the proposed change increase the potential radioactive dose to facility personnel? If so, protective measures and dose calculations must be provided for evaluation.	☐ Yes X No
4.	Does the proposed change increase the potential radioactive dose to the public? If so, protective measures and dose calculation must be provided for evaluation.	☐ Yes X No
5.	Does the proposed change require revisions to the contractor *Work Plan*? If so, provide revisions.	☐ Yes X No
6.	Does the proposed change require revisions to the contractor *Site Health and Safety Plan (SHASP)*? If so, provide revisions to the SHASP addressing the changes.	☐ Yes X No

APPROVALS:

Stanley J. Addison 11/22/2006

TECHNICAL SAFETY COMMITTEE DATE

Tom Meek 11/18/2006

ADVISING HEALTH PHYSICIST DATE

DISCUSSION IN SUPPORT OF THE CHANGE REQUEST

For the radionuclides of concern present at UWNR, Regulatory Guide 1.86 establishes guideline criteria as follows:

Emitter Type	Average Static Activity	Maximum Static Activity	Removable Activity
Alpha	100 dpm/100cm^2 (over not more than 1-m^2)	300 dpm/100cm^2 (over not more than 100-cm^2)	20 dpm/100cm^2
Beta	5,000 dpm/100cm^2 (over not more than 1-m^2)	15,000 dpm/100cm^2 (over not more than 1-m^2)	1,000 dpm/100cm^2

Alpha-emission detecting field instrumentation does not exist that is capable of meeting a Minimum Detectable Activity (MDA) of <25% of the average guideline criteria (25 dpm/100cm^2) during scanning evolutions. The nuclear industry standard is to meet a scan MDA for beta emitters of 25% and less than the upper guideline limit (300 dpm/100cm^2) for alpha emitters. This change would bring the Decommissioning Plan into accordance with typical industry standards and eliminate a situation where the DP requirements are not capable of being met.

Oak Ridge Institute for Science and Education (ORISE), the independent verification contractor employed by the US Nuclear Regulatory Commission (NRC), concurs with this position and has stated in their report from the August in-process inspection:

> "ORISE recognizes that standard FSS instrumentation is not capable of detecting radioactivity at 25% of the Regulatory Guide 1.86 release criteria when utilized for scanning, nor is there a regulatory requirement that scanning instrumentation should be capable of detecting radioactivity at these levels."

The final status survey for alpha affected areas consisted of alpha scans, beta/gamma scans, alpha static and beta/gamma static measurements. The scan MDA of <25% was met for beta/gamma measurements. The alpha activity limit for facility license termination is not affected since the release limit is based on the static measurements. The MDA for the static measurements also met the Decommissioning plan criteria. Therefore the final level of radioactivity remaining in the UWNR facility meets the release criteria of the Decommissioning Plan, Regulatory Guide 1.86 and the regulatory requirement from 10CFR20.

REVISED FINAL STATUS SURVEY REPORT

UNIVERSITY OF WASHINGTON NUCLEAR REACTOR

NRC LICENSE NUMBER R-73

UW-MCP-OP-13
Rev. 2
February 22, 2007

Prepared for the University of Washington by:
ENERCON Services, Inc.
4499 Old William Penn Highway
Murrysville, PA 15668

Richard Moss, Executive Engineer
Energy Solutions
143 West Street
New Milford, CT 06776

University of Washington Project #10492

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

February 7, 2007

RECEIVED
FEB 13 2007
CAPITAL PROJECTS

Dr. Stanley Addison, Radiation Safety Officer
Environmental Health and Safety
University of Washington
223 Hall Health Center
Mail Stop 354400
Seattle, Washington 98195-4400

SUBJECT: UNIVERSITY OF WASHINGTON—REQUEST FOR ADDITIONAL INFORMATION RE: LICENSE TERMINATION (TAC NO. MD2586)

Dear Dr. Addison:

We are continuing our review of your request for termination of Facility License No. R-73 for the University of Washington Research Reactor which you submitted on December 13, 2006. During our review of your Final Status Survey Report, questions have arisen for which we require additional information and clarification. Please provide responses to the enclosed request for additional information within 30 days of the date of this letter. In accordance with 10 CFR 50.30(b), your response must be executed in a signed original under oath or affirmation. Following receipt of the additional information, we will continue our evaluation of your request.

If you have any questions regarding this review, please contact me at (301) 415-1127.

Sincerely,

Alexander Adams, Jr., Senior Project Manager
Research and Test Reactors Branch A
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-139
License No. R-73

Enclosure: As stated

cc w/enclosure: See next page

cc:

Dr. M. Carette, Assistant to the Dean
College of Engineering
University of Washington
Box 352180
Seattle, WA 98195-2180

Stanley Addison, Radiation Safety Officer
Environmental Health and Safety
University of Washington
Hall Health Center
Box 354400
Seattle, WA 98195-4400

Elizabeth Kane, Project Manager
Capital Projects Office
University of Washington
University Facilities Annex 2
Box 352205
Seattle, WA 98195-2205

Dr. Mani Soma, Acting Dean
College of Engineering
University of Washington
P.O. Box 352180
Seattle, WA 98195-2180

Test, Research, and Training
Reactor Newsletter
University of Florida
202 Nuclear Sciences Center
Gainesville, FL 32611

REQUEST FOR ADDITIONAL INFORMATION
UNIVERSITY OF WASHINGTON RESEARCH REACTOR
FINAL STATUS SURVEY REPORT
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ENERCON Services, Inc.

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2.2.1 A change to the technical specification as incorporated in the license is not required and

2.2.2 None of the conditions in paragraph 2.3.1 through 2.3.6 listed below will result.

2.3 In accordance with paragraph 10.0(b)(2) of the Decommissioning Plan (as amended), the University must obtain NRC approval prior to implementing a proposed change where the change may result in any of the following conditions:

2.3.1 Results in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the Decommissioning Plan

2.3.2 Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the Decommissioning Plan.

2.3.3 Result in more than a minimal increase in the consequences of an accident previously evaluated in the Decommissioning Plan.

2.3.4 Result in more than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the Decommissioning Plan.

2.3.5 Create a possibility for an accident of a different type than any previously evaluated in the Decommissioning Plan.

2.3.6 Result in a departure from a method of evaluation described in the Decommissioning Plan used in establishing the design bases or in the safety analyses.

2.4 In accordance with paragraph 10.0(a)(1) of the Decommissioning Plan (as amended), a change to the Decommissioning Plan will refer to:

2.4.1 A modification or addition to, or removal from, the facility or procedures that affect a design function, method of performing or controlling the function, or an evaluation that demonstrates that intended functions will be accomplished.

2.4.2 Departure from a method of evaluation described in the Decommissioning Plan (as amended) used in establishing the design basis or in the safety analysis will mean:

i. Changing any of the elements of the method(s) described in the Decommissioning Plan (as amended) unless the result of the analysis are conservative or essentially the same.

ii. Change to a method described in the Decommissioning Plan (as amended) to another method, unless that proposed method has been approved by the NRC for the intended application.

3. Evaluation Process

3.1 The Safety Evaluation form found in Appendix A of this procedure shall be completed to address the applicable criteria.

3.2 Appendix A Part A must clearly define the proposed change, citing the existing document and substitution.

3.3 Applicability of the NRC letter dated 1/31/06 is determined by Part B of the evaluation form. A "Yes" answer to any of the questions in Part B invalidates the use of this procedure for Decommissioning Plan change approval.

3.4 Once it is determined that a given activity meets the evaluation criteria under this procedure, Part C will be reviewed for acceptance by the licensee Technical Safety Committee.

4. Recordkeeping

a. The University will submit, as specified in 10 CFR 50.4 and in accordance with the paragraph 10.0(c)(2) of the Decommissioning Plan (as amended), a report containing a brief description of any changes that are adopted, including a summary of the evaluation of each. A report will be submitted to the NRC at intervals not to exceed 24 months.

b. The University will maintain records of all changes in the facility or procedures as adopted under this procedure. The records will be maintained until termination of facility license R-73 has been issued by the NRC or at least 5 years, whichever is longer.

APPENDIX A MORE HALL REACTOR DECOMMISSIONING PLAN CHANGE EVALUATION FORM

INSTRUCTIONS:
The requestor will complete this checklist. For each question, sufficient information must be provided to substantiate the response. This information must be provided on a separate form and attached to this checklist.

PART A DESCRIPTION OF PROPOSED CHANGE

REQUESTOR: TODD BRAITICAM

SIGNATURE: Todd A. Braiticam TITLE: FSS COORDINATOR DATE: 11/09/2006

PROPOSED CHANGE DESCRIPTION (ATTACH ADDITIONAL INFORMATION AS NECESSARY:

CHANGE SECTION 4.3.2 PARAGRAPH 2 SENTENCE 2 TO READ AS FOLLOWS:

"FOR DIRECT METHODS OF SURFACE MONITORING, THE SCANNING SPEED WILL BE SLOW ENOUGH TO ENSURE A SOURCE DETECTION PROBABILITY OF AT LEAST 25% OF THE GUIDELINE LEVEL FOR BETA EMITTERS AND LESS THAN THE UPPER GUIDELINE LEVEL FOR ALPHA EMITTERS."

DISCUSSION SUPPORTING THIS CHANGE REQUEST IS ATTACHED.

PART B APPLICABILITY

1.	Will the change result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the Decommissioning Plan?	☐ Yes X No
2.	Will the change result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system or component important to safety previously evaluated in the Decommissioning Plan?	☐ Yes X No
3.	Will the change result in more than a minimal increase in the consequences of an accident previously evaluated in the Decommissioning Plan?	☐ Yes X No
4.	Will the change result in more than a minimal increase in the consequences of a malfunction of a structure, system or component important to safety as previously evaluated in the Decommissioning Plan?	☐ Yes X No

PART C CRITERIA FOR ACCEPTANCE

1.	Will the proposed change require a change to the *Final Status Survey Plan*?	☐ Yes X No
2.	Will the proposed change involve the potential to have an adverse effect on the environment?	☐ Yes X No
3.	Does the proposed change increase the potential radioactive dose to facility personnel? If so, protective measures and dose calculations must be provided for evaluation.	☐ Yes X No
4.	Does the proposed change increase the potential radioactive dose to the public? If so, protective measures and dose calculation must be provided for evaluation.	☐ Yes X No
5.	Does the proposed change require revisions to the contractor *Work Plan*? If so, provide revisions.	☐ Yes X No
6.	Does the proposed change require revisions to the contractor *Site Health and Safety Plan (SHASP)*? If so, provide revisions to the SHASP addressing the changes.	☐ Yes X No

APPROVALS:

Stanley Q Addison — 11/22/2006

TECHNICAL SAFETY COMMITTEE DATE

Tom Meek — 11/18/2006

ADVISING HEALTH PHYSICIST DATE

DISCUSSION IN SUPPORT OF THE CHANGE REQUEST

For the radionuclides of concern present at UWNR, Regulatory Guide 1.86 establishes guideline criteria as follows:

Emitter Type	Average Static Activity	Maximum Static Activity	Removable Activity
Alpha	100 dpm/100cm^2 (over not more than 1-m^2)	300 dpm/100cm^2 (over not more than 100-cm^2)	20 dpm/100cm^2
Beta	5,000 dpm/100cm^2 (over not more than 1-m^2)	15,000 dpm/100cm^2 (over not more than 1-m^2)	1,000 dpm/100cm^2

Alpha-emission detecting field instrumentation does not exist that is capable of meeting a Minimum Detectable Activity (MDA) of <25% of the average guideline criteria (25 dpm/100cm^2) during scanning evolutions. The nuclear industry standard is to meet a scan MDA for beta emitters of 25% and less than the upper guideline limit (300 dpm/100cm^2) for alpha emitters. This change would bring the Decommissioning Plan into accordance with typical industry standards and eliminate a situation where the DP requirements are not capable of being met.

Oak Ridge Institute for Science and Education (ORISE), the independent verification contractor employed by the US Nuclear Regulatory Commission (NRC), concurs with this position and has stated in their report from the August in-process inspection:

> "ORISE recognizes that standard FSS instrumentation is not capable of detecting radioactivity at 25% of the Regulatory Guide 1.86 release criteria when utilized for scanning, nor is there a regulatory requirement that scanning instrumentation should be capable of detecting radioactivity at these levels."

The final status survey for alpha affected areas consisted of alpha scans, beta/gamma scans, alpha static and beta/gamma static measurements. The scan MDA of <25% was met for beta/gamma measurements. The alpha activity limit for facility license termination is not affected since the release limit is based on the static measurements. The MDA for the static measurements also met the Decommissioning plan criteria. Therefore the final level of radioactivity remaining in the UWNR facility meets the release criteria of the Decommissioning Plan, Regulatory Guide 1.86 and the regulatory requirement from 10CFR20.

REVISED FINAL STATUS SURVEY REPORT

UNIVERSITY OF WASHINGTON NUCLEAR REACTOR

NRC LICENSE NUMBER R-73

UW-MCP-OP-13
Rev. 2
February 22, 2007

Prepared for the University of Washington by:
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University of Washington Project #10492

Final Status Survey Report for the University of Washington More Hall Annex D&D Project

UW-MCP-OP-13
Rev. 2
February 22, 2007

Prepared by:	Todd Brautigam
	FSS Coordinator
Reviewed by:	Corey E. DeWitt
	Safety & Compliance Manager
Reviewed by:	Daniel Jordan
	Radiation Safety Officer
Reviewed by:	Scott LaBuy
	Project Engineer
Approved by:	David Cronshaw
	Project Manager

Executive Engineer Approval

SUMMARY OF CHANGES

This *Final Status Survey Report* is issued as a controlled document. Revisions to this plan will be tracked and revisions or addenda will be issued to controlled copyholders. Changed sections will be identified by special demarcation in the margin. A summary description of each revision or addenda will be noted in the following table.

Revision Number	Date	Comments
Rev. 0	10/18/2006	Original Issue
Rev. 1	12/06/2006	Addresses UW comments
Rev. 2	02/22/2007	Addresses NRC comments

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Tables

ABBREVIATIONS AND ACRONYMS

AA	Alpha Affected
ACM	Asbestos Containing Material
ALARA	As Low As Reasonably Achievable
CCE	Contamination Control Envelope
CFM	Cubic Feet per Minute
CFR	Code of Federal Regulations
CR-5849	Draft NUREG/CR-5849 'Manual for Conducting Radiological Surveys in Support of License Termination'
D&D	Decontaminate and Decommission
DAC	Derived Air Concentration
DCGL	Derived Concentration Guideline Level
DPM	Disintegrations Per Minute
DQOs	Data Quality Objectives
EE	Executive Engineer
ENERCON	ENERCON Services, Inc.
FSS	Final Status Survey
GA	General Affected
HEPA	High Efficiency Particulate Air
LLRW	Low Level Radioactive Waste
LVI	LVI Environmental Services, Inc.
MARSSIM	NRC NUREG-1575 'Multi-Agency Radiation Survey and Site Investigation Manual'
MDA	Minimum Detectable Activity
MDC	Minimum Detectable Concentration
NIST	National Institute for Standards and Technology
NORM	Naturally Occurring Radioactive Material

ABBREVIATIONS AND ACRONYMS

NRC	Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
pCi/g	PicoCuries per Gram
RCA	Radiologically Controlled Area
RCT	Radiological Control Technician
REM	Roentgen Equivalent Man
RSO	Radiation Safety Officer
RWP	Radiological Work Permit
TLD	Thermo-Luminescent Dosimeter
UN	Unaffected
UW	University of Washington
UW-MHA	University of Washington More Hall Annex
UWNR	University of Washington Nuclear Reactor

1 INTRODUCTION

1.1 Project Overview

During the calendar year 2006, the University of Washington Nuclear Reactor (UWNR) underwent full decontamination and decommissioning (D&D) activities to support the termination of United States Nuclear Regulatory Commission (NRC) license R-73. D&D activities were conducted by LVI Services, Inc. (LVI) and its partner ENERCON Services, Inc. (ENERCON) in accordance with the NRC approved UWNR Decommissioning Plan (NES, 1994). The LVI team began project planning in January 2006 with the development of all plans and procedures needed to perform the decommissioning activities. Following owner review and approval of the plans and procedures, the LVI team mobilized personnel to prepare the site for D&D activities. Radiological D&D activities began in early April 2006 and were conducted through the summer of 2006. The D&D activities resulted in the generation of 1677 cubic feet of Low Level Radioactive Waste and 32 cubic feet of Mixed Waste which were disposed at U.S. Ecology in Hanford, Washington and Energy Solutions in Clive, Utah, respectively. Final Status Surveys (FSS) in support of license termination commenced in August 2006 and were completed in the beginning of October 2006. FSS was planned and conducted in accordance with methodologies established in NUREG/CR-5849.

1.2 Ownership and Licensing

The UWNR is wholly owned and operated by the University of Washington under NRC License Number R-73.

1.3 Object and Scope

The objective and scope of this report is to document the relevant D&D activities conducted at the UWNR and to provide the FSS data results to support the request for NRC license termination. FSS data is included as Attachments 1-39. Attachments 40 and 41 present characterization sample results for the activated portions of the bioshield. Attachment 42 summarizes air sample collection results gathered during the course of remediation activities.

2 SITE INFORMATION

A historical description of the site has been developed based on radiological survey findings and a review of historical documents and drawings. The historical information presented is not all-inclusive. However, it provides the best available reconstruction of activities from the data available.

2.1 Facility Location

The UWNR is located within the More Hall Annex (Annex) (Figure 1) on the main campus of the University of Washington (UW) in Seattle, Washington. The Annex is located west and adjacent to the intersection of Jefferson and Mason Roads (Figure 2). The UW campus is located approximately 10 miles north of the center of the city of Seattle, Washington.

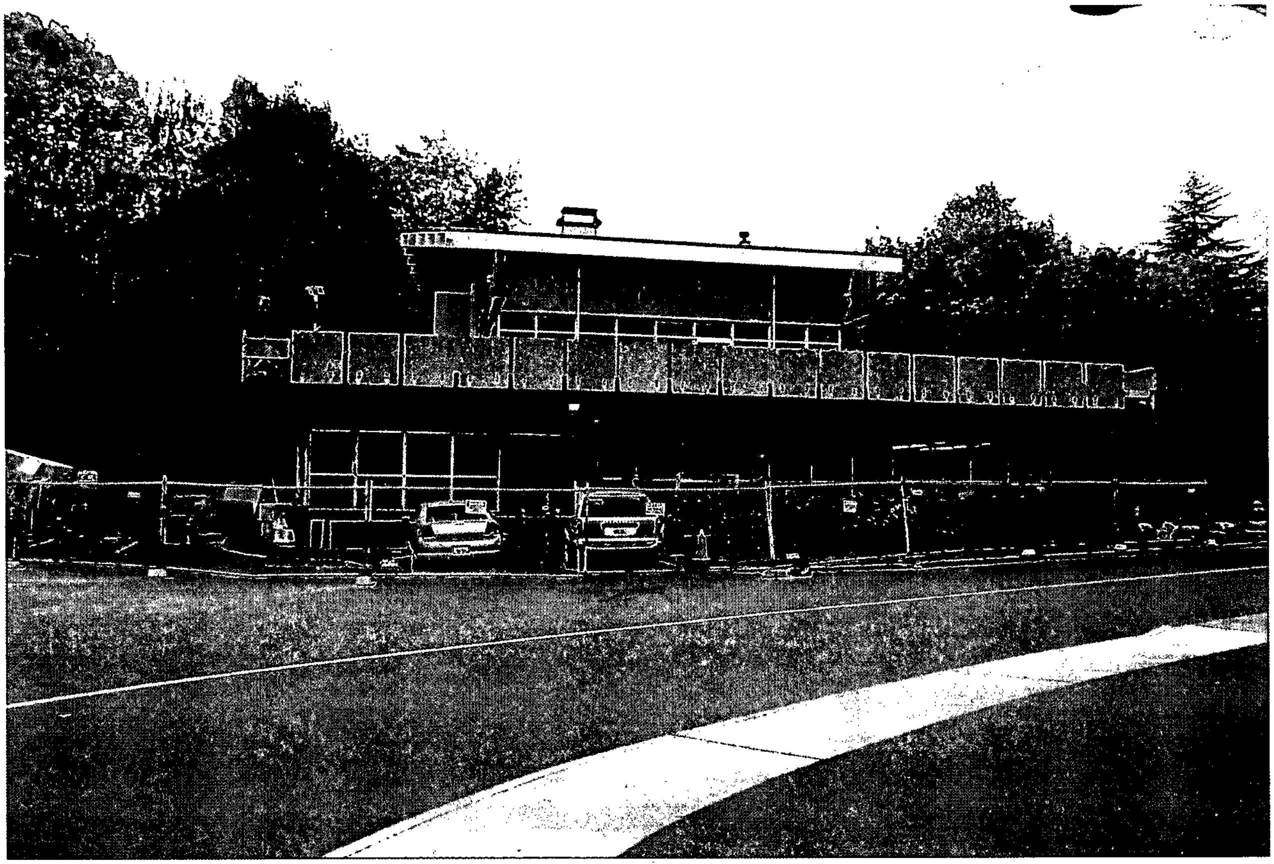


Figure 1 – More Hall Annex

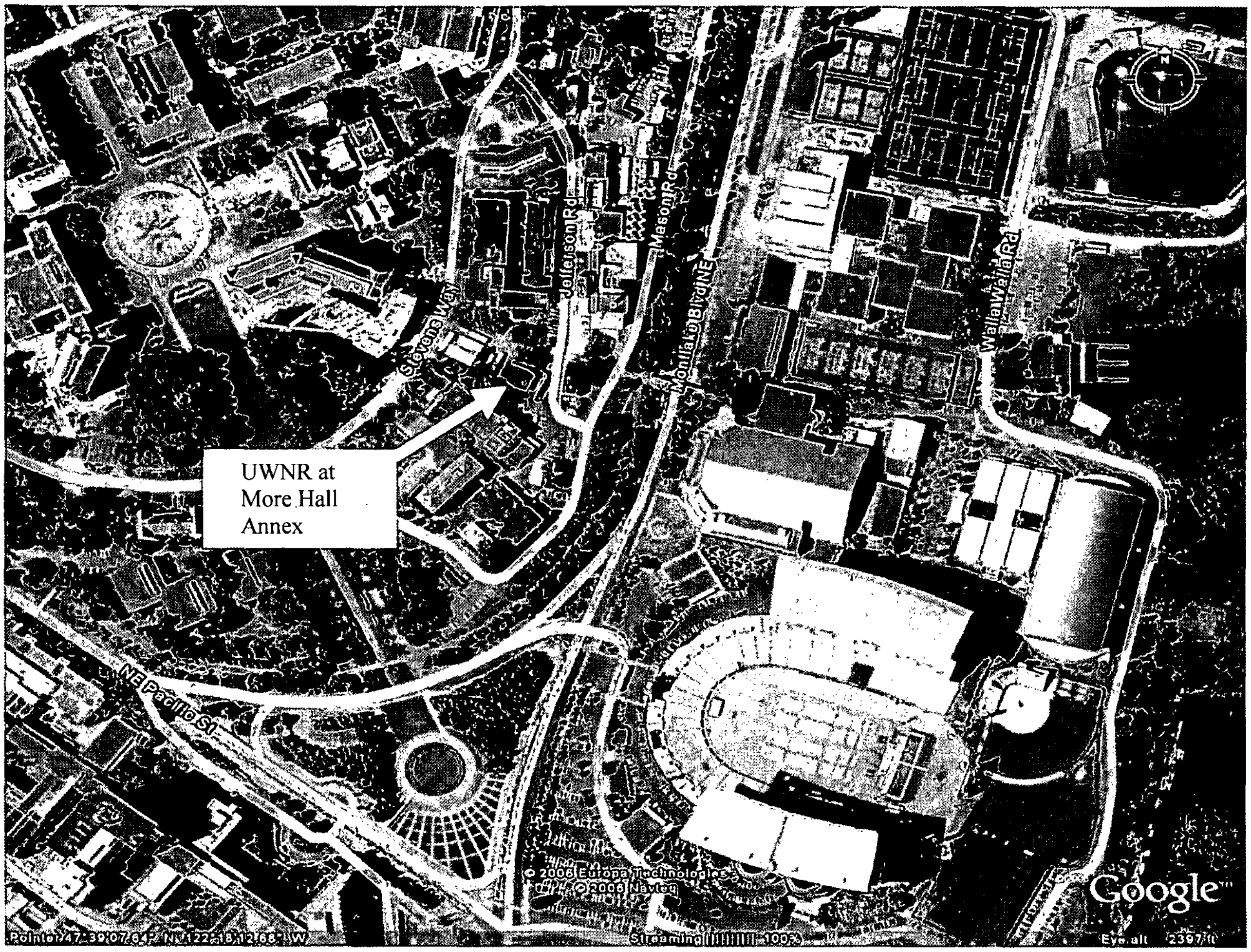


Figure 2 – Site Aerial View

2.2 Facility Operating History

The UWNR was an ARGONAUT type training and research reactor. It began operation in April 1961 with an initial power output of 10 kilowatts. Following 6 years of intermittent use, the power was increased to 100 kilowatts in 1967. The reactor operated for training and research purposes until June 30, 1988 when critical operations were permanently shut down. During its operational years, the reactor generated a total of 303,443 kilowatt hours.

Following its shutdown, all fuel was removed and sent to Idaho National Labs outside of Idaho Falls, ID for disposal. Radiological characterization activities in support of decommissioning planning began in 1993 by NES, Inc. Following the characterization, NES, Inc. prepared the UWNR Decommissioning Plan which was approved by the NRC in 1994.

2.3 Facility Radiological History

The only radiological incident of historical note was a failed plutonium oscillator experiment on June 13, 1972 whereby plutonium contamination was dispersed throughout the Reactor Room. Decontamination efforts removed most of the contamination in the weeks following the incident, but characterization activities identified small amounts of alpha contamination in areas of the Reactor Room including the ventilation ductwork and overhead crane. Following the incident, the floor of the Reactor Room was painted and covered with composite tile to prevent transfer of any residual contamination. The walls of the Reactor Room were also painted and temporary wall partitions erected at some point following the plutonium incident.

During its operational years, various radiological experiments were conducted in the reactor and in the adjacent rooms. Various experiments with short-lived isotopes and irradiated materials were prepared, conducted and analyzed in the Radiochemistry, Counting and Experiment Rooms. Other than the plutonium incident, no experiments using longer lived isotopes have been identified that could have deposited residual radioactivity at the site. Historically, waste disposal has occurred offsite at approved disposal facilities for all radiological materials, i.e., no onsite burial of radiological materials has occurred. Previous characterizations have not indicated the presence of any radiological contamination outside of the Reactor Room other than the retention tanks.

2.4 Facility Description

The More Hall Annex is divided into two sections, the restricted and the unrestricted areas. The restricted area is located in the western half of the facility and is comprised of the Reactor Room and associated facilities. The unrestricted area is located in the eastern half of the facility and is comprised of three story structure previously used for classroom, supervisory offices, graduate study rooms, the reactor control room, fan loft and the mechanical equipment room. These building layouts are depicted in Drawings 1-3 which are located in Section 10 - Site Map Drawings. These areas outside of the Reactor Room have been generally kept free from activities involving radiological materials and have been historically maintained as unrestricted areas. The restricted and unrestricted areas are separated by a 20-cm concrete wall.

2.4.1 Reactor Room

The Reactor Room and associated facilities are contained in an area approximately 14 meters in width by 21 meters in length. The Reactor Room measures approximately 14 meters long by 10 meters wide and is three stories high with an average height of 10.5 meters. Adjacent to the Reactor Room are four separate smaller rooms which include the Radiochemistry Laboratory (4 meters x 4.5 meters) and Crystal Spectroscopy Room (10 meters x 4 meters) to the south and the Counting (4 meters x 4 meters) and Experiment (6 meters x 5 meters) Rooms to the north. Each of these side rooms are approximately 3 meters in height. The floor and walls of the Reactor Room are poured concrete. The floors are between 15-cm and 45-cm thick and were poured over undisturbed earth. The exterior walls are 25-cm thick to a height of 4 meters above the floor. The upper surfaces of the Reactor Room are supported by a concrete column and beam structure and contain glass windows midway between the floor and ceiling. The north, west and south walls of the Reactor Room are below grade as the Annex is built into the side of a hill.

The Reactor Room is isolated from the unrestricted areas of the building by a 20-cm concrete wall. Two doorways along the eastern wall provide access to Reactor Room; a single door from the control office, and a double door from the Robotics Laboratory. Direct access to Reactor Room is also available through a hatchway from the Mechanical Equipment Room, and two emergency egress hatchways located on the north wall of the Experiment Room and the south wall of the Crystal Spectroscopy Room.

The Reactor Room contains four distinct features: the reactor monolith, the process pit, the fuel storage pit and the overhead bridge crane.

2.4.1.1 Reactor Monolith

The reactor monolith is situated in the center of the Reactor Room. The concrete monolith is comprised of two concrete biological shields (bioshields), spaced 1.5 meters apart (Figure 3). Each bioshield is approximately 6 meters in length, 1-3 meters in width, and 3.5 meters in height. The reactor core, graphite moderator and associated components were located in this space between the bioshields.

Figure 3 – Reactor Monolith

2.4.1.2 Process Pit

The process pit is located directly to the south of the reactor bioshield. It is located below grade and is 2 meters wide, 4 meters long and 1.5 meters deep. Before D&D activities, it contained a sump, sump pump, reactor coolant pump, heat exchanger, waste lines, and a storage tank. Reactor coolant lines and associated lines ran from underneath the reactor to the north side of the process pit. Seven solid concrete covers are placed over the pit. The top of the concrete covers are level with the finished floor of the Reactor Room.

2.4.1.3 Fuel Storage Pit

The fuel storage pit is located in the southwest corner of the Reactor Room. It contains fifty-four, 10-cm diameter steel lined storage tubes. Each tube is approximately 1.5 meters deep and was lined with plastic sleeves. Each tube contained an iron encased concrete shield plug that locked into place following placement of the fuel rods for storage. Three solid concrete covers are placed over the pit. The top of the concrete covers are level with the finished floor of the Reactor Room.

2.4.1.4 Reactor Room Ventilation Systems

Ventilation systems in the Reactor Room and Crystal Spectroscopy Room provided air circulation and reactor exhaust. The ductwork in the Reactor Room was typical box and frame construction located 3 meters above floor level and below the windows. This ductwork transported recirculated air from filters in the Crystal Cpectroscopy Room. The reactor's 250 CFM blower transported exhaust air to a 10,000 CFM dilution fan in the Fan Loft located above the Control Room via a 12 cm diameter line along the walls of the Reactor Room. Radiological characterization activities identified the reactor ventilation ductwork as potentially contaminated due to the plutonium incident.

2.4.1.5 Overhead Bridge Crane

The Reactor Room is serviced by a 3-ton capacity bridge crane. The crane has historically been used to move shield blocks into various positions about the reactor monolith and heavier objects around the reactor room. The crane spans the Reactor Room and is constructed of one large I-beam approximately 10 meters in length.

2.4.2 Unrestricted Area - First Floor

The unrestricted area of the first floor is located east of the Reactor Room. This area is comprised of the Robotics Lab, Directors Office, Control Office, Calculating Room, Graduate Room and restrooms.

2.4.3 Unrestricted Area - Second Floor

The second floor area is an unrestricted area located adjacent to the upper surfaces of the Reactor Room. It is comprised of the Lecture Briefing Room and the Control Room. Located above these rooms are the Mechanical Equipment Room and the Fan Loft. These areas housed the air handling systems for various building systems.

2.4.4 Underground Utilities

Various underground lines are located throughout the UWNR. An investigation into the design and operating history of the facility identified various lines which transported waste liquid, potable water, steam, and electrical services. There were two drainlines identified beneath the floor of the Reactor Room that had potential for radiological contamination. These lines ran from the sink and emergency shower in the southeast corner of the Experiment Room and process pit to the Radiochemistry Lab where it tied together and drained outside the building to the retention tanks. These lines connected to a drain on the northeast corner of the bioshield and two sink drains located in the Radiochemistry Lab. Drawing 4 depicts the location of these drain lines. Drawing 4 is located in Section 10 – Site Map Drawings.

2.4.5 Exterior Building Features – Retention Tanks

Two retention tanks and a valve gallery are located outside the Annex, directly south of the Radiochemistry Lab. The retention tanks were used to store overflow water from the process pit and drain lines located in the restricted areas of the building. Each retention tank is approximately 2 meters wide by 2 meters long by 2 meters deep and are constructed of sealed concrete approximately 10-cm thick. The valve gallery is located between the tanks and housed the pumps, level controls and water lines which distributed the liquids between each tank. Incoming liquids were received into the valve gallery through a 2-in cast-iron line which exited the Annex from underneath the south wall of the Radiochemistry Laboratory. Drawing 1 depicts the location of the retention tanks. Drawing 1 is located in Section 10 – Site Map Drawings.

3 DECOMMISSIONING ACTIVITIES

3.1 Site Area Identification

Drawings 1, 2 and 3 (Section 10) depict all site areas involved in the decommissioning process. Drawing 1 depicts first floor survey areas, and Drawing 2 depicts second floor survey areas. Drawing 3 depicts the Fan Loft and Mechanical Equipment Room. Building areas involved in the decommissioning process are identified on the drawings by section and survey unit, for example, a plant area identified as 3-1 would refer to Section 3, Unit 1. Sub-unit numbers are assigned as necessary to meet final status survey size requirements for affected areas so that 3-1-1 would refer to Section 3, Unit 1, Sub-Unit 1.

Section numbers were assigned to various areas based on distinguishing features such as floor level and survey classification; survey unit and sub-unit designations are associated with the final status survey phase of the decommissioning process.

Section numbers were assigned as follows:

Table 3-1: Assigned Section Numbers

Survey Section	Location/Description	Distinguishing Features
1	First Floor	Reactor Room and other restricted areas
2	Second Floor	Control and Lecture Briefing Rooms
3	Building Exterior	Retention Tanks

3.2 Decontamination and Decommissioning Activities

Upon mobilization, various activities were conducted to prepare the site for D&D activities. Miscellaneous equipment and materials were surveyed, released and disposed to facilitate D&D activities.

3.2.1 Facility Modifications

Upon mobilization, some facility modifications were necessary to provide increased access to the Reactor Room. These modifications included removal of the walls separating the Crystal Spectroscopy Room and Experiment Room from the Reactor Room. The drywall corridor between the Control Office doorway and Experiment Room was also removed, surveyed and free released. No other walls were removed from the restricted areas. Emergency egress hatchways were modified to accommodate HEPA ventilation units and make up air supply.

3.2.2 Removal of Shield Blocks

Concrete shield blocks were used during reactor operation to provide increased shielding around the reactor bioshield. These shield blocks were surveyed, decontaminated as necessary and released. Any shield block material that could not be released was packaged and disposed as radiological waste. One remediated shield block was surveyed to FSS standards and left within the Reactor Room.

3.2.3 Reactor Monolith

The reactor monolith consisted of two reinforced concrete bioshields on the north and south. The reactor core box, lead and graphite shielding and associated reactor systems were contained in the center of the monolith between a shield tank to the east and concrete shield blocks to the west. The shield blocks and shield tank were removed and surveyed. Any portions of the shield tank or shield blocks that could not be released were packaged and disposed as radiological waste. A contamination control envelope (CCE) was installed over the top and west side of the monolith with HEPA ventilation installed on the east side of the monolith.

The graphite moderator and lead shielding blocks were removed, packaged and disposed as radiological and mixed waste. After access to the core box was available, surveys were conducted to assess the radiological conditions of the core. The core box was removed, packaged and disposed as radiological waste.

After the core box and the remainder of the lead and graphite were removed, demolition commenced on the activated concrete contained within the monolith using a Brokk remote demolition tool and hand tools. As the demolition progressed, periodic surveys were conducted to identify surfaces requiring additional demolition to meet the acceptance criteria. Concurrent with the demolition activities, the six steel beam tubes were cut and removed from the monolith as well as any remaining peripheral equipment.

3.2.4 Fuel Storage Pit

The fuel storage pit is located in the southwest corner of the Reactor Room and consists of fifty-four steel-lined tubes which are embedded in concrete. Each tube contained removable shield plugs and plastic liners. The shield plugs and liners were removed, surveyed and released or disposed as radiological waste as necessary. Each tube was surveyed according to the survey protocol established in the Decommissioning Plan. Each tube was surveyed via 100% scan for beta-gamma and alpha activity. Additionally, five static readings, two gross alpha and beta-gamma wipes and one liquid scintillation wipe, which was counted for low energy beta activity (H^3), were taken in each tube. Decontamination activities involved removing the paint from the top of the fuel storage pits. Tube A2-9 was identified as having alpha activity greater than the guideline limit and was remediated. A map showing the location of this tube is available in Attachment 6.

3.2.5 Process Pit

The process pit contained a sump, sump pump, reactor coolant pump, heat exchanger, holding tank and waste lines. The equipment was removed from the pit and disposed as either clean waste or radiological waste based on total contamination surveys. The pit walls, floor, and sump were wiped down and surveyed. Areas with elevated activity were remediated in preparation for final status surveys.

3.2.6 Reactor Room

The Reactor Room housed the reactor monolith, process pit, fuel storage pit, overhead bridge crane, and Reactor Room ventilation systems. There was ventilation ductwork which encompassed the entire room, and was mounted to the walls just under the windows. All supply and return ductwork in the Reactor Room were entirely removed, including the 12 cm diameter line transporting reactor exhaust air to the dilution fan, and disposed based on the survey results.

3.2.7 Overhead Crane

D&D activities identified low levels of alpha contamination on the overhead bridge crane. These areas were remediated using abrasive measures and wiped down. Portions of the overhead crane including the catwalk, motor, and pulley system could not be surveyed due to inaccessibility and were consequently removed and disposed as Low Level Radioactive Waste (LLRW).

3.2.8 Removal of Wall and Floor Coatings

During D&D activities, various wall and floor coatings were identified that either were or could have been applied after the reactor began operation. While the potential for contamination of these areas from reactor operations was low, any coatings in the Reactor Room that were applied after the plutonium incident were removed. Residual floor paint, applied to fix contamination from the plutonium incident, was removed by grinding. A layer of lead based paint, applied to the top surface of each bioshields after the plutonium incident, was removed and disposed as mixed waste. During building construction, a layer of asbestos skimcoat was applied to the lower walls of the Reactor Room and the four adjacent rooms. Through discussions with operation staff, it was determined that a layer of paint was applied over the top of the skimcoat after the plutonium incident, which required the paint on all of the walls of the Reactor Room and side rooms to be removed. Containments were constructed and all outer wall paint was removed with grinders from the Reactor Room floor to the ceiling. This material was disposed as Asbestos Containing Materials (ACM) contaminated LLRW. In effect, all wall coatings in the Reactor Room and adjacent rooms were removed, including original surfaces applied before operations began.

3.2.9 Peripheral Rooms

There are four peripheral rooms within the Radiologically Controlled Area (RCA) adjacent to the reactor room. These are the:

- Counting Room
- Experiment Room
- Radiochemistry Laboratory
- Crystal Spectroscopy Room

These rooms contained support equipment and systems such as the secondary cooling system, fume hoods and sinks, and drain lines. All of the fixed and loose equipment in these rooms was removed with the exception of piping in the overhead of the Crystal Spectroscopy Room. The materials were surveyed and disposed according to the survey results. The overhead piping was left in place because it consisted of hot and cold water supply and did not transport process water. A diagram and photograph depicted the overhead piping configuration are included in Attachment 25. Additional decontamination was performed in the Crystal Spectroscopy Room on the floor. Other discreet areas identified as having elevated activity were remediated and surveyed.

3.2.10 Retention Tanks

The retention tanks are located outside the south end of the More Hall Annex. Scoping surveys identified low levels of discrete elevated activity within the tanks. Hand wiping successfully removed the elevated activity and the tanks were cleaned in preparation for FSS.

The center section between the tanks is the valve gallery which contained piping, a pump and valves to control the tank levels. Much of the piping and valves were removed to facilitate FSS. Equipment and materials were surveyed and disposed based on the survey results.

3.2.11 Investigation and Removal of Underground Drainlines

The presence of detectable radiological activity in the retention tanks required an investigation of the upstream drain lines which fed into the retention tanks. Drawing 4 presents the layout of the underground drain line system. The drain line which entered the retention tanks system was excavated and removed to its junction with the south wall of the More Hall Annex. A 1x1 NaI probe was attached to a pipe snake and used to survey the interior of the upstream sections of drainline in the radiochemistry lab. This survey indicated the presence of elevated gamma activity at a few spots inside the pipe beneath the radiochemistry lab. Consequently, the drain lines in the radiochemistry lab were excavated and disposed as LLRW. Both sink drains were also removed. Two sections of drain line ran into the radiochemistry lab: one from the process pit and the other from the sink and emergency shower in the southeast corner of the Experiment Room. The entire section of drainline between the process pit and the Radiochemistry Lab could not be adequately surveyed due to bends and obstructions, therefore, it was excavated and removed. Inaccessible portions of drainline between the Experiment Room and Radiochemistry Lab were also removed. The drain located on the northeast corner of the reactor monolith was also removed. A twenty-eight foot straight section of drainline on the eastern side of the Reactor Room was left in place because it had no visual breakages and no drain line tie-ins. No detectable activity was found inside this section of pipe.

3.2.12 Confirmatory Soil Sampling

Following drain line removal, soil samples were collected beneath the excavated pipes at elbows and couplings and analyzed for gamma emitting radionuclides to determine if any leaks had occurred which could have contaminated the underlying soils. Drawing 5 presents the layout of the underground drain line system and the locations where soil samples were collected.

Samples results indicate that no detectable radionuclides other than Naturally Occurring Radiological Materials (NORM) were present in soils located beneath the drainlines within the building footprint. Two samples, SS-1 and SS-11, were collected from soils outside the building and indicated low levels of Cs-137 which are consistent with background concentrations identified in the Radiological Characterization Report. Attachment 39 presents the results of the soils sample analysis. From this data, it has been concluded that soils beneath the UWNR drain lines were not radiologically impacted from reactor operations.

3.3 Decontamination Methods

A variety of safe and effective decontamination methods were used to meet unrestricted use criteria. The decontamination techniques employed are widely used in the decommissioning industry and do not pose unusual, or significant, health and safety concerns.

3.3.1 HEPA Vacuum

High Efficiency Particulate Air (HEPA) vacuuming was used to collect dirt and larger particle debris that were contaminated with radioactive material. Although not generally effective as an initial decontamination technique, HEPA vacuuming is extremely effective in conjunction with any of the more aggressive methods of decontamination.

3.3.2 Chemical Cleaning

Commercially available chemical agents were used when non-destructive decontamination was desired. These agents work by loosening or dissolving the host material and/or the contaminant. Chemical agents were used when it was reasonably assured the radioactive waste could be significantly reduced by removal of the residual contamination.

3.3.3 Grinding/Scarifying

Grinding and scarifying incorporates a high-speed wheel made of stone or steel that aggressively abrades the surface to remove residual radioactive material. This method was used successfully on floors and walls where the aesthetics of the remaining surface was not a concern. A close-capture HEPA vacuum or enclosure was used with this method to capture airborne particulates for dust and airborne radioactive material exposure control. Water was also used to limit dust and maintain contamination control.

3.3.4 Demolition

Demolition is often the most cost-effective solution when radioactive disposal rates are reasonable. Demolition of certain building components was used in areas where decontamination was not effective, proved to be cost prohibitive, or involved remediation of volumetrically contaminated media (e.g. the inner portions of the bioshields). Demolition was also required in certain areas to allow access to original building surfaces for survey purposes. Demolition was limited to non-load bearing building components.

4 PROJECT RADIATION PROTECTION PROGRAM RESULTS

4.1 Radiation Exposure Monitoring

Over the course of this project, D&D personnel with the potential for radiological exposure were monitored using external and internal means. All work evolutions with the potential to generate airborne radioactivity were monitored with air sampling equipment. Air samples collected over the course of the project were analyzed and the results demonstrated that average airborne activity was kept to less than 2% of the federal regulatory limit. A summary of air sampling data from project work evolutions is available in Attachment 42 – Summary of Air Sample Results. All site radiation workers were monitored with external dosimetry. The Decommissioning Plan estimated the minimum and maximum collective dose to be 4.93 and 6.02 person Roentgen Equivalent Man (REM) respectively. The total collective dose for the project was 1.491 person REM or 30% of the minimum estimate. The highest individual dose for the duration of the project was 0.323 REM. The monitoring was performed from April 1, 2006 through September 12, 2006. In addition, project personnel with potential for internal exposures were monitored through in vivo (bioassay) and/or in vitro (Whole Body Counting) means.

5 FINAL STATUS SURVEY OVERVIEW

5.1 Decontamination and FSS Objectives

The purpose of the FSS activities is to demonstrate that the radiological conditions at the UWNR satisfy the USNRC guidelines and the UWNR can, therefore, be released from USNRC license Number R-73 for future use without radiological controls. For the purpose of this demonstration, each survey unit is independently evaluated. The objective of the survey is to demonstrate at a 95% minimum level of confidence that the license release conditions have been met.

5.2 Management Approach

The present day management at the UWNR has fully supported efforts by the contractor to remediate known areas of residual contamination.

Radiological Control Staff at the UWNR maintained overall responsibility and authority for the remediation activities. Qualified LVI remediation workers and ENERCON radiological control technician (RCTs) worked under the direction of the LVI/ENERCON management staff. Cooperative discussions between the associated parties resulted in a cost efficient approach to decommissioning while adhering to all applicable health, safety and radiation protection guidelines. Guidance documentation issued by the NRC was utilized as a basis for development of the final survey methodology and associated documentation. All survey methods and QA/QC activities have been and continue to be subject to review by the University staff that maintains final approval, authority and responsibility for work conducted under this license.

5.3 Instrumentation

Instruments were selected that provided an adequate response to radionuclides of concern presented in Section 5.4. Minimum detectable activity (MDA) was calculated for each model. The MDA was calculated using formulae contained within the Multi Agency Radiation Survey and Site Investigation Manual (MARSSIM) and shown in Section 4.5.3. The MARSSIM contains the most current guidance on recommended methods of calculating survey instrument MDA. The background rate and detector efficiency used in the MDA are averages calculated from the daily operational check of each instrument. Table 4-1 shows the instrument models selected and summarizes the typical observed background counts in counts per minute (cpm), typical observed detector efficiency, and a typical observed MDA in disintegration per minute (dpm/100 cm^2) for each instrument model. Other objectives in selecting instruments included special features such as digital displays to provide a more accurate reading than conventional analog displays.

Table 5-1: Summary of Instrumentation Used For Final Status Survey

Instrument Model	Background Rate	Probe Area (cm^2)	Efficiency (%) [1]	Static MDA ($dpm/100cm^2$)	Ratemeter MDA ($dpm/100cm^2$)	Scan MDA ($dpm/100cm^2$)
Ludlum Model 2221 w/43-44 Air Proportional detector	0.1 CPM	50	1.3	50[2]	110	150[3]
Ludlum Model 2221 w/44-9 Geiger Mueller Detector	150 CPM	17.5	13.0	1850	8150	11500
Ludlum Model 3 or 12 w/44-9 Geiger Mueller Detector (Beta Frisker)	40 CPM	17.5	13.5	N/A	4000	5700
Ludlum Model 2360 w/43-68 Gas Proportional Detector (Alpha)	2 CPM	126	10.5	40[2]	110	160[3]
Ludlum Model 2360 w/43-68 Gas Proportional Detector (Beta)	123 CPM	126	26.4	120[2]	520	740[4]
Ludlum Model 19 MicroR	9 microR/hr	N/A	N/A	N/A	N/A	N/A
Ludlum Model 2929 Wipe Counter (Alpha)	0.1 CPM	100	25.6	16	N/A	N/A
Ludlum Model 2929 Wipe Counter (Beta)	46 CPM	100	22.6	153	N/A	N/A

(1) **Detector area-corrected to 100-cm^2 using the formula in section 6.2.**
(2) Based on a 2-minute count
(3) Based on 1/3 probe width per second scan rate
(4) Based on one probe width per second scan rate

5.3.1.1 Alpha and Beta Scans

Surface scans were performed at a rate of 1 probe-width per second in the General Affected areas. Surface scans were performed over 100% of the surface area in the General Affected and Alpha Affected areas. Alpha and Beta scan surveys were performed at a probe to surface distance as close as practical, not to exceed 1-cm (~½ inch).

In the Alpha Affected areas, scanning differed from that of beta and gamma emitters in that the typical background count rate was usually very close to zero. Therefore the scan MDA for alpha activity is typically presented as a probability that a given contamination level is detectable at a given scan rate.

Table 5–2 provides a summary of the alpha detection probability using formula 6-12 presented in Section 6.7.2.2 of the MARSSIM. The formula is:

Detection Probability (6-12) $$P(n \geq 1) = 1 - e^{\frac{-GEd}{60v}}$$

Where

$P(n\geq1)$ = the probability of detecting a single count
G = Contamination activity (DPM)
E = Detector efficiency
d = Width of detector in the direction of the scan
v = Scan speed (cm/s)

Table 5-2 Alpha Scan Probability of Detection

Detector Type	Total Efficiency	Probe Dimension in Direction of Scan	Scan Rate	Probability of Detecting 300 DPM/100cm^2 (Table 4-1)
Alpha Gas Proportional	10.5%	9-cm	3-cm/s (1/3 probe/sec)	79%
Alpha Gas Proportional	10.5%	9-cm	4.5-cm/s (1/2 probe/sec)	65%

The formula above is more conservative than that presented in the MARSSIM which uses a 4-pi detector efficiency that is not adjusted for surface efficiency. Using the more conservative total efficiency, discussed in Section 5.3.5, the probability of detection is **exceeds 67% which is listed in Draft ANSI Standard N13.12 (1978) when scanning for alpha emitters. The data evaluation supports the premise that this detection probability is** unrealistically low as evidenced by the numerous detections of alpha activity less than 300 dpm/100cm^2 demonstrated during the FSS evolution. **The higher desired probability (90%) stated in the MARSSIM is also a result of the non-parametric basis of that survey approach, which results in far fewer static survey locations when compared to a NUREG/CR-5849 license termination method.**

Using the 4-pi efficiency, as recommended in the MARSSIM, the results indicate a scan speed of 1/3 probe width per second is sufficient to achieve the MARSSIM recommended 90% probability of detection.

A single count detected during a scan is cause for the surveyor to pause until the probability of achieving another count has reached 90%. This time interval may be calculated using formula 6-13 from the MARSSIM as presented below.

Time Interval Probability (6-13) $$t = \frac{13800}{CAE}$$

Where

C = Maximum guideline criteria (300 dpm/100-cm^2)
A = Detector Area (124-cm^2)
E = Detector Efficiency (**10.5**%)

Using this formula, a pause of **3** seconds was sufficient to achieve a 90% probability of detection. If no additional count was detected during the **3** second pause, then no elevated activity was found and the scan survey continued.

5.3.2 Instrument Calibration

ENERCON (or another qualified vendor) calibrated all field instrumentation using approved procedures. At a minimum, the survey instruments were calibrated semi-annually. **Instrument calibrations were performed with a source to detector distance no greater than 1-cm. A source holding 'jig' is commonly used during the calibration process to ensure a consistent geometry.** ENERCON maintaineds original instrument calibration data and certificates for the calibration sources at the calibration lab and provided copies to file on-site. Instrument calibrations followed NUREG-1507 and ISO 7503-1 guidance.

At a minimum, response checks were performed prior to use each day and upon completion of an FSS survey during the day. Response checks were performed on a flat desktop maintaining the source to detector distance as close to contact as possible. The radiological check sources that were used for each of the instruments are as follows:

- Alpha instruments: Th^{230} 47-mm electroplated disk
- Beta instruments: Tc^{99} 47-mm electroplated disk
- Gamma instruments: Cs^{137} encapsulated button

ISO-7503 recommends a surface efficiency correction for Tc^{99} of 0.25, however a surface efficiency correction factor of 0.5 has been utilized in all calculations because the Tc^{99} is not a radionuclide of interest, but is merely the best available calibration standard for the instrumentation used. In all cases, the check sources **listed above** provides a conservative response in comparison to the potential isotopes present at the facility due to relative isotope energies and would tend to overestimate the actual activity present.

5.3.3 Pre-Operational Checks

All background readings for counting instruments were conducted daily during instrument use. Any instrument that used a battery had a daily battery check performed before instrument operation. If a battery check failed, an equivalent size battery was installed and the instrument was rechecked before operation. An appropriate initial source response, as determined by a comparison to calibration information, to the appropriate on-site check source was obtained prior to the instrument being placed in service for the project.

Each day an instrument was used, the instrument received an operational check that consisted of a background reading (observed CPM for ratemeters or 10-minute static count for scalers) and a count of a known check source (observed CPM for ratemeters; 1-minute static count for scalers) **with the detector in contact with the source in its' holder to provide a consistent source to detector distance**. If at any time an instrument exceeded its calibration due date or fell outside of the ±10 percent of the established initial source check, the instrument was recalibrated, and a new initial source check was performed. An inappropriate response resulted in the instrument being taken out of service and sent for calibration and/or maintenance. This information was recorded on a Daily Instrument Pre-Operational Check form.

Additionally, at the conclusion of each FSS survey, the survey instrument received a response check. This response check entailed exposing the detector to an appropriate check source and verifying an acceptable count rate was obtained (i.e. within ±10% of the initial source count). The result of this response check was documented on a survey instrument response check log.

5.3.4 Minimum Detectable Activity (MDA) Calculation

Background readings and calibration efficiencies were used to evaluate the MDA for each instrument model. The formulae and/or functions used in the spreadsheet are detailed in the following sections.

Static Count MDA

$$MDA = \frac{3 + 4.65\sqrt{B_r \frac{T_s}{60}}}{\frac{T_s}{60} * E_t * \frac{A}{100}}$$

Scan MDA

$$ScanMDA = \frac{MDCR}{\sqrt{\rho} * E_i * E_s * \frac{A}{100cm^2}}$$

MDCR

$$MDCR = s_i * \frac{60}{i}$$

Where:

C = Conversion factor from counts to concentration
B_r = Background rate in CPM
T_s = Sample count time in seconds
A = Effective probe size in cm^2
ρ = Surveyor efficiency
E_i = Instrument efficiency
E_s = Surface efficiency
s_i = Minimum detectable net source counts per interval
i = Observed time interval

5.3.5 Instrument Efficiency

The efficiency of the detection capabilities for each applicable instrument was calculated using the following formula:

Instrument Efficiency (E_i)

$$E_i = \frac{(C_s - C_b)}{S}$$

Where:

C_s = Measured source count in CPM
C_b = Measured background count in CPM
S = 2 pi source value in DPM

Total Efficiency (E_t) $$E_t = E_i * E_s$$

Where:

E_i = Instrument efficiency
E_s = Surface efficiency (Alpha emitters = 0.25, Beta emitters = 0.5)

The total instrument efficiency (E_t) is a product of the instrument detection efficiency (E_i) and the source detection efficiency (E_s) and is used to convert the raw instrument counts into the standardized unit of disintegrations per minute (DPM). The source efficiency utilized for the UWNR follows the recommendations in ISO-7503-1 which makes recommendations for default source efficiencies. A source efficiency of 0.5 is recommended for beta emitters with maximum energies above 0.4 MeV, such as Co^{60}, Eu^{152} and Eu^{154}. Alpha emitters and beta emitters with maximum beta energies between 0.15 and 0.4 MeV have a recommended source efficiency of 0.25, such as Pu^{239}. As such, beta measurements use an E_s of 0.5 and alpha measurements use an E_s of 0.25.

5.3.6 Instrument Models

The instrument models used are listed below and are typical of each instrument class.

5.3.6.1 Ludlum Model 2221 with 43-44 Air Proportional Detector

This is a scaler/ratemeter instrument with a 50-cm^2 air proportional detector. This instrument was used for interior alpha surveys (scans and static locations) of pipes or other areas where the larger detectors can not be used.

5.3.6.2 Ludlum Model 2221 with 44-9 GM Tube Detector

This is a scaler/ratemeter instrument with a 17.5-cm^2 Geiger-Mueller (GM) tube detector that was used for interior beta-gamma surveys (scans and static locations) of pipes or other areas where the larger detectors can not be used. The MDA calculations are based upon beta background and efficiency data.

5.3.6.3 Ludlum Model 2221/2241/2360 with 43-68 Gas Proportional Detector

These are scaler/ratemeter instruments with a 126-cm^2 gas proportional detector that were used for all types of surveys. The Model 2221 may be dual-calibrated for alpha and beta detection while Models 2241 and 2360 are capable of discriminating between alpha and beta activity. For FSS surveys, specific meter/detector combinations were dedicated for either alpha and/or beta applications.

5.3.6.4 Ludlum Model 2929 with 43-10-1 Scintillation Detector

This is a scaler instrument used for counting wipe samples. This instrument was used for all analysis of removable activity wipes. A 47-mm diameter cloth wipe is used to wipe over an area of 100-cm2 to collect a sample of removable activity. A wiping efficiency of 90% is used compensate for the inability of the wiping cloth to collect all the material that may be present on the surface. This instrument is capable of discriminating between alpha and beta activity.

5.3.6.5 Ludlum Model 19 MicroR

This is a ratemeter instrument that was used for exposure rate surveys. It is generally accepted throughout the nuclear industry that the MDA of this instrument is equivalent to the background readings.

5.4 Radionuclides of Concern

Radionuclides of concern at the UWNR are those that have been previously reported or are anticipated based upon knowledge of historical site operations. Based upon historical site assessment, potential radiological contaminants could be present from neutron activation due to reactor operations and/or radiological spills. In the 1993 Characterization Report, activation products were identified as potential radiological contaminants in the biological shield and reactor core components. The types and inventories of these radionuclides were based upon activation analysis and similar findings during the decommissioning of the UCLA Boelter Research Reactor. These radionuclides are listed in Table 5-3. The Radiological Characterization Report for the UWNR also identified Pu-239/240 and Pu-241 resulting from the June 1972 failure of a plutonium foil experiment in the Reactor Room. Although the majority of the contamination was decontaminated immediately following the event, small amounts of alpha activity were identified in the characterization of the facility. This report also identified Cs-137 as potential radiological contaminant in the Radiochemistry Lab sink drain and retention tanks.

Before the current reactor demolition activities began, concrete samples were collected from activated regions of the biological shield and analyzed for gamma emitting radionuclides, H-3 and C-14. As expected, these analyses identified Co-60, Eu-152, Eu-154, H-3 and C-14. Analytical results for these samples are available in Attachment 40 – Bioshield Concrete Characterization Analytical Results. During the initial D&D activities, wet smears were collected on shield blocks and various surfaces of the Reactor Room to determine if C-14 of H-3 had migrated outside the reactor core to other areas of the Reactor Room. These wet smears were analyzed on a QuantaSmart 1.31 liquid scintillation counter and no detectable activity was observed.

The radiological surface release criteria for the UWNR are established in Table 1 of U.S. NRC Reg. Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors" (U.S. NRC, 1974). Specifically, beta-gamma emitting radionuclides must not exceed 5000 disintegrations per minute (dpm)/100 cm^2 average fixed plus removable activity. Removable activity must not exceed 1000 dpm/100 cm^2. The guidance also established alpha release criteria of 100 dpm/100 cm^2 average fixed plus removable and 20 dpm/100 cm^2 removable. Some beta emitting radionuclides have a more restrictive release limit of 1000 dpm/100 cm^2, but none of these radionuclides are present in the UWNR. The only radionuclide from this list which would be resultant from fission would be Sr-90. There is no indication that any fuel ever leaked at the UWNR, therefore, Sr-90 was not identified as a radionuclide of concern at the UWNR.

For areas of facility which possess residual tritium activity in addition to fission products, i.e., inner surfaces of the bioshield, a modified survey protocol was necessary to adequately account for all residual radioactivity. In this case, the beta-gamma survey results were used as a surrogate nuclide for tritium. A composite sample of concrete from areas within the remediated portions of the bioshield was collected at the completion of FSS activities and analyzed for gamma emitters, tritium and C-14. Analysis of this sample indicated a 1.86:1 ratio of tritium to Co-60 and Eu-152. No C-14 was detected in the analysis. Data from this analysis is presented in Attachment 41 – "Final Bioshield Analysis for Hard to Detect Radionuclides". Using the ratio above, the beta-gamma DCGL for the bioshield data analysis was reduced to 1700 dpm/100cm^2 to account for the presence of tritium. This surrogate assures tritium activity to be less than an limit of 5000 dpm/100cm^2 established for beta emitters in the Decommissioning Plan. Additional discussion of the affect of tritium on the final data analysis is included in Section 7.1.3.16.

Table 5-3 Potential Isotopes at the UWNR

Component	Isotope	Mean Life	Principle Decay Modes
Metallic Parts	Mn^{54}	450 days	EC, γ
	Fe^{55}	3.9 years	EC
	Co^{60}	7.6 years	β^-, γ
	Zn^{65}	352 days	EC, γ
Graphite	Co^{60}	7.6 years	β^-, γ
	Eu^{152}	19.3 years	β^-, β^+, EC, γ
	Eu^{154}	12.3 years	β^-, γ
	H^3	17.8 years	β^-
	C^{14}	8268 years	β^-
Lead	Ag^{108}	190 years	EC, γ
	Ag^{110}	360 days	β^-, γ
Magnetite Concrete	Mn^{54}	450 days	EC, γ
	Co^{60}	7.6 years	β^-, γ
	Cs^{134}	3.0 years	β^-, γ
	Eu^{152}	19.3 years	β^-, β^+, EC, γ
	Eu^{154}	12.3 years	β^-, γ
	H^3	17.8 years	β^-
	C^{14}	8268 years	β^-

5.5 Release Guideline Criteria

Release guideline criteria for materials and building surfaces are based on NRC Regulatory Guide 1.86, "Termination of Operating Licenses for Nuclear Reactors". NRC has stated that beta-gamma and alpha surveys should be conducted in the Reactor Room to account for Pu-241 beta decay and the alpha decay of Pu-239 and Am-241. Based upon this requirement and the list of potential radionuclides, the Reg. Guide 1.86 limits of 100 dpm/100 cm^2 alpha and 5,000 dpm/100 cm^2 beta-gamma activities are deemed suitable for the UWNR. The beta limit of 1,000 dpm/100cm^2 is not appropriate for this facility because, as established above, Sr-90 should not be present at the UWNR. For areas of the facility that contain tritium, i.e., the inner bioshield surfaces, a modified release limit of 1700 dpm/100cm^2 average beta-gamma will be used. Table 5-2, "Potential Isotopes at the UWNR", provides the isotope list contained in the University of Washington Nuclear Reactor Decommissioning Plan. The remaining isotope of concern is Plutonium-241 as stated in the NRC position letter in Attachment B of the radiological Characterization Report. The release criteria are summarized in Table 5–4, "UWNR Decommissioning Release Criteria".

Table 5-4 UWNR Decommissioning Release Criteria

Emitter Type	Average Static	Maximum Static	Removable
Alpha	100 dpm/100cm^2 (over not more than 1-m^2)	300 dpm/100cm^2 (over not more than 100-cm^2)	20 dpm/100cm^2
Beta	5000 dpm/100cm^2 (over not more than 1-m^2)	15,000 dpm/100cm^2 (over not more than 1-m^2)	1000 dpm/100cm^2
Gamma (Interior)	Net result ≤ 5 microRem/hr at 1-m (average over 100-m^2)	5 microRem/hr at 1-m	N/A

Static measurements that indicate an area of activity above the decommissioning release criteria, but less than the maximum decommissioning release criteria were evaluated for average activity over the area (not to exceed 1-m^2) in which the elevated measurement is present. This was accomplished by performing surveys of at least three additional static measurements within the one square meter area and calculating a weighted average activity as described in NUREG/CR-5849. If the weighted average activity over 1-m^2 is less than the guideline limit, the area meets unrestricted release criteria. If the 1-m^2 weighted average was greater than the guideline limit, further decontamination was necessary.

This report verifies that unrestricted release criteria have been met for the facility. Building surfaces have been evaluated against the following unrestricted release criteria:

- Fixed alpha activity does not exceed an average of 100 dpm/100 cm^2 above background when averaged over 1-m^2.
- Fixed beta/gamma activity does not exceed an average of 5,000 dpm/100 cm^2 above background when averaged over 1 m^2.
- Removable alpha activity does not exceed 20 dpm/100 cm^2 above background at any location.
- Removable beta/gamma activity does not exceed 1,000 dpm/100 cm^2 above background at any location.
- Gamma exposure rate of 5-microrem per hour (μR/hr) above background at 1 meter from a surface averaged over a 100 m^2 for inside floor surfaces. (Walls and ceilings were not surveyed for gamma exposure)

5.5.1 Area Classification

Area classification was performed considering that all areas of the site did not have the same potential for residual contamination and did not need the same level of survey coverage to achieve the established release criteria. Classification required areas with higher potential for contamination to receive a higher degree of survey effort. For purposes of establishing the sampling and measurement frequency and pattern, NUREG/CR-5849 uses two classifications, affected and unaffected. Due to the Plutonium foil incident, it was determined that only specific areas were suspect for alpha contamination. Therefore, the affected classification was further divided into alpha affected and general affected.

Affected areas are areas with potential or known radioactive contamination based on plant operating history or preliminary radiological surveys. This included areas where radioactive materials were used and/or stored, where spills or unusual occurrences may have resulted in the spread of contamination and areas immediately surrounding or adjacent to these locations.

Affected and Unaffected areas are discussed in further detail below.

5.5.1.1 Affected Areas

Affected areas are defined by NUREG/CR-5849 as "areas that have potential radioactive contamination (based on plant operating history) or known radioactive contamination (based on past or preliminary radiological surveillance)." NUREG/CR-5849 goes on to further define those areas directly adjacent to affected areas as affected based on potential contamination migration. Adjacent areas may be classified as unaffected if a physical, impermeable barrier is currently in place and was present during operations. An example would be a concrete or brick wall structure. The maximum size for a survey unit classified as affected is 100-m^2. There are two sub-divisions of affected for the UWNR Decommissioning project, which depend upon the relationship of the area to the plutonium foil incident. Areas that were impacted by the reactor operation, but not by the foil incident are classified as "general affected". Areas that were identified during the characterization surveys to have alpha contamination in excess of 25% of the established release criteria or that were directly impacted by the plutonium foil incident were classified as "alpha affected.

5.5.1.2 Unaffected Areas

Unaffected areas are defined by NUREG/CR-5849 as "All areas not classified as affected". At a minimum, all areas adjacent to an affected area were also classified as affected unless separated by a permanent barrier, when they were classified as unaffected. Upper surfaces within an affected area were classified as unaffected barring a reason to be classified as affected. Areas separated from an affected area by an unaffected area were defined as unaffected and not requiring survey. There is no maximum size for an unaffected area.

5.5.2 Survey Requirements

Survey requirements for each area was determined by the classification, as defined above. Table 5-5, "UW-MHA Survey Requirements' summarizes the survey types and density given for each classification.

Table 5-5 UWNR Survey Requirements

	Classification		
Survey Type	**Unaffected (No maximum size)**	**General Affected (Maximum 100-m^2)**	**Alpha Affected (Maximum 100-m^2)**
Alpha static	None required	None required	1 per 1-m^2 MDA ≤100 dpm/100cm^2
Alpha scan	None required	None required	100% surface area $^1/_3$ probe width per second upon positive detection
Beta static	1 per 50-m^2 MDA ≤1,250 dpm/100cm^2 Minimum 30 locations per survey area	1 per 4-m^2 MDA ≤1,250 dpm/100cm^2	1 per 1-m^2 MDA ≤1,250 dpm/100cm^2
Beta scan	1-m area around static point 1 probe width per second	100% surface area 1 probe width per second	100% surface area 1 probe width per second
Gamma scan	10% of the floor surface 0.25 m per second	100% of the floor surface 0.25 m per second	100% of the floor surface 0.25 m per second
Removable alpha activity wipe	One 100-cm^2 wipe per static location MDA ≤15 dpm/100cm^2	One 100-cm^2 wipe per static location MDA ≤15 dpm/100cm^2	One 100-cm^2 wipe per static location MDA ≤15 dpm/100cm^2
Removable beta activity wipe	One 100-cm^2 wipe per static location MDA ≤50 dpm/100cm^2	One 100-cm^2 wipe per static location MDA ≤50 dpm/100cm^2	One 100-cm^2 wipe per static location MDA ≤50 dpm/100cm^2
Exposure rate	None	1 per 4-m^2 (floor surfaces only)	1 per 4-m^2 (floor surfaces only)

5.5.3 Reference Grids

Grid pattern were established at the site to facilitate systematic selection of measuring/sampling locations; to provide a mechanism for referencing a measurement/sample back to a specific location so that the same survey point can be relocated and to provide a convenient means for determining average activity levels. A grid consists of a system of intersecting lines, referenced to a fixed site location or benchmark. Typically, the grid lines are arranged in a perpendicular pattern, dividing the survey location into squares of equal area.

Grid patterns were identified using a Cartesian Alpha-Numeric coordinate system (XY) where A0 is the southwest-most corner of the floor for each unit or subunit and the lower left-hand corner of any wall in a unit or subunit. On floors, the x-axis runs east-west and the y-axis runs north-south. On walls, the axes match the grid established for the floor resulting in the floor grid wrapping onto the walls. All measurements are in meters. Ceiling surfaces utilized a superimposition of the floor grid system to readily identify survey locations. For example, grid location B2 on the ceiling was directly above grid location B2 on the floor.

Partial grids, i.e. grids less than 1-m in at least one direction, are evaluated individually. Normally an area less than 0.5-m is attached to the previous grid block and one greater than 0.5-m is designated as a new grid block.

To facilitate survey design and assure that the number of survey data points from an area was sufficient to enable statistical evaluation, areas were divided into survey units or sub-units (as appropriate) that have common history, other common characteristics, or are naturally distinguishable from other portions of the site. Survey units could combine adjacent rooms or areas that have the same contamination potential. To account for the possibility of combining adjacent rooms or areas into a unit, subunit designations are used. A subunit is the smallest unique area of a unit having the same potential for contamination. Typically, a subunit is a room within a survey unit that has a distinct grid system.

The location of any grid can be located by identifying the Section number, Unit number, and Sub-unit number for that grid. Typical nomenclature is as follows:

Section # - Survey Unit # - Sub-unit #

Where:

Section Number = 1 through 3 as identified above
Survey Unit Number = 1 through x (where x varies by section)
Sub-unit Number = 1 through y (where y varies by unit)

For example, Grid 3-13-2 is in Section 3, in Unit 13 in Sub-unit 2.

Instances where the sub-unit is absent is an indication that the unit is sufficiently small to be evaluated in its' entirety.

5.5.3.1 Lower Surfaces

Lower surfaces are defined as floors and walls up to 2-meter height. This would include structural supports, doors, windows, and any other item or structural member present within that 2-meter area.

5.5.3.2 Upper Surfaces

Upper surfaces are defined as those surfaces above 2-meter height. In general, upper surfaces within an unaffected area are exempt from survey requirements. Upper surfaces within an affected area may be classified as either affected or unaffected depending on the contamination potential. For project purposes, any upper surface within an affected area will be considered unaffected unless survey results or process knowledge indicate a need for reclassification.

Data set analysis for some affected surfaces show that the surface area exceeds 100-m^2, the maximum allowable by NUREG-5849. In these areas, the data sets are further delineated using sub-unit designators and individually analyzed for compliance with the requirements of NUREG-5849 and the license release criteria.

5.6 Background Level Determination

Instrument background readings were taken each day and are used to adjust the final status survey data in order to provide a net activity.

5.7 FSS Survey Methods

A description of each of the FSS survey methods is presented below.

5.7.1 Static measurement

A two-minute fixed point measurement was collected for total alpha and/or beta-gamma activity at each selected location. For this survey type, the probe was placed on the selected surface and left in place while the instrument collected count data for the pre-set time of two minutes at which point the instrument signaled completion of the data collection with an audible tone.

5.7.2 Scan

This consisted of a slow scan of the selected area or item for total alpha and/or beta-gamma activity with the detector as close as practical to the surface. Scan rates were dependent on the type of survey being performed. A scan for alpha and beta-gamma emitters was performed at 1/3 probe-width per second. A scan for only beta-gamma emitters was done at one probe-width per second. Scan rates were calculated based upon the formula presented into Section 5.3.3.

5.7.3 Removable Activity Wipe

Removable activity wipes were collected at each location with a 47-mm diameter cloth wipe and was analyzed on-site using the Ludlum Model 2929 counters. To perform the wipe test for FSS, the 100-cm^2 area which received the static measurement was wiped with the cloth using moderate pressure.

Removable activity wipes were collected to assess the activity of the low energy beta emitters C-14 and H-3. To perform the wipe test, a 100-cm^2 area was wiped with the scintillation wipe using moderate pressure. The wipe was dissolved in a scintillation cocktail and counted using a QuantaSmart™ liquid scintillation counter.

5.7.4 MicroR Exposure Rate

Floors received a microR exposure rate survey taken at waist height of the technician. Exposure rate surveys of walls, ceilings, and other surfaces were not required.

5.7.5 Building and Equipment Surfaces

To assure a consistent survey method, common building and equipment surfaces received FSS surveys consisting of static surface measurements, surface activity scans, and gamma exposure rate surveys using the procedure described below.

1. Survey floors, walls, ceilings, and larger miscellaneous equipment/items on separate survey forms.

2. Acquire a survey serial number from the Final Status Survey logbook. This number shall begin with **FSS-** and progress sequentially starting with **001**. Be sure to fill in all requested information in the Final Status Survey logbook.

3. Completely fill in all requested preliminary information on the "Final Status Survey Form". If an item does not apply, enter "N/A" in that location.

4. Begin with a scan of the 1-meter area bounded by the grid location (i.e. A-1) at 1-probe width per second for general affected areas or 1/3-probe width per second in alpha affected areas.

5. Note whether the location has physical features in the comment section of the survey form (i.e. doors, windows, columns, etc.).

6. Make note of any area(s) that appear(s) elevated.

7. Record the minimum and maximum counts-per-minute (CPM) of the scan on the Final Status Survey Form in the appropriate blocks.

8. Perform a static count at the most elevated area within the one-meter square. If no area appears to be elevated, perform the count at the lower left corner of the one-meter square.

9. Record the static count in the appropriate block on the Final Status Survey Form.

10. If the static count is ≤100 dpm/100cm^2 alpha and ≤5,000 dpm/100cm^2 beta, go to step 16.

11. If the static count is >100 dpm/100cm^2 alpha and/or 5,000 dpm/100cm^2 beta, scan the area around the hot spot to determine to size of the elevated area.

12. Document the estimated size and static count on the "Elevated Area Survey Form".

13. If the elevated area is >300 dpm/100cm^2 alpha; >15,000 dpm/100cm^2 beta; or >100cm^2, document the size of the area and its activity on the Elevated Area Survey (EAS) Form and go to step 15.

14. If the activity of the elevated area is ≤300 dpm/100cm^2 alpha <u>and</u> ≤15,000 dpm/100cm^2 beta, <u>and</u> its' size is ≤100-cm^2, perform at least 3 additional static measurements at random locations within the 1 meter block, and record these measurements in their approximate locations on the Elevated Area Survey Form.

15. If there are multiple Elevated Areas (EA) within the 1-m^2 block, document all of the EAS on one EAS form.

16. Take a wipe sample (100-cm^2) at the location of the most elevated static count as identified in the above section

17. Record a gross exposure rate at 1-meter from the surface and document the reading on the Final Status Survey Form.

18. Analyze the wipe sample, and record the result in the appropriate field of the form.

19. Assure all requested information is completed on the survey forms and put the forms together in the order:
    a) Final Status Survey Form
    b) Elevated Area Survey Form(s) (if necessary)
    c) Miscellaneous additional documentation (i.e. maps, drawings, comments, etc.)

20. Scan or photocopy the survey package and staple each package together.

21. Proceed to the next survey.

5.7.6 Floor Drains and Embedded Pipe

Floor drains and portions of embedded pipe which remained following remediation were surveyed using a procedure equivalent to that used at the UCLA Boelter Reactor decommissioning. Specifically, direct measurements, scans, and removable activity wipes were collected at each access point using appropriate FSS instrumentation. Interior surfaces were swabbed using an absorbent cloth and counted using field instruments and with the wipe counters. All measurement results were less than the guideline limits.

5.7.7 Excavations

When a drainline was excavated, soil samples and/or direct gross gamma scan measurements were conducted in the open excavation. All gamma scan results corresponded to background levels. Eleven soil samples were collected from selected areas beneath the removed drainlines for volumetric analysis. There is no applicable release guideline limits established for either the gross gamma measurements or the volumetric samples, but the information was collected to provide a substantial indication that the drainline did not have any leaks throughout its operational lifespan. The table below summarizes the analyses of the primary radionuclides of concern from those listed in Section 5.4 for the collected soils samples. The full radiochemistry analysis results are provided in Attachment 39.

Table 5-6 Soil Sample Radiochemistry Results

Sample ID	Location	Co-60		Cs-137		Eu-152		Eu-154	
		Result (pCi/g)	MDC (pCi/g)	Result (pCi/g)	MDC (pCi/g)	Result (pCi/g)	MDC (pCi/g)	Result (pCi/g)	MDC (pCi/g)
W1+1	Process pit / Radiochemistry west lab sink junction	<MDC	4.74E-02	<MDC	6.55E-02	<MDC	1.40E-01	<MDC	1.04E-01
W2+2	North bioshield branch	<MDC	8.68E-02	<MDC	7.19E-02	<MDC	2.12E-01	<MDC	2.05E-01

Sample ID	Location	Co-60 Result (pCi/g)	Co-60 MDC (pCi/g)	Cs-137 Result (pCi/g)	Cs-137 MDC (pCi/g)	Eu-152 Result (pCi/g)	Eu-152 MDC (pCi/g)	Eu-154 Result (pCi/g)	Eu-154 MDC (pCi/g)
S+3	Process pit / mainline junction	<MDC	1.08E-01	<MDC	1.07E-01	<MDC	2.25E-01	<MDC	1.94E-01
N-2	Bioshield / mainline junction	<MDC	9.49E-02	<MDC	1.06E-01	<MDC	2.79E-01	<MDC	1.89E-01
W1+5	Process pit elbow in Crystal Spectroscopy Room	<MDC	5.92E-02	<MDC	7.96E-02	<MDC	2.17E-01	<MDC	1.53E-01
S+2	Radiochemistry Lab / east lab sink junction	<MDC	6.64E-02	<MDC	6.88E-02	<MDC	2.42E-01	<MDC	1.68E-01
SS1	Mainline exit from building	<MDC	1.23E-01	1.72E-01 ±7.76E-02		<MDC	3.17E-01	<MDC	1.95E-01
SS10	Emergency shower / sink junction in Experiment Room	<MDC	7.70E-02	<MDC	7.48E-02	<MDC	2.23E-01	<MDC	1.67E-01
SS11	Retention tank outlet	<MDC	1.05E-01	2.95E-01 ±1.34E-01		<MDC	2.97E-01	<MDC	2.25E-01
SS4	Elbow outside building	<MDC	1.19E-01	<MDC	9.08E-02	<MDC	2.43E-01	<MDC	1.78E-01
SS8	Sink in Experiment Room	<MDC	6.48E-02	<MDC	8.67E-02	<MDC	3.19e-01	<MDC	2.04E-01

6 FINAL STATUS SURVEY EVALUATION

6.1 Statistical Analysis

FSS data was evaluated relative to conditions established for unrestricted release in USNRC License R-73. This included organization of collected data into data sets, and analysis of each data set using methods described in NUREG/CR-5849.

For comparison to guideline values, the FSS data was organized into units, taking into consideration physical location, size, and classification to meet criteria described in NUREG/CR-5849. Each data set from each unit was evaluated using three statistical tests. An area that passed the three statistical tests is considered to have met the unrestricted release criteria for the facility.

In the first test, the size of the data set was checked to determine if it was of sufficient size to demonstrate compliance. The number of data points required was determined using the formula 8-21 in NUREG/CR-5849 along with the guideline value, the data set mean value, and the standard deviation. If the number of data points was less than required, then additional measurements would be required to demonstrate compliance.

The second test compared individual measurements directly against the appropriate guideline value. If the elevated activity of an area was between the guideline value and the allowed maximum value, additional testing would be required to assure that the average surface activity level within the contiguous 1-m^2 area containing the elevated area is less than the guideline value. Residual activity exceeding the maximum value limit would require remediation and follow-up surveys.

Finally, a test was performed to confirm that the data met the guidelines at the 95% confidence level. For this test the means and standard deviations of each data set were determined for each radiological parameter. These values were used along with the actual number of individual measurements, a false positive probability of 5%, and a false negative value of 10%, to determine a value of μ_a according to formula 8-13 in NUREG/CR-5849. This value was then compared to the guideline value and if it was less than the guideline, the area tested met the guideline at a 95% confidence level.

An additional test was performed for unaffected areas. For these areas, all individual measurements were checked to determine if the values were less than 25% of the guideline. Any unaffected area that exceeded the 25% value would be reclassified as affected.

When the data sets for a unit were determined to pass each of these statistical tests, the unit met the release criteria. If the data set failed to pass the statistical tests, the cause of the failure would be evaluated.

6.2 Data Preparation

Prior to performing any statistical analysis on the collected survey data, it must first be converted into standardized units over a standardized area. Typically this is to net disintegrations per minute per 100 square centimeters (DPM/100cm^2). This is a straight-forward conversion following industry standard techniques done by utilizing the total efficiency formula in Section 5.3.4 and correcting for the detection area of the instrument probe. Therefore, the completed formula for handheld field instruments is:

$$\text{Net DPM/100cm}^2 = \frac{C_r - C_b}{E_t * \left(\frac{A}{100}\right)}$$

Where:

C_r = Instrument Counts per One Minute
C_b = Instrument Daily Background Counts per One Minute
E_t = Total instrument efficiency
A = Probe detection area in cm^2

Removable activity counters utilize only the source efficiency from Section 5.3.4, but account for a wiping efficiency of 90% using the formula:

$$\text{Net DPM/100cm}^2 = \frac{C_r - C_b}{E_s * 0.9}$$

Where:

C_r = Instrument Counts per One Minute
C_b = Instrument Daily Background Counts per One Minute
E_s = Instrument source efficiency

7 FINAL STATUS SURVEY RESULTS

This section provides detailed descriptions of the results of the Final Status Survey activities for each unit. A release status determination was made for each survey unit based on a review of available data and the results of statistical analyses described in the previous sections. Statistical analyses were performed in accordance with guidelines provided in NUREG/CR-5849. Attachments 1 through 38 contain information such as relevant drawings, unit location and description, statistical analyses, and the FSS data. Figures and information associated with drain lines and excavations are included in Section 10, analytical results of collected volumetric soil samples are included in Attachment 39.

7.1 Survey Units

Table 7-1 below provides a summary of the unit identifier, location, and classification for each of the survey units.

Table 7-1 Survey Unit Identification

Unit ID	Location	Class
1-1	Counting Room	AA
1-2	Experiment Room	AA
1-3	Reactor Room	AA
1-4	Crystal Spectroscopy Room	AA
1-5	Radiochemistry Laboratory	AA
1-6	Robotics Laboratory	GA
1-7	Offices, restrooms, and hallway	UN
2-1	Control Room	GA
2-2	Lecture Briefing Room	GA
2-3	Stairs, 2nd Floor Foyer, Fan Loft, and Mechanical Equipment Room	UN
3-1	Building Exterior	UN
3-2	Retention Tanks and Valve Gallery	AA

7.1.1 Unit 1-1 Counting Room

The Counting Room is located on the ground floor in the northwest corner of the building and was classified as alpha affected. It is a windowless room approximately 4-m by 4-m in size. A unique feature is an approximately 1-m x 1-m x 1-m 'cave' located in the north wall. The cave was constructed with a shielded door and was used to store highly radioactive sources. As part of the remediation and in preparation for FSS, the shield door and lead bricks were removed. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 1.

7.1.2 Unit 1-2 Experiment Room

The Experiment Room is located on the ground floor along the north side of the building and was classified as alpha affected. It is a windowless room approximately 6-m by 5-m in size with an emergency escape hatchway in the northeast corner. As part of the remediation and in preparation for FSS, the south partition wall separating the Experiment Room from the Reactor Room was removed, leaving only the original concrete archway. This unit was divided into two sub-units in order to meet size restrictions for an affected area.

7.1.2.1 Sub-Unit 1-2-1 Experiment Room Ceiling, East and North Walls

The Experiment Room ceiling, east and north walls were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 63-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 2.

7.1.2.2 Sub-Unit 1-2-2 Experiment Room Floor, South and West Walls

The Experiment Room floor, south and west walls were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 55-m^2 in surface area. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 3.

7.1.3 Unit 1-3 Reactor Room

The Reactor Room is located on the ground floor in the center of the building and was classified as alpha affected. It is the largest room in the facility and measures approximately 14-m by 10-m in size and is approximately 10.5-m high. As part of the remediation and in preparation for FSS, the north partition wall separating the Experiment Room from the Reactor Room and the south partition wall separating the Reactor Room from the Crystal Spectroscopy Room were removed, leaving only the original concrete archways. This unit was divided into 18 sub-units in order to meet the 100-m^2 size restriction for an affected area.

7.1.3.1 Sub-Unit 1-3-1 Overhead Crane

The portions of the overhead crane remaining after remediation were grouped together as a sub-unit for statistical analysis. Fifty-two survey locations were identified on all of the crane surfaces which included the fixed travel rails on the north and south ends of the Reactor Room and the mobile bridge that spanned the travel rails. The movable lifting trolley was removed as part of the remediation. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 4.

7.1.3.2 Sub-Unit 1-3-2 Fuel and Process Pit Blocks

Reinforced concrete blocks were used to cover the process pit and the fuel storage pits. These were grouped together as a sub-unit along with a portion of one remaining reactor shield block for statistical analysis. There were 27 survey locations for this sub-unit. Four exposure rate measurements were taken on the reactor shield block. The remaining exposure rate measurements were collected as part of the corresponding floor survey once the process pit and fuel storage pit blocks were returned to their normal positions. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 5.

7.1.3.3 Sub-Unit 1-3-3 Fuel Storage Tubes

The fuel storage pit contains 54 steel lined tubes 1.5 meters in depth embedded in concrete and recessed approximately 20 cm below the Reactor Room floor surface. Each tube is 10 cm in diameter. Each tube yielded 0.6-m^2 of internal surface area. Three reinforced concrete blocks were normally in place over the storage pits.

As per the Decommissioning Plan, each tube received 5 alpha and beta-gamma static counts, two alpha and beta-gamma removable surveys, one gamma exposure survey and one liquid scintillation wipe for hard to detect radionuclides. Total alpha activity for the sides of the tubes was measured with an air proportional 50-cm^2 detector. Total beta-gamma activity was collected with a 17.5-cm^2 Geiger-Mueller detector. Each tube was also scanned for total alpha and total beta-gamma activity. This scan was used to select the five locations for fixed point static measurement.

A total of five locations exceeded their respective guidelines limits, but were less than the maximum guideline limits. Three locations exceeded the total alpha activity guideline of 100 dpm/100-cm^2 and two locations exceeded the total beta-gamma activity guideline of 5,000 dpm/100-cm^2. The activity scans indicate that each area of elevated activity is less than 100-cm^2 in area. The elevated areas subsequently were evaluated for weighted average activity over the internal area of the tube. In each case, the weighted average activity was deemed to meet criteria.

Table 7-2 provides a summary of the elevated result and the weighted average result by location. In no case were there two elevated areas within one tube.

Table 7-2 Elevated Activity Evaluation

Location ID	Elevated Result	Weighted Average
A2 : 8	147 dpm/100cm^2 total alpha activity	Measurements equal background
B2 : 7	201 dpm/100cm^2 total alpha activity	19 dpm/100cm^2 total alpha activity
B2 : 8	124 dpm/100cm^2 total alpha activity	9 dpm/100cm^2 total alpha activity
B0 : 6	5,278 dpm/100cm^2 total beta-gamma activity	Measurements equal background
A2 : 3	6,500 dpm/100cm^2 total beta-gamma activity	Measurements equal background

All other survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 6, liquid scintillation analytical results for the fuel storage tubes are provided in Attachment 7.

The 50-cm^2 air proportional alpha detector provided the best resource for meeting the source-to-detector distance required by the instrument use procedures (i.e. no greater than 1-cm) when used on the curved surface within the fuel storage tubes. With the detector edges in contact with the tube wall, the maximum detector distance from the detector face to the apex of the tube wall was calculated to be 1.2-cm. This means the average source-to-detector distance was 0.6-cm, thereby meeting the procedural requirement of a distance no greater than 1-cm.

During the data evaluation phase, the total efficiency is area-corrected to reflect the size of the 50-cm² detector using the formula:

$$\textbf{Net DPM/100cm}^2 = \frac{C_r - C_b}{E_t * \left(\frac{A}{100}\right)}$$

Where:

C_r = Instrument Counts per One Minute
C_b = Instrument Daily Background Counts per One Minute
E_t = Total instrument efficiency
A = Probe detection area in cm²

7.1.3.4 Sub-Units 1-3-4 through 1-3-6

These Sub-Unit numbers were not utilized due to data management planning methodologies.

7.1.3.5 Sub-Unit 1-3-7 Reactor Room North Wall 0 To 4-m

The lower portions (up to 4-m above the floor surface) of the Reactor Room north wall were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 55-m² in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 8.

7.1.3.6 Sub-Unit 1-3-8 Reactor Room North Wall 5 To 9-m

The upper portions (5-m above the floor surface and beyond) of the Reactor Room north wall were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 67-m² in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 9.

7.1.3.7 Sub-Unit 1-3-9 Reactor Room South Wall 0 To 4-m

The lower portions (up to 4-m above the floor surface) of the Reactor Room south wall were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 58-m² in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 10.

7.1.3.8 Sub-Unit 1-3-10 Reactor Room South Wall 5 To 9-m

The upper portions (5-m above the floor surface and beyond) of the Reactor Room north wall were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 67-m² in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 11.

7.1.3.9 Sub-Unit 1-3-11 Reactor Room West Ceiling Grids A-D Including Beams

The western third of the Reactor Room ceiling was grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 88-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. The ceiling construction includes 0.5 meters deep x 15 cm wide beams with a flat surface approximately 1 meter between. For simplicity, each 1-meter long section of flat surface was surveyed as one square meter and each 1-meter long section of beam was surveyed as one-square meter. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 12.

7.1.3.10 Sub-Unit 1-3-12 Reactor Room Center Ceiling Grids E-H Including Beams

The center third of the Reactor Room ceiling was grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 88-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. The ceiling construction includes 0.5 meters deep x 15 cm wide beams with a flat surface approximately 1 meter between. For simplicity, each 1-meter long section of flat surface was surveyed as one square meter and each 1-meter long section of beam was surveyed as one-square meter. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 13.

7.1.3.11 Sub-Unit 1-3-13 Reactor Room East Ceiling Grids I-L Including Beams

The center third of the Reactor Room ceiling was grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 77-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. The ceiling construction includes 1.5 meter deep x 15 cm wide beams with a flat surface approximately 1 meter between. For simplicity, each 1-meter long section of flat surface was surveyed as one square meter and each 1-meter long section of beam was surveyed as one-square meter. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 14.

7.1.3.12 Sub-Unit 1-3-14 Reactor Room West Wall

The western wall survey locations of the Reactor Room were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 91-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 15.

7.1.3.13 Sub-Unit 1-3-15 Reactor Room East Wall 0 To 4-m

The lower portions (up to 4-m above the floor surface) of the Reactor Room east wall were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 60-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 16.

7.1.3.14 Sub-Unit 1-3-16 Reactor Room East Wall 5 To 9-m

The upper portions (5-m above the floor surface and beyond) of the Reactor Room east wall were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 59-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 17.

7.1.3.15 Sub-Units 1-3-17 through 1-3-19

These Sub-Unit numbers were not utilized due to data management planning methodologies.

7.1.3.16 Sub-Unit 1-3-20 Bioshield North Wall Including Beam Ports

The surfaces of the northern half of the remaining portion of the bioshield and the floor of the bioshield interior were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 81-m^2 in surface area. While this sub-unit is classified as alpha affected, heavily remediated portions of the bioshield interior and the beam ports received surveys as general affected. Sufficient material was removed during remediation to eliminate concern of any of the plutonium incident residual activity remaining attached to the surfaces and volumetric samples of the bioshield indicated a lack of alpha emitting nuclides in the concrete. Three beam port penetrations were surveyed independently for beta-gamma and removable activity.

Rough surfaces within the remediated portions of the bioshield interior may have had an adverse effect on the detection efficiencies during FSS. Assurance is provided that detection efficiency was not affected by a resurvey of select locations using a smaller 17.5-cm^2 Ludlum model 44-9 Geiger-Mueller detector capable of maintaining a surface to detector distance of no greater than 1-cm. During this survey, measurement results are consistent with those obtained with the larger gas proportional Ludlum 43-68 detectors.

The beta-gamma release criteria for this sub-unit and sub-unit 1-3-21 (the south bioshield) were reduced to 1700 dpm/100cm^2 for total surface activity and 340 dpm/100cm^2 for removable surface activity to account for the potential presence of tritium in the bioshield concrete. Using a 1.86:1 ratio of tritium to beta-gamma emitters, the beta-gamma limit of 1700 dpm/100cm^2, would equate to 3160 dpm/100 cm^2 tritium, which is below the release criteria for tritium in the Decommissioning Plan of 5000 dpm/100cm^2. Use of this criteria, which is for removable activity, is conservative in that the volumetric analysis was performed for total activity. Additional conservatism is provided through the application of the unity rule. The unity calculation is performed to assure that differing release criteria for multiple radionuclides do not result in a total contamination above release levels. This is accomplished by formula 4-3 from the MARSSIM:

Unity
$$\frac{C_1}{DCGL_1}+\frac{C_2}{DCGL_2}+\ldots\frac{C_n}{DCGL_n}\leq 1$$

Where:

C = radionuclide concentration
DCGL = appropriate radionuclide release limit

Applying this calculation to the release limits for beta-gamma emitters (1700 dpm/100cm^2) and tritium (5000 dpm/100cm^2) results in a unity value of 0.97, thereby assuring that a beta-gamma survey value that is equal to the reduced criteria results in true compliance to all release criteria. The calculations for the modified release criteria and unity rule are provided in Attachment 41. As a result, all survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 18.

7.1.3.17 Sub-Unit 1-3-21 Bioshield South Wall Including Beam Ports

The surfaces of the southern half of the remaining portion of the bioshield were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 68-m^2 in surface area. While this sub-unit is classified as alpha affected, heavily remediated portions of the bioshield interior and the beam ports received surveys as general affected. Sufficient material was removed during remediation to eliminate concern of any of the plutonium incident residual activity remaining attached to the surfaces and volumetric samples of the bioshield indicated a lack of alpha emitting nuclides in the concrete. Three beam port penetrations were surveyed independently for beta-gamma and removable activity. The beta-gamma release limit for this sub-unit was also reduced to 1700 dpm/100 cm2 to account for the presence of tritium. Select locations within the remediated portions of the bioshield were surveyed with a smaller detector as was described in the above section to verify the detection efficiency was not adversely affected by the rough surfaces. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 19.

7.1.3.18 Sub-Unit 1-3-22 through 1-3-29

These Sub-Unit numbers were not utilized due to data management planning methodologies.

7.1.3.19 Sub-Unit 1-3-30 Process Pit

All surfaces of the process pit were grouped together as a sub-unit for statistical analysis. This included removable activity surveys of all penetrations into the process pit, such as drain lines from the reactor core and electrical conduits. All penetrations were swabbed and analyzed for removable activity. This included 4 penetrations on the east wall, one penetration on each the south and west walls, and 7 penetrations on the north wall. One pipe penetration, NPP-5, was large enough to survey directly with a GM detector, therefore, a direct scan of the penetration interior for total beta-gamma activity was performed. This sub-unit is approximately 68-m^2 in surface area. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 20.

7.1.3.20 Sub-Unit 1-3-31 through 1-3-39

These Sub-Unit numbers were not utilized due to data management planning methodologies.

7.1.3.21 Sub-Unit 1-3-40 Reactor Room Floor West Grids A-G

The survey locations of the western half of the Reactor Room floor were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 65-m^2 in surface area. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 21.

7.1.3.22 Sub-Unit 1-3-41 Reactor Room Floor East Grids H-N

The survey locations of the eastern half of the Reactor Room floor were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 57-m^2 in surface area and included utility trenches.

Portions of the floor were removed during drain line remediation. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 22.

7.1.4 Unit 1-4 Crystal Spectroscopy Room

The Crystal Spectroscopy Room is located on the ground floor in the southwest corner of the building and was classified as alpha affected. It is a windowless room approximately 10-m by 4-m in size with an emergency escape hatchway in the southeast corner. As part of the remediation and in preparation for FSS, the north partition wall separating the Crystal Spectroscopy Room from the Reactor Room was removed, leaving only the original concrete archway. The Crystal Spectroscopy Room housed the air handling and coolant systems for the restricted areas. This unit was divided into three sub-units in order to meet size restrictions for an affected area.

7.1.4.1 Sub-Unit 1-4-1 Crystal Spectroscopy Room Ceiling, East, North, and West #2 Walls

The survey locations for the ceiling, east wall, north wall, and a partial wall attached to the north wall were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 87-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 23.

7.1.4.2 Sub-Unit 1-4-2 Crystal Spectroscopy Room Floor, West and South Walls

The survey locations for the floor, west wall, and south wall were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 96-m^2 in surface area. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 24.

7.1.4.3 Sub-Unit 1-4-3 Crystal Spectroscopy Overhead Piping

A total of 32 survey locations associated with sealed overhead piping which carried supply water to and from the restricted area coolant systems was grouped together as a sub-unit for statistical analysis. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. The pipes were surveyed and grid coordinates applied based upon the overhead ceiling grid coordinate in which the pipe was located. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 25.

7.1.5 Unit 1-5 Radiochemistry Lab

The survey locations contained within the Radiochemistry Laboratory were grouped together as a sub-unit for statistical analysis as an alpha affected unit. The Radiochemistry Lab dimensions are approximately 4-m x 4.5-m with approximately 87-m^2 in total surface area. Portions of the floor were removed during drain line remediation. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 26.

7.1.6 Unit 1-6 Robotics Laboratory

The Robotics Laboratory is located on the ground floor in the southeast corner of the building. The room dimensions are approximately 8-m x 9-m. Due to limited space in the facility, the room was used during

D&D activities to store full waste boxes prior to shipment. The waste boxes received a complete release survey prior to removal from the restricted area to ensure no removable activity was present on the exterior surfaces of the box. This unit is classified as a general affected unit. A small electrical equipment room (aka Transformer Room) is located in the southwest corner of the Robotics Laboratory and was included in this unit. This unit was divided into four sub-units in order to meet size restrictions for an affected area.

7.1.6.1 Sub-Unit 1-6-1 Robotics Lab Floor

The survey locations for the floor were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 80-m^2 in total surface area. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 27.

7.1.6.2 Sub-Unit 1-6-2 Robotics Lab West and South Walls

The survey locations for the west and south walls and were grouped together with locations in the Transformer Room as a sub-unit for statistical analysis. This sub-unit is approximately 96-m^2 in total surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 28.

7.1.6.3 Sub-Unit 1-6-3 Robotics Lab East and North Walls

The survey locations for the east and north walls were grouped as a sub-unit for statistical analysis. This sub-unit is approximately 88-m^2 in total surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 29.

7.1.6.4 Sub-Unit 1-6-4 Robotics Lab Ceiling

The survey locations for the Robotics Lab ceiling were grouped as a sub-unit for statistical analysis. This sub-unit is approximately 88-m^2 in total surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 30.

7.1.7 Unit 1-7 Offices, Restrooms, and Hallway

The remaining portions of the first floor were identified during review of the Characterization Report as unaffected and were grouped together as a unit for statistical analysis. Thirty randomly selected locations received surveys. The survey results underwent the standard FSS statistical analysis and were also evaluated to ensure no individual measurement exceeded 25% of the appropriate criteria. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 31.

7.1.8 Unit 2-1 Control Room

The Control Room is located in the center of the 2nd floor with an overlooking view of the Reactor Room. This room was identified during a review of the Characterization Report as a general affected area. The dimensions are approximately 7-m x 4-m. This unit was divided into two sub-units in order to meet size restrictions for an affected area.

7.1.8.1 Sub-Unit 2-1-1 Control Room Ceiling, East, and North Walls

The Control Room ceiling, east and north walls were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 80-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 32.

7.1.8.2 Sub-Unit 2-1-2 Control Room Floor, South, and West Walls

The Control Room floor, south and west walls were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 68-m^2 in surface area. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 33.

7.1.9 Unit 2-2 Lecture Briefing Room

The Lecture Briefing Room is located in the southeast corner of the 2nd floor with an overlooking view of the Reactor Room. This room was identified during a review of the Characterization Report as a general affected area. The dimensions are approximately 5-m x 5-m. This unit was divided into two sub-units in order to meet size restrictions for an affected area.

7.1.9.1 Sub-Unit 2-2-1 Lecture Briefing Room Ceiling, East, and North Walls

The Lecture Briefing Room ceiling, east and north walls were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 64-m^2 in surface area. Since no floor surfaces are within this sub-unit, no exposure rate measurements were taken. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 34.

7.1.9.2 Sub-Unit 2-2-2 Lecture Briefing Room Floor, South, and West Walls

The Lecture Briefing Room floor, south and west walls were grouped together as a sub-unit for statistical analysis. This sub-unit is approximately 60-m^2 in surface area. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 35.

7.1.10 Unit 2-3 Stairs, 2nd Floor Foyer, Fan Room, and Mechanical Room

The remaining portions of the second floor were identified during review of the Characterization Report as unaffected and were grouped together as a unit for statistical analysis. Thirty randomly selected locations received surveys. The survey results underwent the standard FSS statistical analysis and were also evaluated to ensure no individual measurement exceeded 25% of the appropriate criteria. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 36.

7.1.11 Unit 3-1 Building Exterior

The exterior surfaces of the building were grouped as a survey unit for statistical analysis as an unaffected area. A total of random 36 survey locations were chosen covering all external surfaces, including walls, roof, and the patio area surrounding the second floor. The survey results underwent the standard FSS statistical analysis and were also evaluated to ensure no individual measurement exceeded 25% of the appropriate criteria. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 37.

7.1.12 Unit 3-2 Retention Tanks and Valve Gallery

Two retention tanks and an associated central control valve gallery are located at and below ground level approximately 5-m south of the building. Each tank is approximately 2-m x 2-m x 2-m in size and the valve gallery is approximately 2-m x 1-m x 2-m in size. This unit was classified as an alpha affected area due to elevated alpha activity found during characterization verification surveys following the clean out of the tanks. All survey results in this unit are less than the guideline limits. FSS results and a statistical summary are provided in Attachment 38.

8 FSS QUALITY ASSURANCE

8.1 Project Objective

The objective of the FSS Quality Assurance section is to provide a description of the policies and procedures utilized to assure data quality in support of the decommissioning of the UWNR.

8.2 Quality Objectives

The methods described in this document were utilized to ensure that the data collection and analysis achieved the Data Quality Objectives (DQOs) set forth for the UW-MHA Decommissioning. The methods employed to ensure such quality were:

- Careful planning and design of methods and procedures;
- Selection of qualified personnel and thorough training of the personnel to the procedures
- Audits and reviews of collected data to verify accuracy;
- Identification and correction of problems or uncertainties as they arise.

8.3 Criteria for Measurement Data

The decommissioning release criteria for measurement data is based upon Regulatory Guide 1.86 'Termination of Operating Licenses for Nuclear Reactors'.

8.4 Special Training Requirements/Certification

Prior to beginning work on the project, each Radiation Control Technician (RCT) received training on all pertinent project procedures. This training included, at a minimum, review of the operation of each radiological survey instrument, discussion of the QA/QC expectations, and review of the data collection and documentation procedures. The Safety and Compliance Manager documented the training on an attendance roster and retained the documentation on-site.

8.5 Documentation and Records

All documentation pertinent to the final status of the UW-MHA decommissioning project was maintained on-site by the Safety and Compliance Manager.

8.6 Instrument Calibration and Frequency

At a minimum, radiological instruments were calibrated:

- Semi-Annually
- Following any repair that may affect the calibration
- When the pre-operational source check is greater than ±10% difference from the initial source response

8.7 Assessments and Response Actions

8.7.1 QA/QC Assessment Checklist

Quality Assurance and Quality Control (QA/QC) checklists provided a method for assuring survey accuracy and provided a manner in which to identify and correct discrepancies. The following is the general guidance provided to the QA/QC manager to verify the proper completion of QA/QC Assessment Checklist for the UWNR decommissioning project.

1. Begin with an appropriate blank QA/QC Checklist.

2. Each checklist has a review information section that contains at a minimum QA/QC reviewer, review date, item reviewed, and an approval/rejection indicator. Ensure each of these blocks is complete, if an item does not apply, enter "N/A" in that block.

3. A section is present on each checklist that is specific to the information being examined. This section will contain block-columns for "Y", "N", "Item", and "Corrective Action / Comments"

4. In all cases, a definitive mark placed in the "Y" block-column indicates an acceptable item condition and a definitive mark in the "N" block-column indicates a deficiency condition that requires corrective action for that item.

5. Any mark placed in the acknowledgement section should be definitive in that it should not cross block boundaries and it should positively indicate which block is selected. A suggested mark would be an "X" placed within one block.

6. The "Item" block-column describes that which the reviewer is to examine and determine the acceptance or rejection thereof. In most cases, this item is strictly "Yes" or "No" and is not subject to outside conditions or reviewer opinion.

7. The "Corrective Action / Comments" block-column provides space for the reviewer to provide a suggested course of corrective action or it may be used to call attention to a potential future condition to be examined (i.e. "Numbers '1' and '7' appear similar on the datasheet").

8. If each line item has been satisfied (only "Y" acknowledgement blocks are marked), the checklist is approved and should receive an appropriate indicator in the approval area of the QA/QC Review Information section.

9. If corrective action is necessary, complete a new checklist once all action items have been satisfied and attach the new checklist to the original. Repeat as necessary until the checklist receives an "Approved" mark.

10. File all "Approved" checklists in the UWNR QA/QC file.

8.8 QA/QC Verification Surveys

QA/QC verification surveys were performed once a survey unit FSS was completed. At a minimum, one QA/QC Verification survey was performed for each survey unit as a standard practice. This was done to provide an early indication of potential problems with final status survey procedures/guidelines, instrumentation, and/or possible cross-contamination from ongoing site decontamination activities. All verification surveys were performed in accordance with the UWNR FSS Plan. Verification of final status surveys included the investigation of documentation, survey protocol, instrument calibration, and any practice associated with the collection of survey data. Verification surveys were completed by the Safety and Compliance Manager or, at the discretion of the Safety and Compliance Manager, by a different technician than performed the original survey.

QA/QC verification surveys were performed on at least 5% of each survey unit. All requested information was verified complete on the surveys and all instruments were verified to be properly available for use, i.e., each instrument had received a valid daily pre-operational check. Locations within a survey unit were randomly selected for verification. The verification survey followed the same survey protocol utilized for FSS surveys. Upon completion of the verification survey, each verification location was directly compared against the original FSS location. If the QA/QC survey result was less than the final status survey result, no action was necessary. If there was a net difference within +25%, no action was required. If the net QA/QC survey result was +25% or greater, the net count differential was added to the net QA/QC survey result to calculate an adjusted net QA/QC value. If this adjusted net QA/QC value was less than unrestricted release criteria appropriate to the survey, no further action was required. If the adjusted net QA/QC result was greater than the unrestricted release criteria appropriate to the survey, "Invalid" was written on the Final Status Survey copy and in the appropriate entry of the Final Status Survey logbook along with the QA/QC reviewers' initials and date and designate locations on that survey to be resurveyed. All QA/QC verification surveys indicated the original FSS surveys to be valid and no corrective action and/or resurveys were necessary.

8.9 Data Entry and Review

During data entry, all survey forms were reviewed for completeness and legibility, and survey instrumentation were reviewed to ensure a valid calibration. Any discrepancies or missing information necessitated direct communication with the originating technician for correction. If the originating technician was not available, clarification was obtained from the Safety and Compliance Manager, the on-site RSO, or the survey data was recollected.

QA of the data entry was performed once the handwritten surveys had been entered into electronic versions of the form. The data entry review was performed on at least 5% of the survey records and included the following items:

- Survey Information (serial numbers, dates, unit, etc.) all corresponded to the survey original

- The surface type (wall, floor, ceiling, etc.) was valid
- The grid (X, Y) represented on the survey form was present and valid
- Each reading (static measurements, scans, removable activity, etc.) on the electronic copy corresponded to the original survey
- Comments corresponded to the original survey

8.10 Completeness Review

Prior to performance of the FSS statistical analysis, a completeness review was performed to verify that each surface of each survey unit had been adequately surveyed to meet density requirements set in the FSS Plan. This was accomplished by directly comparing the accumulated survey data against prepared survey maps. Any discrepancies were related to the Safety and Compliance Manager and/or the site RSO for investigation or additional survey as appropriate.

8.11 Data Analysis

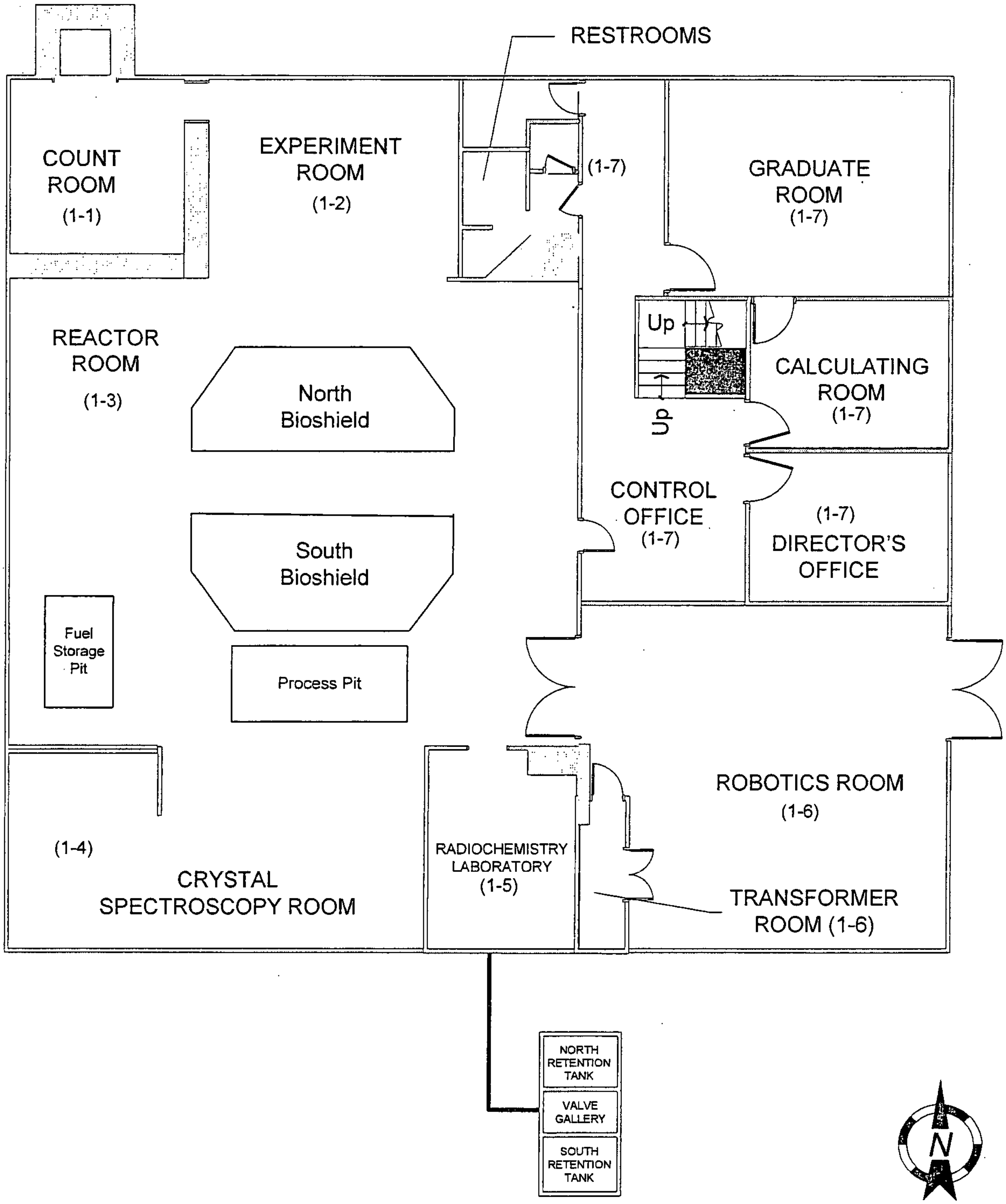
Data analysis was performed utilizing data spreadsheets and analysis routines developed by ENERCON specifically for the evaluation of NUREG/CR-5849 survey data. These spreadsheets have been utilized for many projects and the formulae and analysis routines have received numerous verification and validation reviews.

A master database was created to manage the FSS survey data. This database provided the data source for the individual unit or sub-unit statistical analysis. Only the required survey data was placed into the spreadsheets for analysis. Survey data that was not required, such as alpha survey data collected in an unaffected area or exposure rates collected for a wall surface, was discarded from the analytical sheets, but has been retained in the master database.

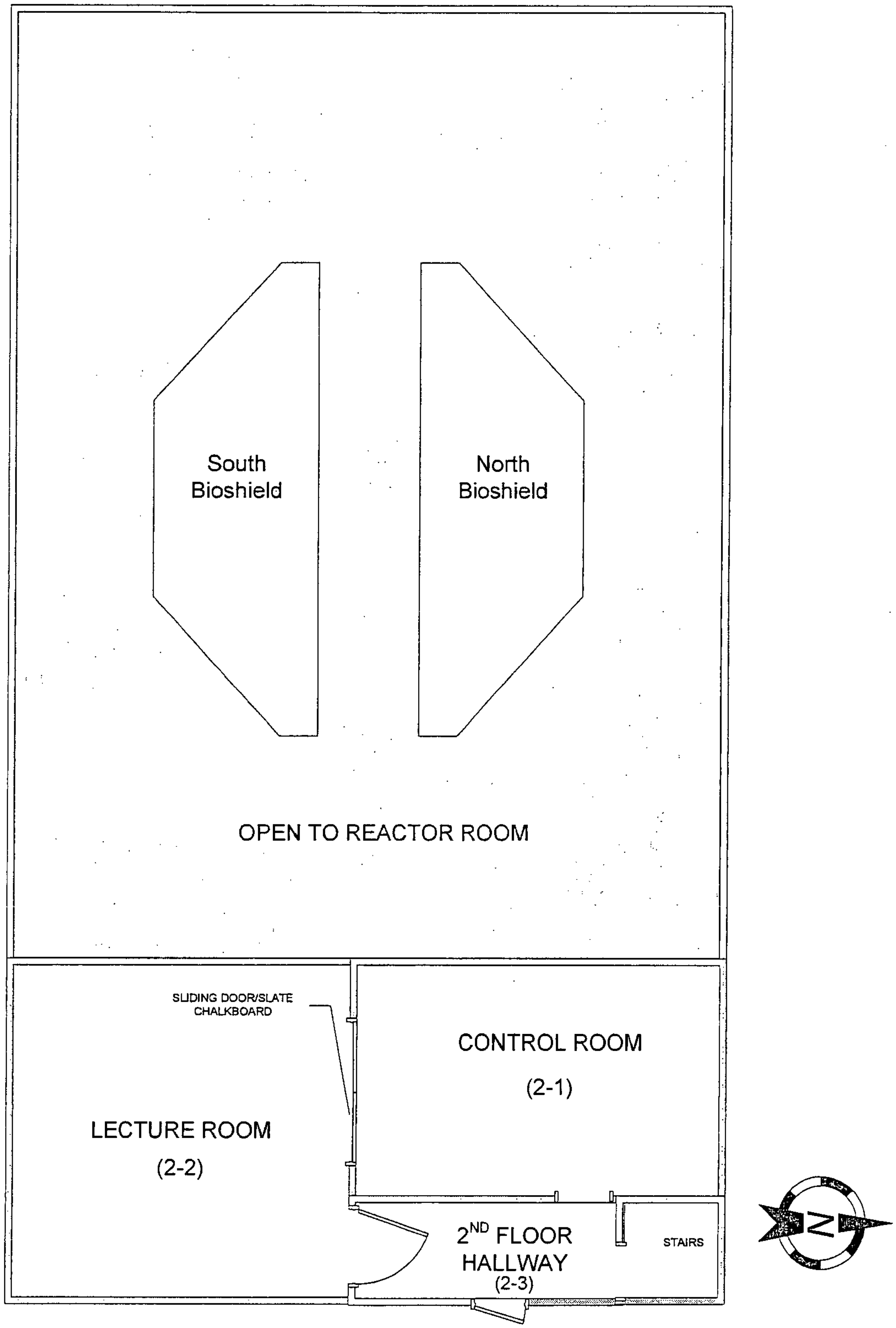
9 REFERENCES

- United States Nuclear Regulatory License R-73
- "Standard Format and Content of Decommissioning Plans for Licenses", Regulatory Guide 3.65, U.S. Nuclear Regulatory Commission, August 1989
- "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material", Regulatory Guide 1.86, U.S. Nuclear Regulatory Commission, April 1993
- "Manual for Conducting Radiological Surveys in Support of License Termination", NUREG/CR-5849, U. S. Nuclear Regulatory Commission, 1992
- "NMSS Decommissioning Standard Review Plan", NUREG-1727, U.S. Nuclear Regulatory Commission, 2000
- "Residual Radiation Contamination from Decommissioning", NUREG/CR-5512, Volume 1, US Nuclear Regulatory Commission, 1992
- "Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions", NUREG-1507, U.S. Nuclear Regulatory Commission, 1997
- "Decommissioning of a University Research Reactor", Abelquist et al., 1994
- "Evaluation of Surface Contamination - Part 1: Beta Emitters and Alpha Emitters", ISO-7503-1, International Standards Organization, Geneva, Switzerland, 1988
- University of Washington Nuclear Reactor Decommissioning Project; Investigation and Analysis Phase; Radiological Characterization Plan, November 1993
- University of Washington Nuclear Reactor Decommissioning Plan, 1994
- **Draft ANSI Standard N13.12 (1978), "Control of Radioactive Surface Contamination on Materials, Equipment, and Facilities to be Released for Uncontrolled Use", ANSI 1978**

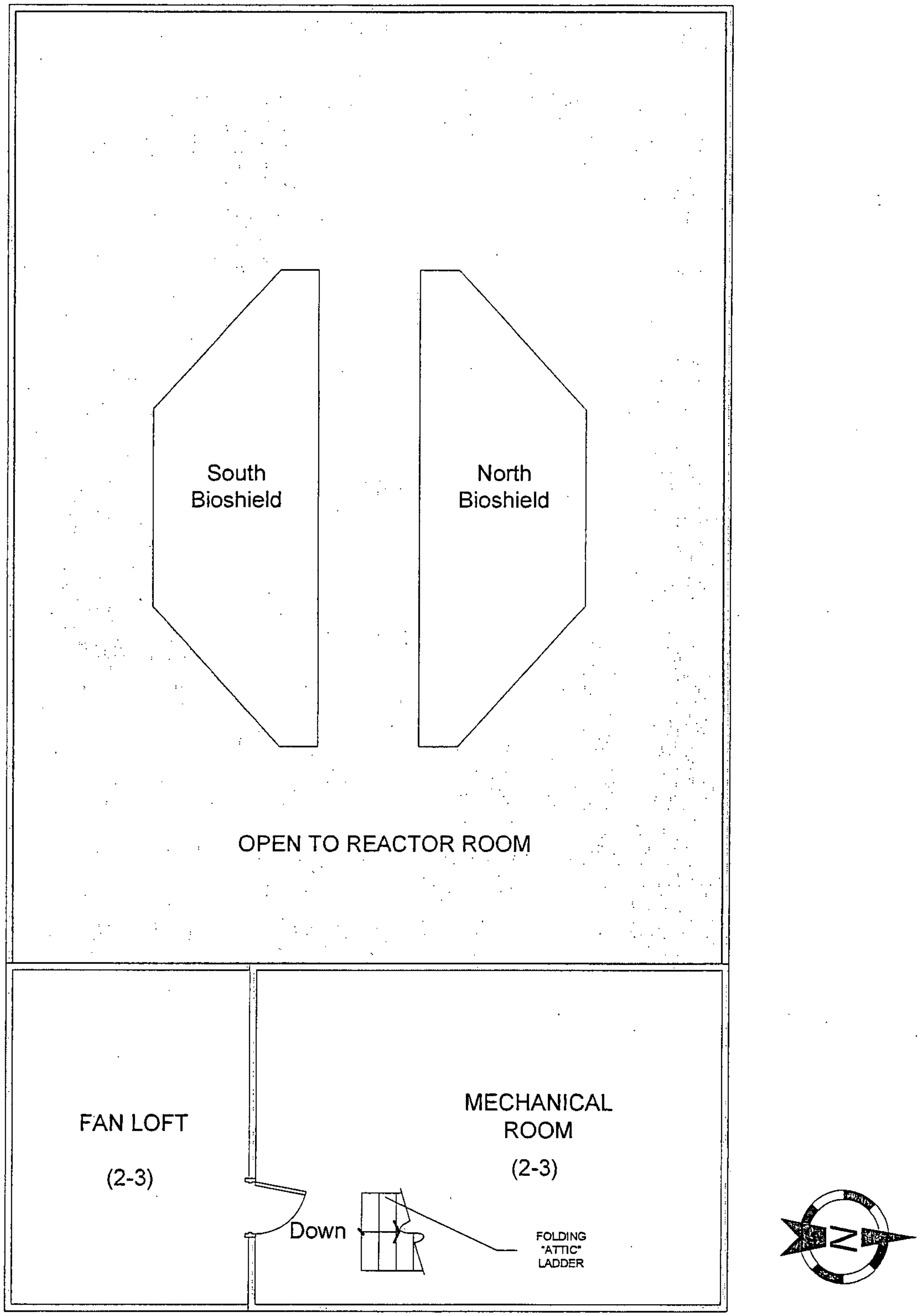
10 SITE MAP DRAWINGS



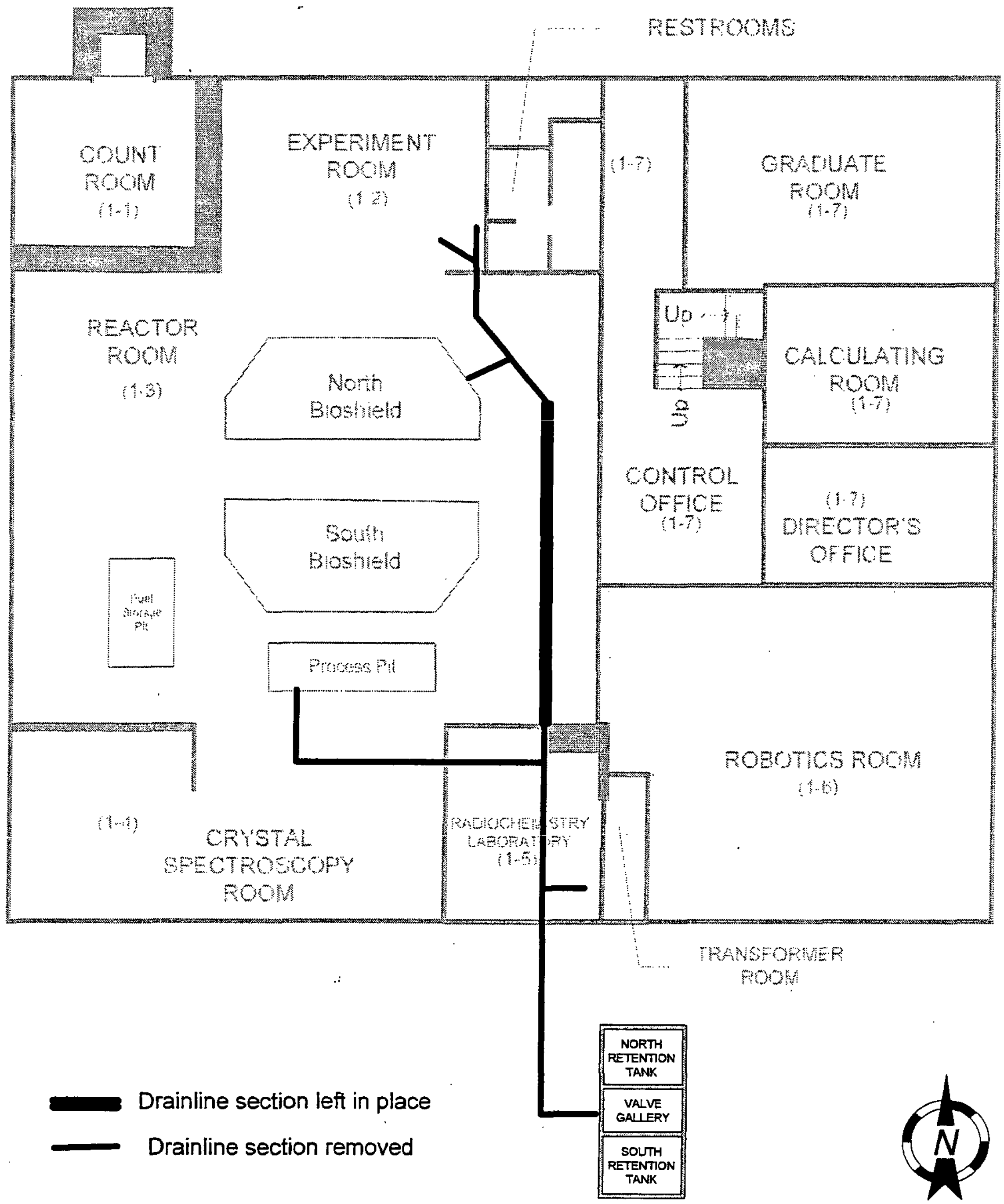
PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	FIRST FLOOR LAYOUT		DRAWING 1



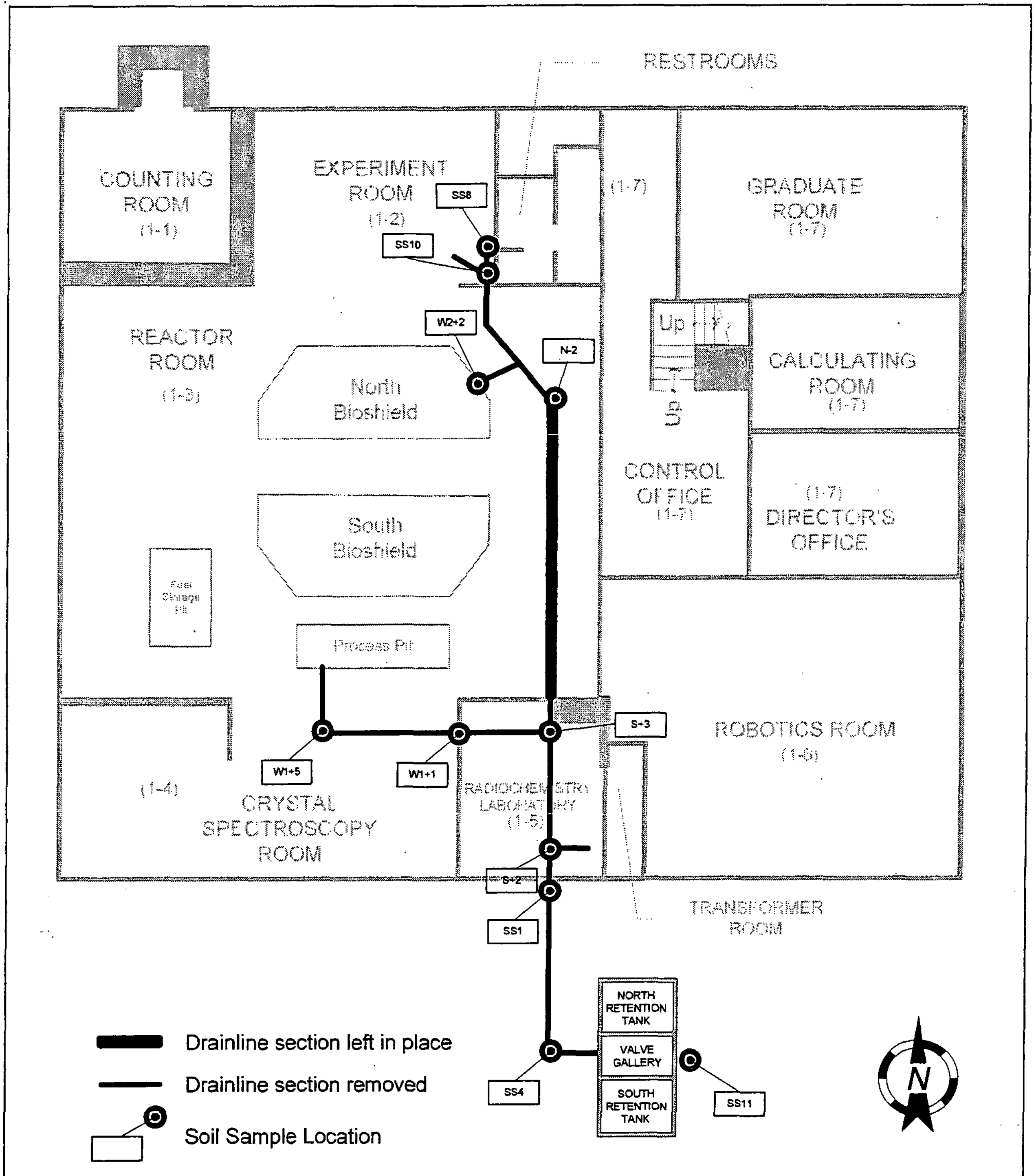
PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	SECOND FLOOR LAYOUT		DRAWING 2



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	THIRD FLOOR LAYOUT		DRAWING 3



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: MN
DRAWING	UNDERGROUND DRAIN LINES LOCATION MAP		DRAWING 4



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: MN
DRAWING	UNDERGROUND DRAINLINES LOCATION MAP SOIL SAMPLE LOCATIONS		DRAWING 5

11 ATTACHMENTS

Attachment 1 - Unit 1-1 Counting Room

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-1

(Counting room)

Survey Unit Information					
Unit Designator:	1-1	Class:	AA	Certainty %:	95
Location Description:	Counting room				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	87	87	87	87	19
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	45	12	3155	70	0
Mean value of results:	6	1	157	9	0
Standard Deviation of results:	10	2	341	18	0
Degree of Freedom [2]:	1.665	1.665	1.665	1.665	1.734
μ_α value:	8	1	218	12	0
Guideline level:	100	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	Yes	Yes	Yes	Yes	Yes
Is the max value < guideline level?	Yes	Yes	Yes	Yes	Yes
Is μ_α < guideline?	Yes	Yes	Yes	Yes	Yes
Does survey unit pass?	Yes	Yes	Yes	Yes	Yes

[1] as interpolated from NUREG/CR-5849 Table B-2

[2] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-1 (Counting room)

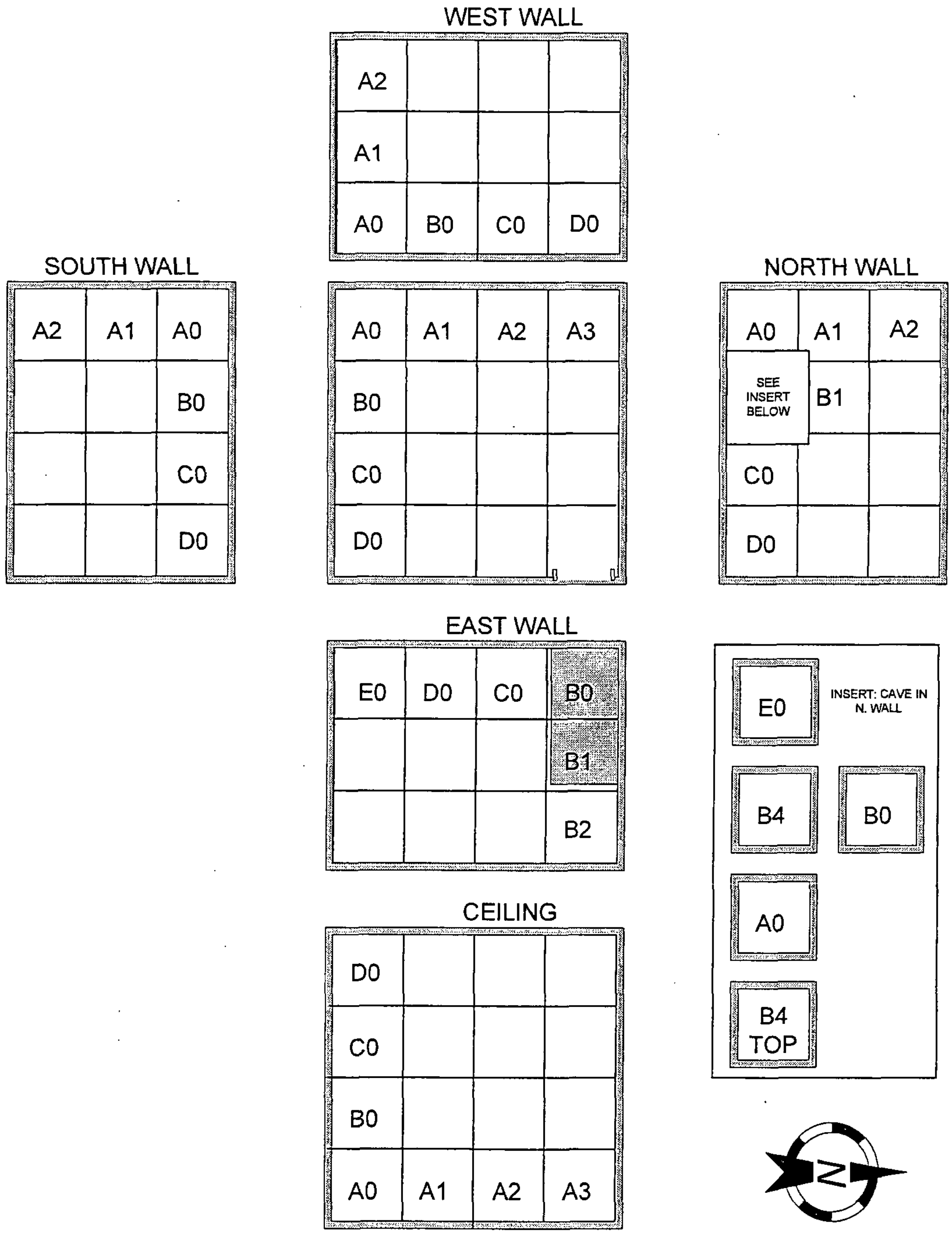
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
022	08/21/06	AA	1	W Wall	A	0	3	ND	ND	380	0	160	4	29		4m2 West Wall
022	08/21/06	AA	1	W Wall	A	2	0	ND	ND	106	0	160	0	0		2m2 West Wall
022	08/21/06	AA	1	W Wall	C	0	14	ND	ND	159	0	160	0	33		4m2 West Wall
022	08/21/06	AA	1	W Wall	C	2	3	ND	ND	143	0	180	0	29		2m2 West Wall
022	08/21/06	AA	1	W Wall	E	0	20	ND	ND	151	0	160	0	19		2m2 West Wall
023	08/21/06	AA	1	S Wall	A	0	14	ND	ND	131	0	160	0	38		4m2 South Wall
023	08/21/06	AA	1	S Wall	A	2	14	ND	ND	86	0	160	0	0		2m2 South Wall
023	08/21/06	AA	1	S Wall	C	0	3	ND	ND	111	0	160	0	0		4m2 South Wall
023	08/21/06	AA	1	S Wall	C	2	14	ND	ND	133	0	180	0	70		2m2 South Wall
024	08/23/06	AA	1	Floor	A	0	11	0	1	127	0	180	0	0	0	4m2
024	08/23/06	AA	1	Floor	A	2	0	0	2	143	0	160	0	0	0	4m2
024	08/23/06	AA	1	Floor	C	0	22	0	1	161	0	160	0	0	0	4m2
024	08/23/06	AA	1	Floor	C	2	22	0	2	105	0	180	0	38	0	4m2
024	08/23/06	AA	1	Floor	B	4	45	0	2	107	0	180	0	0	0	1m2
025	08/24/06	AA	1	Floor	B	4	33	0	ND	263	0	500	0	0	0	4m2 Completion of FSS-024
026	08/20/06	AA	1	N Wall	A	0	0	0	4	0	100	105	0	0		
026	08/20/06	AA	1	N Wall	A	1	0	0	0	0	80	125	0	0		
026	08/20/06	AA	1	N Wall	A	2	0	0	0	0	100	127	0	0		
026	08/20/06	AA	1	N Wall	B	0	0	0	0	0	100	105	0	0		N. Wall of Penetration
026	08/20/06	AA	1	N Wall	B	1	0	0	0	0	110	117	0	0		
026	08/20/06	AA	1	N Wall	B	2	0	0	0	0	100	126	0	0		
026	08/20/06	AA	1	N Wall	C	0	0	0	0	0	100	130	0	0		
026	08/20/06	AA	1	N Wall	C	1	0	0	0	0	100	120	4	0		
026	08/20/06	AA	1	N Wall	C	2	0	0	4	0	100	142	0	0		
026	08/20/06	AA	1	N Wall	D	0	0	0	0	0	100	114	0	0		
026	08/20/06	AA	1	N Wall	D	1	0	0	1	0	80	130	0	0		
026	08/20/06	AA	1	N Wall	D	2	0	0	0	0	100	128	0	0		
027	08/24/06	AA	1	Ceiling	A	0	5	0	0	0	60	80	0	0		
027	08/24/06	AA	1	Ceiling	A	1	0	0	2	0	80	100	0	0		
027	08/24/06	AA	1	Ceiling	A	2	5	0	4	0	60	80	0	6		
027	08/24/06	AA	1	Ceiling	A	3	0	0	2	0	60	100	0	0		
027	08/24/06	AA	1	Ceiling	B	0	0	0	0	0	60	100	0	0		
027	08/24/06	AA	1	Ceiling	B	1	0	0	3	0	60	100	4	0		
027	08/24/06	AA	1	Ceiling	B	2	0	0	3	0	60	100	0	0		
027	08/24/06	AA	1	Ceiling	B	3	0	0	0	0	60	100	0	0		
027	08/24/06	AA	1	Ceiling	C	0	0	0	2	0	80	100	0	0		
027	08/24/06	AA	1	Ceiling	C	1	0	0	0	0	60	100	0	0		
027	08/24/06	AA	1	Ceiling	C	2	0	0	4	0	80	200	0	0		
027	08/24/06	AA	1	Ceiling	C	3	0	0	0	0	60	120	0	0		
027	08/24/06	AA	1	Ceiling	D	0	0	0	1	0	60	100	0	0		
027	08/24/06	AA	1	Ceiling	D	1	0	0	2	0	60	100	0	11		
027	08/24/06	AA	1	Ceiling	D	2	0	0	3	0	60	100	0	0		
027	08/24/06	AA	1	Ceiling	D	3	0	0	1	0	60	120	0	21		
030	08/28/06	AA	1	W Wall	A	0		0	2		0	160				
030	08/28/06	AA	1	W Wall	A	1	0	ND	ND	186	0	160	12	2		
030	08/28/06	AA	1	W Wall	A	2		ND	ND		0	160				
030	08/28/06	AA	1	W Wall	B	0	0	ND	ND	164	0	160	0	0		
030	08/28/06	AA	1	W Wall	B	1	5	ND	ND	137	0	160	0	0		
030	08/28/06	AA	1	W Wall	C	0		0	2		0	160				
030	08/28/06	AA	1	W Wall	C	1	0	ND	ND	133	0	160	0	0		
030	08/28/06	AA	1	W Wall	C	2		ND	ND		0	160				
030	08/28/06	AA	1	W Wall	D	0	0	ND	ND	152	0	160	0	0		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-1 (Counting room)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
030	08/28/06	AA	1	W Wall	D	1	12	0	2	182	0	160	0	2		
030	08/28/06	AA	1	W Wall	D	2		ND	ND		0	160				
030	08/28/06	AA	1	W Wall	E	0		ND	ND		0	160				
030	08/28/06	AA	1	W Wall	B	2		ND	ND		0	160	0	17		
031	08/28/06	AA	1	E Wall	A	0		0	1				0	0		
031	08/28/06	AA	1	E Wall	A	1		0	1				0	0		
031	08/28/06	AA	1	E Wall	A	2		0	1				0	0		
031	08/28/06	AA	1	E Wall	B	0	19	0	1	89			0	12		
031	08/28/06	AA	1	E Wall	B	1	19	0	1	51			0	0		
031	08/28/06	AA	1	E Wall	B	2	0	0	1	156			0	0		
031	08/28/06	AA	1	E Wall	C	0		0	1				4	2		
031	08/28/06	AA	1	E Wall	C	1	39	0	1	101			0	0		
031	08/28/06	AA	1	E Wall	C	2	0	0	1	71			0	0		
031	08/28/06	AA	1	E Wall	D	0	0	0	1	170			0	32		
031	08/28/06	AA	1	E Wall	D	1	12	0	1	212			0	0		
031	08/28/06	AA	1	E Wall	D	2	12	0	1	246			0	0		
031	08/28/06	AA	1	E Wall	E	0		0	1				0	0		
031	08/28/06	AA	1	E Wall	E	1	0	0	1	202			0	0		
031	08/28/06	AA	1	E Wall	E	2		0	1				0	2		
032	08/31/06	AA	1	S Wall	A	1	25	ND	ND	225	0	300	0	0		1m^2
032	08/31/06	AA	1	S Wall	B	0	15	ND	ND	204	0	300	0	41		1m^2
032	08/31/06	AA	1	S Wall	B	1	2	ND	ND	128	0	320	0	62		1m^2
032	08/31/06	AA	1	S Wall	B	2	11	ND	ND	277	0	300	0	0		1m^2
032	08/31/06	AA	1	S Wall	C	1	0	ND	ND	231	0	300	0	0		1m^2
032	08/31/06	AA	1	S Wall	D	0	11	ND	ND	292	0	320	0	0		1m^2
032	08/31/06	AA	1	S Wall	D	1	25	ND	ND	242	0	340	0	21		1m^2
032	08/31/06	AA	1	S Wall	D	2	20	ND	ND	372	0	300	0	62		1m^2
034	08/31/06	AA	1	Floor	A	1	11	ND	ND	237	0	320	0	52	0	1m^2
034	08/31/06	AA	1	Floor	B	0	2	ND	ND	366	0	300	0	67	0	1m^2
034	08/31/06	AA	1	Floor	B	1	11	ND	ND	214	0	340	0	67	0	1m^2
034	08/31/06	AA	1	Floor	B	2	6	ND	ND	185	0	400	0	0	0	1m^2
034	08/31/06	AA	1	Floor	B	3	0	ND	ND	116	0	300	4	0	0	1m^2
034	08/31/06	AA	1	Floor	B	4	11	ND	ND	3155	0	480	0	31	0	1m^2
034	08/31/06	AA	1	Floor	C	1	6	ND	ND	239	0	260	4	0	0	1m^2
034	08/31/06	AA	1	Floor	D	0	0	ND	ND	246	0	300	0	26	0	1m^2
034	08/31/06	AA	1	Floor	D	1	25	ND	ND	166	0	280	0	0	0	1m^2
034	08/31/06	AA	1	Floor	D	2	11	ND	ND	258	0	280	0	0	0	1m^2
034	08/31/06	AA	1	Floor	D	3	6	ND	ND	267	0	260	4	6	0	1m^2
141	10/02/06	AA	1	Floor	A	3	0	0	2	50	120	200	0	0	0	Count Room Floor
141	10/02/06	AA	1	Floor	C	3	0	0	2	193	100	220	0	0	0	Count Room Floor
147	10/02/06	AA	1	W Wall	A	1					100	240				
147	10/02/06	AA	1	W Wall	B	0					80	200				
147	10/02/06	AA	1	W Wall	B	1					120	220				
147	10/02/06	AA	1	W Wall	B	2	0	0	2	216	100	240				
147	10/02/06	AA	1	W Wall	D	0					100	220				
147	10/02/06	AA	1	W Wall	D	1					120	220				
147	10/02/06	AA	1	W Wall	D	2	0	0	2	171	100	220	4	0		
147	10/02/06	AA	1	W Wall	C	1	2	0	2	235	100	240				
148	10/02/06	AA	1	E Wall	A	0	0	0	2	110	100	200				East Wall in cave
148	10/02/06	AA	1	E Wall	B	0					120	240				East Wall
148	10/02/06	AA	1	E Wall	B	1					100	220				East Wall
148	10/02/06	AA	1	E Wall	B	2					80	200				East Wall

University of Washington More Hall Annex Final Status Survey Results - Unit 1-1 (Counting room)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
148	10/02/06	AA	1	E Wall	C	0	0	0	2	223	100	200				East Wall
148	10/02/06	AA	1	E Wall	C	1					100	220				East Wall
148	10/02/06	AA	1	E Wall	C	2					120	220				East Wall
148	10/02/06	AA	1	E Wall	D	0					100	200				East Wall
148	10/02/06	AA	1	E Wall	D	1					120	240				East Wall
148	10/02/06	AA	1	E Wall	D	2					100	220				East Wall
148	10/02/06	AA	1	E Wall	E	0	0	0	2	141	100	200				East Wall
148	10/02/06	AA	1	E Wall	E	1					100	220				East Wall
148	10/02/06	AA	1	E Wall	E	2	0	0	2	166	100	200				East Wall
148	10/02/06	AA	1	E Wall	E	1					120	220				East Wall
148	10/02/06	AA	1	E Wall	E	2	0	0	2	196	100	200				East Wall



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	COUNTING ROOM SURVEY UNIT 1-1		DRAWING 6

Attachment 2 - Sub-Unit 1-2-1 Experiment Room Ceiling, East and North Walls

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-2-1

(Experiment room ceiling, east and north walls)

Survey Unit Information					
Unit Designator:	1-2-1	Class:	AA	Certainty %:	95
Location Description:	Experiment room ceiling, east and north walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	63	63	63	63	N/A
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	38	8	331	64	N/A
Mean value of results:	4	0	82	12	N/A
Standard Deviation of results:	9	1	110	19	N/A
Degree of Freedom (2):	1.671	1.671	1.671	1.671	N/A
μ_α value:	6	1	105	16	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

(1) as interpolated from NUREG/CR-5849 Table B-2

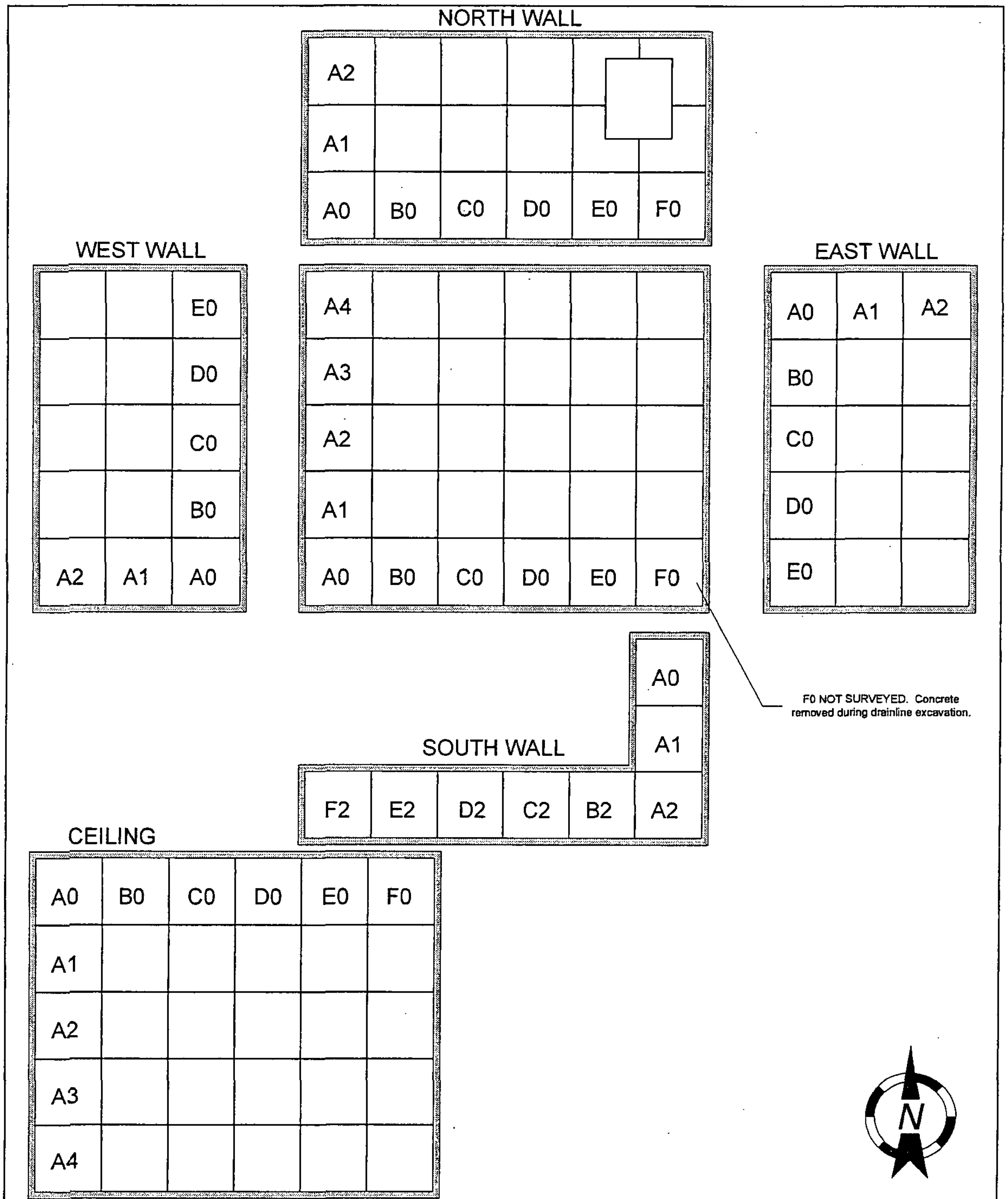
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-2-1 (Experiment room ceiling, east and north walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
028	08/23/06	AA	1	Ceiling	A	0	1	ND	ND	29	100	140	0	0		
028	08/23/06	AA	1	Ceiling	A	1	0	ND	ND	35	80	120	0	0		
028	08/23/06	AA	1	Ceiling	A	2	0	ND	ND	0	100	140	0	0		
028	08/23/06	AA	1	Ceiling	A	3	0	ND	ND	31	100	140	0	0		
028	08/23/06	AA	1	Ceiling	A	4	0	ND	ND	0	100	160	0	28		
028	08/23/06	AA	1	Ceiling	B	0	0	ND	ND	0	60	140	0	0		
028	08/23/06	AA	1	Ceiling	B	1	0	ND	ND	0	60	160	0	61		
028	08/23/06	AA	1	Ceiling	B	2	0	ND	ND	0	60	120	0	0		
028	08/23/06	AA	1	Ceiling	B	3	0	ND	ND	0	80	160	0	0		
028	08/23/06	AA	1	Ceiling	B	4	0	ND	ND	0	60	140	0	61		
028	08/23/06	AA	1	Ceiling	C	0	0	ND	ND	3	80	140	0	38		
028	08/23/06	AA	1	Ceiling	C	1	15	ND	ND	7	100	180	0	0		
028	08/23/06	AA	1	Ceiling	C	2	0	ND	ND	0	100	200	0	51		
028	08/23/06	AA	1	Ceiling	C	3	0	ND	ND	37	80	180	0	0		
028	08/23/06	AA	1	Ceiling	C	4	0	ND	ND	29	80	180	0	14		
028	08/23/06	AA	1	Ceiling	D	0	0	ND	ND	105	80	160	0	0		
028	08/23/06	AA	1	Ceiling	D	1	0	ND	ND	7	80	120	0	51		
028	08/23/06	AA	1	Ceiling	D	2	0	ND	ND	19	100	180	3	5		
028	08/23/06	AA	1	Ceiling	D	3	0	ND	ND	0	60	180	0	56		
028	08/23/06	AA	1	Ceiling	D	4	1	ND	ND	5	60	160	0	19		
028	08/23/06	AA	1	Ceiling	E	0	29	ND	ND	105	0	160	3	0		
028	08/23/06	AA	1	Ceiling	E	1	29	ND	ND	145	0	140	0	0		
028	08/23/06	AA	1	Ceiling	E	2	0	ND	ND	31	0	140	3	0		
028	08/23/06	AA	1	Ceiling	E	3	0	ND	ND	127	0	220	0	28		
028	08/23/06	AA	1	Ceiling	E	4	22	ND	ND	0	0	180	0	0		
028	08/23/06	AA	1	Ceiling	F	0	8	ND	ND	109	0	160	0	51		
028	08/23/06	AA	1	Ceiling	F	1	8	ND	ND	137	0	180	0	0		
028	08/23/06	AA	1	Ceiling	F	2	0	ND	ND	109	0	160	0	28		
028	08/23/06	AA	1	Ceiling	F	3	8	ND	ND	113	0	180	0	0		
028	08/23/06	AA	1	Ceiling	F	4	1	ND	ND	101	0	200	0	0		
029	08/24/06	AA	1	E Wall	A	0	24	ND	ND	248	160	200	0	30		
029	08/24/06	AA	1	E Wall	A	1	0	ND	ND	200	160	200	0	0		
029	08/24/06	AA	1	E Wall	A	2	17	ND	ND	272	160	180	0	0		
029	08/24/06	AA	1	E Wall	B	0	0	ND	ND	260	180	260	0	20		
029	08/24/06	AA	1	E Wall	B	1	38	ND	ND	272	160	220	8	5		
029	08/24/06	AA	1	E Wall	B	2	0	ND	ND	298	160	200	0	10		
029	08/24/06	AA	1	E Wall	C	0	0	ND	ND	302	180	200	0	0		
029	08/24/06	AA	1	E Wall	C	1	10	ND	ND	220	160	200	0	30		
029	08/24/06	AA	1	E Wall	C	2	0	ND	ND	331	160	200	0	0		
029	08/24/06	AA	1	E Wall	D	0	3	ND	ND	150	160	220	0	0		
029	08/24/06	AA	1	E Wall	D	1	10	ND	ND	226	160	200	0	0		
029	08/24/06	AA	1	E Wall	D	2	0	ND	ND	286	160	200	0	10		
029	08/24/06	AA	1	E Wall	E	0	10	ND	ND	286	160	200	0	0		
029	08/24/06	AA	1	E Wall	E	1	17	ND	ND	266	160	220	0	0		
029	08/24/06	AA	1	E Wall	E	2	10	ND	ND	278	160	200	0	5		
036	09/01/06	AA	1	N Wall	A	0	0	0	ND	0	0	200	4	18		
036	09/01/06	AA	1	N Wall	A	1	0	0	ND	0	0	200	0	0		
036	09/01/06	AA	1	N Wall	A	2	0	0	ND	0	0	200	0	0		
036	09/01/06	AA	1	N Wall	B	0	0	0	ND	0	0	200	0	18		
036	09/01/06	AA	1	N Wall	B	1	0	0	ND	0	0	220	0	64		
036	09/01/06	AA	1	N Wall	B	2	0	0	ND	0	0	220	0	0		
036	09/01/06	AA	1	N Wall	C	0	0	0	ND	0	0	200	0	41		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-2-1 (Experiment room ceiling, east and north walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
036	09/01/06	AA	1	N Wall	C	1	0	0	ND	0	0	200	0	0		
036	09/01/06	AA	1	N Wall	C	2	0	0	ND	0	0	200	0	0		
036	09/01/06	AA	1	N Wall	D	0	0	0	ND	0	0	200	0	0		
036	09/01/06	AA	1	N Wall	D	1	0	0	ND	0	0	200	0	0		
036	09/01/06	AA	1	N Wall	D	2	0	0	ND	0	0	200	0	0		
036	09/01/06	AA	1	N Wall	E	2	0	0	ND	0	0	200	0	0		
036	09/01/06	AA	1	N Wall	E	1	0	0	ND	0	0	220	0	4		Hatch in E1, E2
036	09/01/06	AA	1	N Wall	E	2	0	0	ND	0	0	200	4	0		F1, F2
036	09/01/06	AA	1	N Wall	F	0	0	0	ND	0	0	200	0	4		
036	09/01/06	AA	1	N Wall	F	1	0	0	ND	0	0	200	0	0		
036	09/01/06	AA	1	N Wall	F	2	0	0	ND	0	0	200	0	8		



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	EXPERIMENT ROOM SURVEY UNIT 1-2		DRAWING 7

Attachment 3 - Sub-Unit 1-2-2 Experiment Room Floor, South and West Walls

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-2-2

(Experiment room floor, south and west walls)

Survey Unit Information					
Unit Designator:	1-2-2	Class:	AA	Certainty %:	95
Location Description:	Experiment room floor, south and west walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	55	55	55	55	33
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	22	8	840	111	2
Mean value of results:	5	1	224	16	1
Standard Deviation of results:	7	2	163	22	1
Degree of Freedom [2]:	1.674	1.674	1.674	1.674	1.694
μ_α value:	7	1	260	21	1
Guideline level:	100	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	Yes	Yes	Yes	Yes	Yes
Is the max value < guideline level?	Yes	Yes	Yes	Yes	Yes
Is μ_α < guideline?	Yes	Yes	Yes	Yes	Yes
Does survey unit pass?	Yes	Yes	Yes	Yes	Yes

[1] as interpolated from NUREG/CR-5849 Table B-2

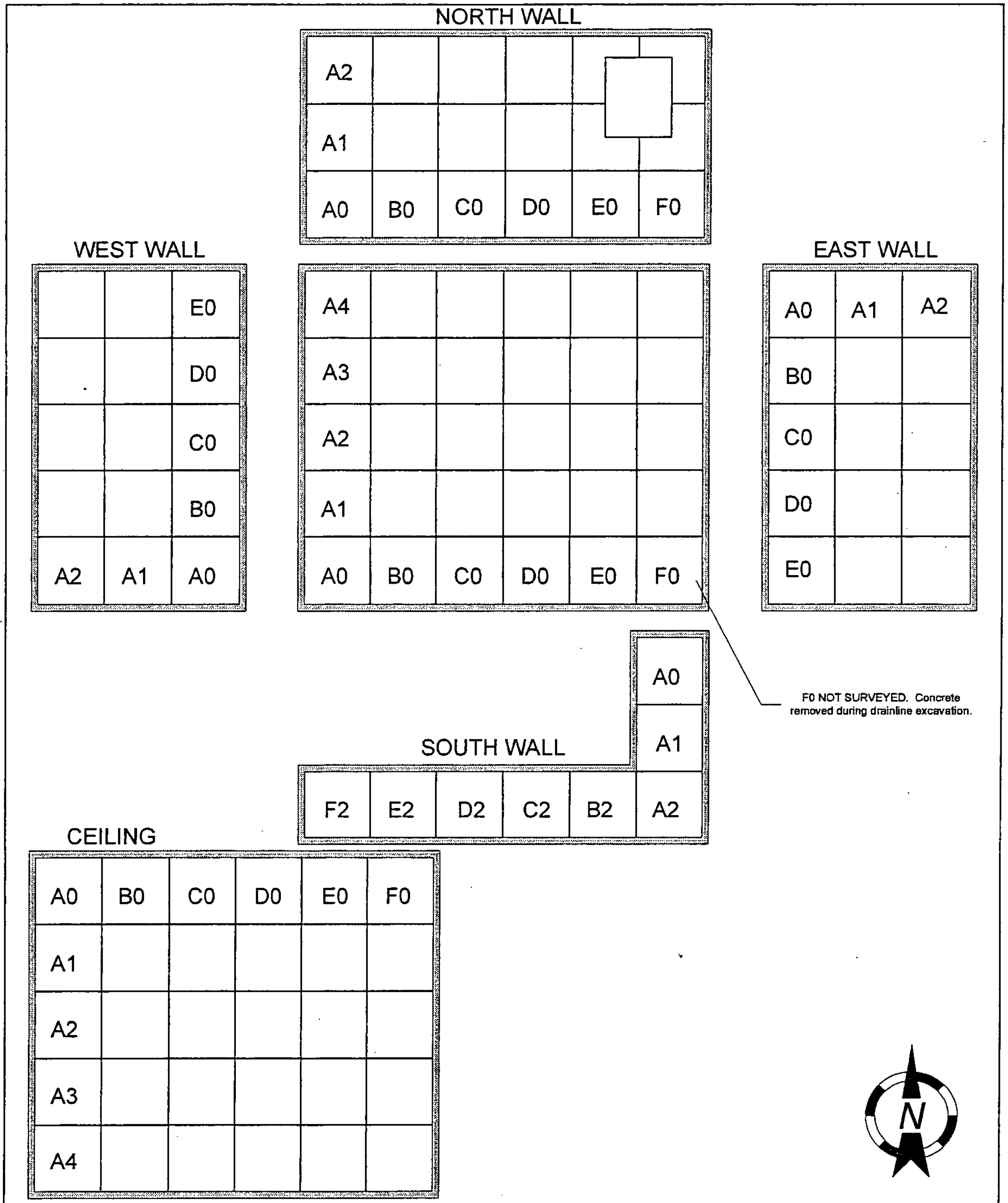
[2] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-2-2 (Experiment room floor, south and west walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
017	08/18/06	AA	1	Floor	E	0	0	ND	ND	715	0	200	4	0	0	FSS Done Prior To Removing
017	08/18/06	AA	1	Floor	F	0	0	ND	ND	131	0	140	0	14	0	Shower Drain
017	08/18/06	AA	1	Floor	F	1	0	ND	ND	152	0	160	0	0	0	
040	09/05/06	AA	1	Floor	A	0	0	0	3	285	0	240	0	0	1	
040	09/05/06	AA	1	Floor	A	1	11	0	3	356	0	280	0	41	1	
040	09/05/06	AA	1	Floor	A	2	17	0	3	153	0	280	4	0	2	
040	09/05/06	AA	1	Floor	A	3	5	0	2	292	0	320	0	18	2	
040	09/05/06	AA	1	Floor	A	4	0	0	1	270	0	320	4	0	1	
040	09/05/06	AA	1	Floor	B	0	11	0	3	305	0	380	4	0	1	
040	09/05/06	AA	1	Floor	B	1	0	0	1	454	0	320	0	0	2	
040	09/05/06	AA	1	Floor	B	2	22	0	3	292	0	310	0	0	2	
040	09/05/06	AA	1	Floor	B	3	17	0	4	249	0	280	0	45	2	
040	09/05/06	AA	1	Floor	B	4	0	0	1	268	0	210	0	4	2	
040	09/05/06	AA	1	Floor	C	0	5	0	2	532	0	320	0	45	2	
040	09/05/06	AA	1	Floor	C	1	17	0	2	367	0	310	0	8	2	
040	09/05/06	AA	1	Floor	C	2	0	0	1	357	0	290	0	27	2	
040	09/05/06	AA	1	Floor	C	3	0	0	1	335	0	260	0	0	2	
040	09/05/06	AA	1	Floor	C	4	17	0	2	283	0	260	0	0	2	
040	09/05/06	AA	1	Floor	D	0	22	0	3	840	0	360	0	18	2	
040	09/05/06	AA	1	Floor	D	1	0	0	1	426	0	340	0	0	2	
040	09/05/06	AA	1	Floor	D	2	5	0	2	411	0	340	0	0	2	
041	09/05/06	AA	1	S Wall	A	0	0	ND	ND	66	120	220	8	0		
041	09/05/06	AA	1	S Wall	A	1	6	ND	ND	0	140	220	0	0		
041	09/05/06	AA	1	S Wall	A	2	0	ND	ND	53	80	180	0	0		
041	09/05/06	AA	1	S Wall	B	2	1	ND	ND	0	80	140	0	41		penetration exists
041	09/05/06	AA	1	S Wall	C	2	0	ND	ND	0	100	200	0	0		
041	09/05/06	AA	1	S Wall	D	2	0	ND	ND	41	100	200	0	0		partial penetration exist
041	09/05/06	AA	1	S Wall	E	2	0	ND	ND	0	80	200	0	26		partial penetration @ static count location
041	09/05/06	AA	1	S Wall	F	2	0	ND	ND	100	120	220	4	0		
042	09/05/06	AA	1	W Wall	A	0	15	ND	1	223	120	220	0	28		
042	09/05/06	AA	1	W Wall	A	1	1	ND	1	254	120	240	0	69		
042	09/05/06	AA	1	W Wall	A	2	10	ND	1	210	140	200	0	69		
042	09/05/06	AA	1	W Wall	B	0	0	ND	1	221	120	240	0	28		
042	09/05/06	AA	1	W Wall	B	1	0	ND	1	178	120	220	0	0		
042	09/05/06	AA	1	W Wall	B	2	15	ND	1	194	130	200	0	5		
042	09/05/06	AA	1	W Wall	C	0	0	ND	1	225	110	180	0	0		
042	09/05/06	AA	1	W Wall	C	1	6	ND	1	187	120	200	0	19		
042	09/05/06	AA	1	W Wall	C	2	10	ND	1	245	110	180	0	37		
042	09/05/06	AA	1	W Wall	D	0	0	ND	1	207	120	180	0	19		
042	09/05/06	AA	1	W Wall	D	1	15	ND	1	279	140	180	0	23		
042	09/05/06	AA	1	W Wall	D	2	6	ND	1	189	120	200	0	5		
042	09/05/06	AA	1	W Wall	E	0	0	ND	1	176	140	200	0	111		
042	09/05/06	AA	1	W Wall	E	1	20	ND	1	172	100	160	0	0		
042	09/05/06	AA	1	W Wall	E	2	0	ND	1	212	160	220	0	32		
044	09/05/06	AA	1	Floor	F	0									0	Dirt Floor
044	09/05/06	AA	1	Floor	F	1	11	ND	ND	123	120	220	4	26	0	Concrete Floor
044	09/05/06	AA	1	Floor	F	2	0	ND	ND	110	120	200	0	0	0	Concrete Floor
044	09/05/06	AA	1	Floor	F	3	0	ND	ND	85	120	200	0	0	0	Concrete Floor
044	09/05/06	AA	1	Floor	F	4	0	ND	ND	91	100	200	0	41	0	Concrete Floor
044	09/05/06	AA	1	Floor	E	0	0	ND	ND	336	140	300	0	0	0	Concrete Floor
044	09/05/06	AA	1	Floor	E	1	1	ND	ND	153	140	260	0	26	0	Concrete Floor
044	09/05/06	AA	1	Floor	E	2	0	ND	ND	148	140	220	0	16	0	Concrete Floor

University of Washington More Hall Annex Final Status Survey Results - Unit 1-2-2 (Experiment room floor, south and west walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
044	09/05/06	AA	1	Floor	E	3	0	ND	ND	96	140	240	0	6	0	Concrete Floor
044	09/05/06	AA	1	Floor	E	4	6	ND	ND	83	140	220	0	0	0	Concrete Floor
044	09/05/06	AA	1	Floor	D	4	6	ND	ND	98	120	220	0	11	0	Concrete Floor
044	09/05/06	AA	1	Floor	D	3	0	ND	ND	70	120	220	0	36	0	Concrete Floor



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	EXPERIMENT ROOM SURVEY UNIT 1-2		DRAWING 7

Attachment 4 - Sub-Unit 1-3-1 Overhead Crane

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-1

(Overhead crane)

Survey Unit Information					
Unit Designator:	1-3-1	Class:	AA	Certainty %:	95
Location Description:	Overhead crane				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	38	38	38	38	N/A
Number of measurements needed [(1)]:	9	9	9	9	N/A
Maximum value of results:	70	16	262	104	N/A
Mean value of results:	25	1	150	21	N/A
Standard Deviation of results:	16	3	80	28	N/A
Degree of Freedom [(2)]:	1.687	1.687	1.687	1.687	N/A
μ_α value:	29	2	172	29	N/A
Guideline level:	100	20	5000	1000	N/A

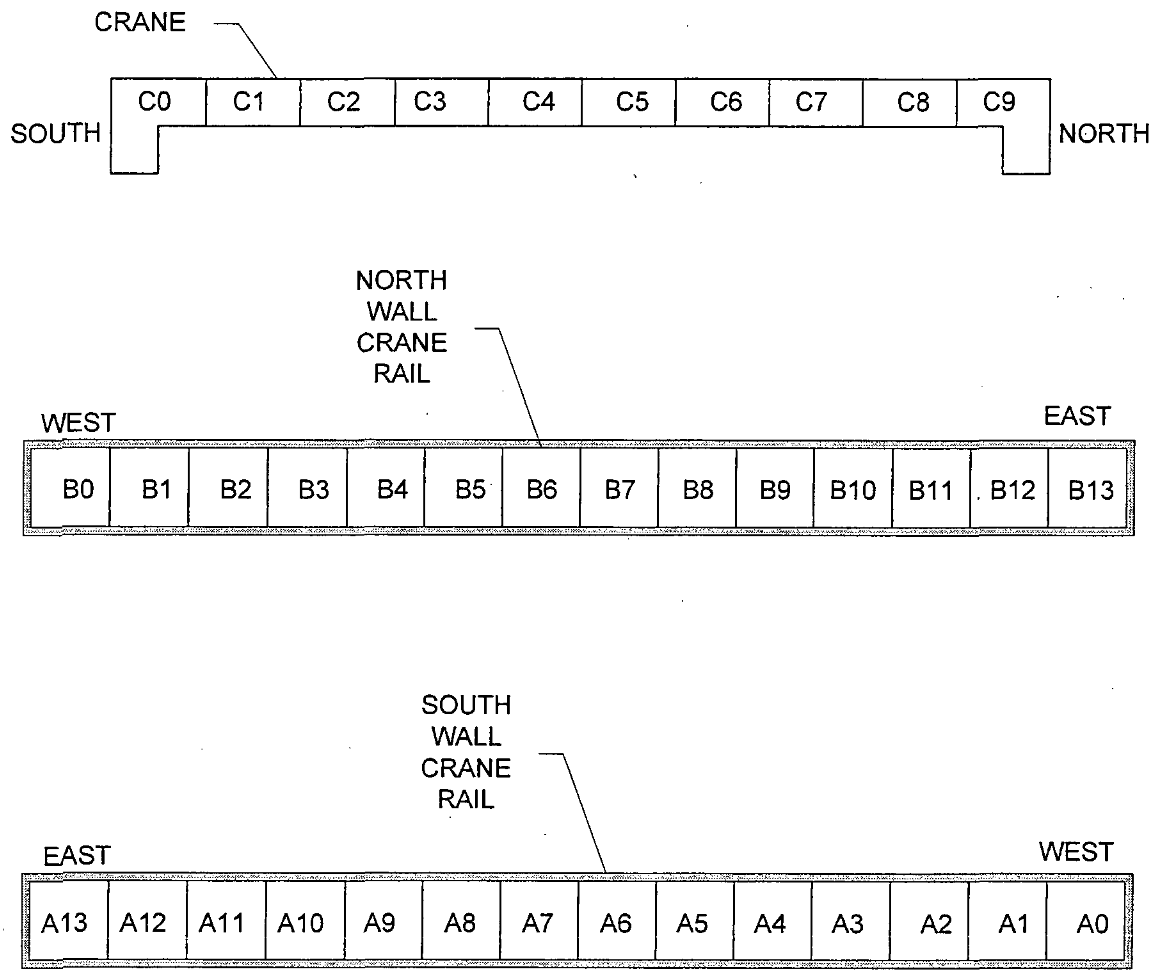
Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

[(1)] as interpolated from NUREG/CR-5849 Table B-2

[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-1 (Overhead crane)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
033	08/31/06	AA	1	South Crane Rail	A	0	6	ND	ND	0	0	240	0	62		1m^2
033	08/31/06	AA	1	South Crane Rail	A	1	11	ND	ND	111	0	260	0	36		1m^2
033	08/31/06	AA	1	South Crane Rail	A	2	11	ND	ND	151	0	260	0	0		1m^2
033	08/31/06	AA	1	South Crane Rail	A	3	15	ND	ND	74	0	280	0	0		1m^2
033	08/31/06	AA	1	South Crane Rail	A	4	6	ND	ND	103	0	300	0	0		1m^2
033	08/31/06	AA	1	South Crane Rail	A	5	11	ND	ND	57	0	280	0	26		1m^2
033	08/31/06	AA	1	South Crane Rail	A	6	15	ND	ND	15	0	240	0	72		1m^2
033	08/31/06	AA	1	South Crane Rail	A	7	25	ND	ND	63	0	320	0	1		1m^2
033	08/31/06	AA	1	South Crane Rail	A	8	25	ND	ND	115	0	300	0	31		1m^2
033	08/31/06	AA	1	South Crane Rail	A	9	29	ND	ND	109	0	260	0	0		1m^2
033	08/31/06	AA	1	South Crane Rail	A	10	2	ND	ND	0	0	400	0	1		1m^2
102	09/23/06	AA	1	Crane Bridge	C	0	13	0	1	122	80	200	0	68		Includes South Support
102	09/23/06	AA	1	Crane Bridge	C	1	13	0	1	112	80	220	4	43		Beam
102	09/23/06	AA	1	Crane Bridge	C	2	43	0	3	126	80	200	0	58		Beam
102	09/23/06	AA	1	Crane Bridge	C	3	13	0	1	87	80	220	4	0		Beam
102	09/23/06	AA	1	Crane Bridge	C	4	43	0	3	62	80	240	0	13		Beam
102	09/23/06	AA	1	Crane Bridge	C	5	13	0	3	142	80	260	0	104		Beam
102	09/23/06	AA	1	Crane Bridge	C	6	48	0	3	114	80	220	0	43		Beam
102	09/23/06	AA	1	Crane Bridge	C	7	59	0	5	138	80	200	0	18		Beam
102	09/23/06	AA	1	Crane Bridge	C	8	43	0	3	138	80	240	16	48		Beam
102	09/23/06	AA	1	Crane Bridge	C	9	13	0	3	52	80	240				Includes North Support
117	09/28/06	AA	1	Crane Bridge	C	9							0	73		Post-decon
127	09/30/06	AA	1	North Crane Rail	B	0	42	0	4	258	80	280	0	20		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	1	37	0	4	244	80	260	12	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	2	19	0	5	76	80	240	0	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	3	33	0	4	231	80	260	4	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	4	19	0	4	214	80	240	0	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	5	14	0	3	212	80	240	4	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	6	14	0	3	262	80	260	0	30		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	7	14	0	3	240	80	240	0	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	8	70	0	5	239	80	260	0	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	9	33	0	4	214	80	240	0	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	10	14	0	4	210	80	260	0	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	11	42	0	5	219	80	240	0	0		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	12	14	0	4	237	80	260	0	40		Crane Rail North
127	09/30/06	AA	1	North Crane Rail	B	13	28	0	4	262	80	240	0	30		Crane Rail North
128	09/30/06	AA	1	South Crane Rail	A	11	33	0	4	217	80	280	0	0		Crane Rail South
128	09/30/06	AA	1	South Crane Rail	A	12	23	0	4	239	80	260	0	0		Crane Rail South
128	09/30/06	AA	1	South Crane Rail	A	13	33	0	4	242	80	260	0	0		Crane Rail South



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	CRANE RAILS SURVEY UNIT 1-3		DRAWING 8

Attachment 5 - Sub-Unit 1-3-2 Fuel and Process Pit Blocks

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-2

(Fuel and process pit blocks)

Survey Unit Information					
Unit Designator:	1-3-2	Class:	AA	Certainty %:	95
Location Description:	Fuel and process pit blocks				

Measurement Results Summary					
All Surfaces	Direct Alpha Results (dpm/100cm^2)	Removable Alpha Results (dpm/100cm^2)	Direct Beta Results (dpm/100cm^2)	Removable Beta Results (dpm/100cm^2)	Gamma Results (μR/hr)
Number of measurements:	27	27	27	27	4
Number of measurements needed [(1)]:	9	9	9	9	N/A
Maximum value of results:	69	13	431	91	1
Mean value of results:	16	2	211	16	1
Standard Deviation of results:	18	3	75	24	0
Degree of Freedom [(2)]:	1.706	1.706	1.706	1.706	2.353
μ_α value:	22	3	236	24	1
Guideline level:	100	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	Yes	Yes	Yes	Yes	Yes
Is the max value < guideline level?	Yes	Yes	Yes	Yes	Yes
Is μ_α < guideline?	Yes	Yes	Yes	Yes	Yes
Does survey unit pass?	Yes	Yes	Yes	Yes	Yes

(1) as interpolated from NUREG/CR-5849 Table B-2

(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-2 (Fuel and process pit blocks)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
035	08/31/06	AA	1	Process pit block	N/A	N/A	0	0	ND	164	100	200	0	0		Block 1
035	08/31/06	AA	1	Process pit block	N/A	N/A	0	0	ND	144	100	200	0	41		Block 1
035	08/31/06	AA	1	Process pit block	N/A	N/A	0	0	ND	171	100	180	0	0		Block 2-3
035	08/31/06	AA	1	Process pit block	N/A	N/A	5	0	ND	160	100	200	4	21		Block 2-4
035	08/31/06	AA	1	Process pit block	N/A	N/A	5	0	ND	205	100	160	0	0		Block 3-5
035	08/31/06	AA	1	Process pit block	N/A	N/A	37	0	ND	208	100	140	0	36		Block 3-6
035	08/31/06	AA	1	Process pit block	N/A	N/A	0	0	ND	201	100	260	0	36		Block 4-7
035	08/31/06	AA	1	Process pit block	N/A	N/A	24	0	ND	199	100	200	0	62		Block 4-8
035	08/31/06	AA	1	Process pit block	N/A	N/A	24	0	ND	183	100	180	0	0		Block 5-9
035	08/31/06	AA	1	Process pit block	N/A	N/A	11	0	ND	230	100	180	0	0		Block 5-10
035	08/31/06	AA	1	Process pit block	N/A	N/A	31	0	ND	173	100	180	0	0		Block 6-11
035	08/31/06	AA	1	Process pit block	N/A	N/A	24	0	ND	229	100	200	0	0		Block 6-12
035	08/31/06	AA	1	Process pit block	N/A	N/A	0	0	ND	253	100	220	4	0		Block 7-13
035	08/31/06	AA	1	Process pit block	N/A	N/A	18	0	ND	247	100	200	4	21		Block 7-14
043	08/31/06	AA	1	Fuel storage block	N/A	N/A	11	ND	ND	230	0	200	0	0		Block 1-1
043	08/31/06	AA	1	Fuel storage block	N/A	N/A	24	ND	ND	227	0	200	4	0		Block 1-2
043	08/31/06	AA	1	Fuel storage block	N/A	N/A	11	ND	ND	227	0	220	13	10		Block 2-1
043	08/31/06	AA	1	Fuel storage block	N/A	N/A	5	ND	ND	247	0	220	0	0		Block 2-2
043	08/31/06	AA	1	Fuel storage block	N/A	N/A	56	ND	ND	282	0	200	0	43		Block 3-1
043	08/31/06	AA	1	Fuel storage block	N/A	N/A	69	ND	ND	289	0	200	4	1		Block 3-2
043	08/31/06	AA	1	Fuel storage block	N/A	N/A	0	ND	ND	85	0	180	0	0		Block 1 Sides
043	08/31/06	AA	1	Fuel storage block	N/A	N/A	31	ND	ND	92	0	180	0	47		Block 2 Sides
043	08/31/06	AA	1	Fuel storage block	N/A	N/A	24	ND	ND	127	0	200	0	10		Block 3 Sides
111	09/27/06	AA	1	Shield block	A	1	6	0	1	170	80	300	4	0	1	top right
111	09/27/06	AA	1	Shield block	A	2	1	0	1	153	80	300	4	10	1	top left
111	09/27/06	AA	1	Shield block	A	3	6	0	1	375	80	400	0	91	1	bottom right
111	09/27/06	AA	1	Shield block	A	4	1	0	1	431	80	400	0	0	1	bottom left

Attachment 6 - Sub-Unit 1-3-3 Fuel Storage Tubes

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-3

(Fuel storage tubes - A0, A1)

Survey Unit Information					
Unit Designator:	1-3-3	Class:	AA	Certainty %:	95
Location Description:	Fuel storage tubes - A0, A1				

Measurement Results Summary

All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	270	108	270	108	54
Number of measurements needed [(1)]:	9	9	9	9	N/A
Maximum value of results:	85	13	3667	63	0
Mean value of results:	3	1	146	4	0
Standard Deviation of results:	11	3	564	11	0
Degree of Freedom [(2)]:	1.653	1.661	1.653	1.661	1.675
μ_α value:	4	2	202	6	0
Guideline level:	100	20	5000	1000	5

Decision Summary

Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

[(1)] as interpolated from NUREG/CR-5849 Table B-2

[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-3 (Fuel storage tubes - A0, A1)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
081	09/13/06	AA	1	Fuel Pits	A0 : 1-1		0	0	1	0	14	18	4	0	0	
081	09/13/06	AA	1	Fuel Pits	A0 : 1-2		0	0	1	0	220	310	0	0		
081	09/13/06	AA	1	Fuel Pits	A0 : 1-3		0	0	0	0	180	320				
081	09/13/06	AA	1	Fuel Pits	A0 : 1-4		0	0	1	0	250	410				
081	09/13/06	AA	1	Fuel Pits	A0 : 1-5		0	0	1	0	260	340				
081	09/13/06	AA	1	Fuel Pits	A0 : 2-1		0	0	0	0	18	16	0	0	0	
081	09/13/06	AA	1	Fuel Pits	A0 : 2-2		0	0	1	0	240	370	0	1		
081	09/13/06	AA	1	Fuel Pits	A0 : 2-3		0	0	1	0	210	350				
081	09/13/06	AA	1	Fuel Pits	A0 : 2-4		0	0	1	0	200	400				
081	09/13/06	AA	1	Fuel Pits	A0 : 2-5		0	1	1	1389	180	460				
081	09/13/06	AA	1	Fuel Pits	A0 : 3-1		39	1	2	0	14	20	0	15	0	
081	09/13/06	AA	1	Fuel Pits	A0 : 3-2		39	0	0	0	200	400	0	34		
081	09/13/06	AA	1	Fuel Pits	A0 : 3-3		0	0	0	0	180	440				
081	09/13/06	AA	1	Fuel Pits	A0 : 3-4		39	0	0	0	200	480				
081	09/13/06	AA	1	Fuel Pits	A0 : 3-5		0	0	0	0	200	380				
081	09/13/06	AA	1	Fuel Pits	A0 : 4-1		0	0	1	0	14	19	0	0	0	
081	09/13/06	AA	1	Fuel Pits	A0 : 4-2		39	0	0	0	240	400	0	0		
081	09/13/06	AA	1	Fuel Pits	A0 : 4-3		0	0	0	0	180	340				
081	09/13/06	AA	1	Fuel Pits	A0 : 4-4		0	0	0	0	220	480				
081	09/13/06	AA	1	Fuel Pits	A0 : 4-5		0	0	0	0	260	440				
081	09/13/06	AA	1	Fuel Pits	A0 : 5-1		0	0	0	0	140	18	0	0	0	Alpha Eff = 10.62%
081	09/13/06	AA	1	Fuel Pits	A0 : 5-2		0	0	1	0	200	460	0	0		
081	09/13/06	AA	1	Fuel Pits	A0 : 5-3		0	0	0	0	200	380				
081	09/13/06	AA	1	Fuel Pits	A0 : 5-4		0	0	0	722	220	400				
081	09/13/06	AA	1	Fuel Pits	A0 : 5-5		0	0	0	0	240	480				
081	09/13/06	AA	1	Fuel Pits	A0 : 6-1		0	0	0	0	14	21	4	0	0	
081	09/13/06	AA	1	Fuel Pits	A0 : 6-2		0	0	0	0	200	380	0	0		
081	09/13/06	AA	1	Fuel Pits	A0 : 6-3		0	0	0	0	260	480				
081	09/13/06	AA	1	Fuel Pits	A0 : 6-4		0	0	0	0	240	560				
081	09/13/06	AA	1	Fuel Pits	A0 : 6-5		0	0	0	0	200	440				
081	09/13/06	AA	1	Fuel Pits	A0 : 7-1		77	1	2	0	14	30	0	0	0	
081	09/13/06	AA	1	Fuel Pits	A0 : 7-2		0	0	1	0	220	420	0	6		
081	09/13/06	AA	1	Fuel Pits	A0 : 7-3		0	0	0	0	220	500				
081	09/13/06	AA	1	Fuel Pits	A0 : 7-4		0	0	0	0	160	460				
081	09/13/06	AA	1	Fuel Pits	A0 : 7-5		0	0	0	0	180	420				
081	09/13/06	AA	1	Fuel Pits	A0 : 8-1		0	0	0	0	14	24	0	0	0	
081	09/13/06	AA	1	Fuel Pits	A0 : 8-2		0	0	0	0	260	440	0	1		
081	09/13/06	AA	1	Fuel Pits	A0 : 8-3		0	0	0	0	120	360				
081	09/13/06	AA	1	Fuel Pits	A0 : 8-4		0	0	0	0	200	480				
081	09/13/06	AA	1	Fuel Pits	A0 : 8-5		0	0	0	0	160	400				
081	09/13/06	AA	1	Fuel Pits	A0 : 9-1		0	0	0	50	16	32	13	15	0	
081	09/13/06	AA	1	Fuel Pits	A0 : 9-2		0	0	0	0	200	500	0	0		
081	09/13/06	AA	1	Fuel Pits	A0 : 9-3		0	0	1	0	140	340				
081	09/13/06	AA	1	Fuel Pits	A0 : 9-4		0	0	0	0	220	480				
081	09/13/06	AA	1	Fuel Pits	A0 : 9-5		0	0	1	1250	160	500				
082	09/13/06	AA	1	Fuel Pits	B0 : 1-1		0	0	0	0	10	22	0	0	0	
082	09/13/06	AA	1	Fuel Pits	B0 : 1-2		0	0	0	0	180	400	0	0		
082	09/13/06	AA	1	Fuel Pits	B0 : 1-3		0	0	0	0	240	520				
082	09/13/06	AA	1	Fuel Pits	B0 : 1-4		0	0	0	0	200	540				
082	09/13/06	AA	1	Fuel Pits	B0 : 1-5		0	0	0	0	160	440				
082	09/13/06	AA	1	Fuel Pits	B0 : 2-1		39	1	2	350	17	23	4	0	0	
082	09/13/06	AA	1	Fuel Pits	B0 : 2-2		0	0	0	2222	240	500	0	0		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-3 (Fuel storage tubes - A0, A1)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
082	09/13/06	AA	1	Fuel Pits	B0 : 2-3		0	0	0	0	200	560				
082	09/13/06	AA	1	Fuel Pits	B0 : 2-4		0	0	1	278	240	520				
082	09/13/06	AA	1	Fuel Pits	B0 : 2-5		0	0	0	0	200	480				
082	09/13/06	AA	1	Fuel Pits	B0 : 3-1		0	0	1	50	10	26	0	0	0	
082	09/13/06	AA	1	Fuel Pits	B0 : 3-2		0	0	0	0	260	600	0	0		
082	09/13/06	AA	1	Fuel Pits	B0 : 3-3		0	0	1	0	240	460				
082	09/13/06	AA	1	Fuel Pits	B0 : 3-4		0	0	0	3667	160	580				
082	09/13/06	AA	1	Fuel Pits	B0 : 3-5		0	0	1	0	220	480				
082	09/13/06	AA	1	Fuel Pits	B0 : 4-1		0	0	1	0	12	20	0	1	0	
082	09/13/06	AA	1	Fuel Pits	B0 : 4-2		0	0	0	0	220	400	0	0		
082	09/13/06	AA	1	Fuel Pits	B0 : 4-3		0	0	1	0	180	480				
082	09/13/06	AA	1	Fuel Pits	B0 : 4-4		0	1	1	0	160	480				
082	09/13/06	AA	1	Fuel Pits	B0 : 4-5		0	0	0	0	140	360				
082	09/13/06	AA	1	Fuel Pits	B0 : 5-1		0	0	1	0	9	15	0	0	0	
082	09/13/06	AA	1	Fuel Pits	B0 : 5-2		0	0	1	0	120	300	0	25		
082	09/13/06	AA	1	Fuel Pits	B0 : 5-3		0	0	0	0	180	360				
082	09/13/06	AA	1	Fuel Pits	B0 : 5-4		0	0	0	0	160	400				
082	09/13/06	AA	1	Fuel Pits	B0 : 5-5		0	0	0	1000	200	480				
082	09/13/06	AA	1	Fuel Pits	B0 : 6-1		0	0	1	300	14	33	0	0	0	
082	09/13/06	AA	1	Fuel Pits	B0 : 6-2		0	0	0	0	200	420	0	0		
082	09/13/06	AA	1	Fuel Pits	B0 : 6-3		0	0	0	0	240	460				
082	09/13/06	AA	1	Fuel Pits	B0 : 6-4		0	0	1	111	180	480				
082	09/13/06	AA	1	Fuel Pits	B0 : 6-5		0	0	0	0	240	460				Beta averaged via EAS
082	09/13/06	AA	1	Fuel Pits	B0 : 7-1		0	0	1	150	12	29	0	0	0	
082	09/13/06	AA	1	Fuel Pits	B0 : 7-2		0	0	1	0	180	480	0	0		
082	09/13/06	AA	1	Fuel Pits	B0 : 7-3		0	0	0	3444	220	520				
082	09/13/06	AA	1	Fuel Pits	B0 : 7-4		0	0	0	0	200	500				
082	09/13/06	AA	1	Fuel Pits	B0 : 7-5		0	0	0	0	180	460				
082	09/13/06	AA	1	Fuel Pits	B0 : 8-1		0	0	1	0	14	30	0	0	0	
082	09/13/06	AA	1	Fuel Pits	B0 : 8-2		0	0	0	0	160	480	0	0		
082	09/13/06	AA	1	Fuel Pits	B0 : 8-3		0	0	0	0	200	520				
082	09/13/06	AA	1	Fuel Pits	B0 : 8-4		0	0	0	0	220	460				
082	09/13/06	AA	1	Fuel Pits	B0 : 8-5		0	0	1	0	180	540				
082	09/13/06	AA	1	Fuel Pits	B0 : 9-1		39	0	1	250	10	28	0	11	0	
082	09/13/06	AA	1	Fuel Pits	B0 : 9-2		0	0	0	0	180	480	0	0		
082	09/13/06	AA	1	Fuel Pits	B0 : 9-3		0	0	1	0	200	440				
082	09/13/06	AA	1	Fuel Pits	B0 : 9-4		0	0	0	0	240	460				
082	09/13/06	AA	1	Fuel Pits	B0 : 9-5		0	0	1	0	200	500				
083	09/13/06	AA	1	Fuel Pits	A1 : 1-1		0	0	1	250	15	20	4	8	0	
083	09/13/06	AA	1	Fuel Pits	A1 : 1-2		0	0	1	0	160	440	0	8		
083	09/13/06	AA	1	Fuel Pits	A1 : 1-3		0	0	0	0	160	360				
083	09/13/06	AA	1	Fuel Pits	A1 : 1-4		0	0	1	0	180	460				
083	09/13/06	AA	1	Fuel Pits	A1 : 1-5		0	0	1	0	200	400				
083	09/13/06	AA	1	Fuel Pits	A1 : 2-1		0	0	1	0	10	22	0	0	0	
083	09/13/06	AA	1	Fuel Pits	A1 : 2-2		0	0	1	0	240	460	0	0		
083	09/13/06	AA	1	Fuel Pits	A1 : 2-3		0	0	0	0	160	320				
083	09/13/06	AA	1	Fuel Pits	A1 : 2-4		0	0	0	0	180	380				
083	09/13/06	AA	1	Fuel Pits	A1 : 2-5		0	0	0	0	180	400				
083	09/13/06	AA	1	Fuel Pits	A1 : 3-1		39	0	1	0	16	22	0	0	0	
083	09/13/06	AA	1	Fuel Pits	A1 : 3-2		0	0	0	0	240	440	0	3		
083	09/13/06	AA	1	Fuel Pits	A1 : 3-3		0	0	1	0	260	480				
083	09/13/06	AA	1	Fuel Pits	A1 : 3-4		0	0	0	0	180	360				

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-3 (Fuel storage tubes - A0, A1)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
083	09/13/06	AA	1	Fuel Pits	A1 : 3-5		0	0	0	0	220	420				
083	09/13/06	AA	1	Fuel Pits	A1 : 4-1		0	0	0	0	12	20	0	0	0	
083	09/13/06	AA	1	Fuel Pits	A1 : 4-2		0	0	1	0	200	380	0	0		
083	09/13/06	AA	1	Fuel Pits	A1 : 4-3		0	0	0	0	220	440				
083	09/13/06	AA	1	Fuel Pits	A1 : 4-4		0	0	0	0	260	500				
083	09/13/06	AA	1	Fuel Pits	A1 : 4-5		0	0	0	0	240	480				
083	09/13/06	AA	1	Fuel Pits	A1 : 5-1		0	0	0	250	14	30	0	13	0	
083	09/13/06	AA	1	Fuel Pits	A1 : 5-2		0	0	0	0	200	420	0	63		
083	09/13/06	AA	1	Fuel Pits	A1 : 5-3		0	0	1	0	160	380				
083	09/13/06	AA	1	Fuel Pits	A1 : 5-4		0	0	0	0	200	480				
083	09/13/06	AA	1	Fuel Pits	A1 : 5-5		0	0	0	0	160	380				
083	09/13/06	AA	1	Fuel Pits	A1 : 6-1		0	0	1	0	16	26	0	33	0	
083	09/13/06	AA	1	Fuel Pits	A1 : 6-2		0	0	0	0	200	440	0	0		
083	09/13/06	AA	1	Fuel Pits	A1 : 6-3		0	0	1	0	160	380				
083	09/13/06	AA	1	Fuel Pits	A1 : 6-4		0	0	0	0	220	420				
083	09/13/06	AA	1	Fuel Pits	A1 : 6-5		0	0	0	0	160	380				
083	09/13/06	AA	1	Fuel Pits	A1 : 7-1		0	0	1	650	14	24	0	0	0	
083	09/13/06	AA	1	Fuel Pits	A1 : 7-2		0	0	1	0	240	460	0	0		
083	09/13/06	AA	1	Fuel Pits	A1 : 7-3		0	0	0	0	160	380				
083	09/13/06	AA	1	Fuel Pits	A1 : 7-4		0	0	1	0	180	400				
083	09/13/06	AA	1	Fuel Pits	A1 : 7-5		0	0	1	0	240	380				
083	09/13/06	AA	1	Fuel Pits	A1 : 8-1		0	0	0	0	16	28	0	58	0	
083	09/13/06	AA	1	Fuel Pits	A1 : 8-2		0	0	0	0	260	480	0	0		
083	09/13/06	AA	1	Fuel Pits	A1 : 8-3		0	0	1	0	160	360				
083	09/13/06	AA	1	Fuel Pits	A1 : 8-4		0	0	0	0	240	380				
083	09/13/06	AA	1	Fuel Pits	A1 : 8-5		0	0	0	0	200	360				
083	09/13/06	AA	1	Fuel Pits	A1 : 9-1		0	0	1	250	11	28	0	0	0	
083	09/13/06	AA	1	Fuel Pits	A1 : 9-2		0	0	1	0	160	380	0	18		
083	09/13/06	AA	1	Fuel Pits	A1 : 9-3		0	0	0	56	160	340				
083	09/13/06	AA	1	Fuel Pits	A1 : 9-4		0	0	0	0	200	400				
083	09/13/06	AA	1	Fuel Pits	A1 : 9-5		0	0	1	0	240	420				
085	09/15/06	AA	1	Fuel Pits	B1 : 1-1		0	0	0	0	11	27	0	0	0	
085	09/15/06	AA	1	Fuel Pits	B1 : 1-2		0	0	1	0	200	481	0	0		
085	09/15/06	AA	1	Fuel Pits	B1 : 1-3		0	0	0	0	180	440				
085	09/15/06	AA	1	Fuel Pits	B1 : 1-4		0	0	1	0	200	400				
085	09/15/06	AA	1	Fuel Pits	B1 : 1-5		0	0	0	0	160	380				
085	09/15/06	AA	1	Fuel Pits	B1 : 2-1		0	0	1	0	13	21	0	7	0	
085	09/15/06	AA	1	Fuel Pits	B1 : 2-2		0	0	0	0	220	460	0	21		
085	09/15/06	AA	1	Fuel Pits	B1 : 2-3		0	0	1	0	240	500				
085	09/15/06	AA	1	Fuel Pits	B1 : 2-4		0	0	1	2389	260	540				
085	09/15/06	AA	1	Fuel Pits	B1 : 2-5		0	0	0	2500	220	480				
085	09/15/06	AA	1	Fuel Pits	B1 : 3-1		0	0	1	0	10	22	4	0	0	
085	09/15/06	AA	1	Fuel Pits	B1 : 3-2		0	0	0	0	220	500	0	12		
085	09/15/06	AA	1	Fuel Pits	B1 : 3-3		31	1	1	0	180	400				
085	09/15/06	AA	1	Fuel Pits	B1 : 3-4		0	0	0	0	240	480				
085	09/15/06	AA	1	Fuel Pits	B1 : 3-5		0	0	0	0	260	540				
085	09/15/06	AA	1	Fuel Pits	B1 : 4-1		0	0	1	0	12	24	0	0	0	
085	09/15/06	AA	1	Fuel Pits	B1 : 4-2		0	0	0	0	240	400	0	0		
085	09/15/06	AA	1	Fuel Pits	B1 : 4-3		0	0	1	0	180	420				
085	09/15/06	AA	1	Fuel Pits	B1 : 4-4		0	0	0	0	240	500				
085	09/15/06	AA	1	Fuel Pits	B1 : 4-5		0	0	0	2611	180	460				
085	09/15/06	AA	1	Fuel Pits	B1 : 5-1		0	0	1	0	10	31	4	0	0	

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-3 (Fuel storage tubes - A0, A1)

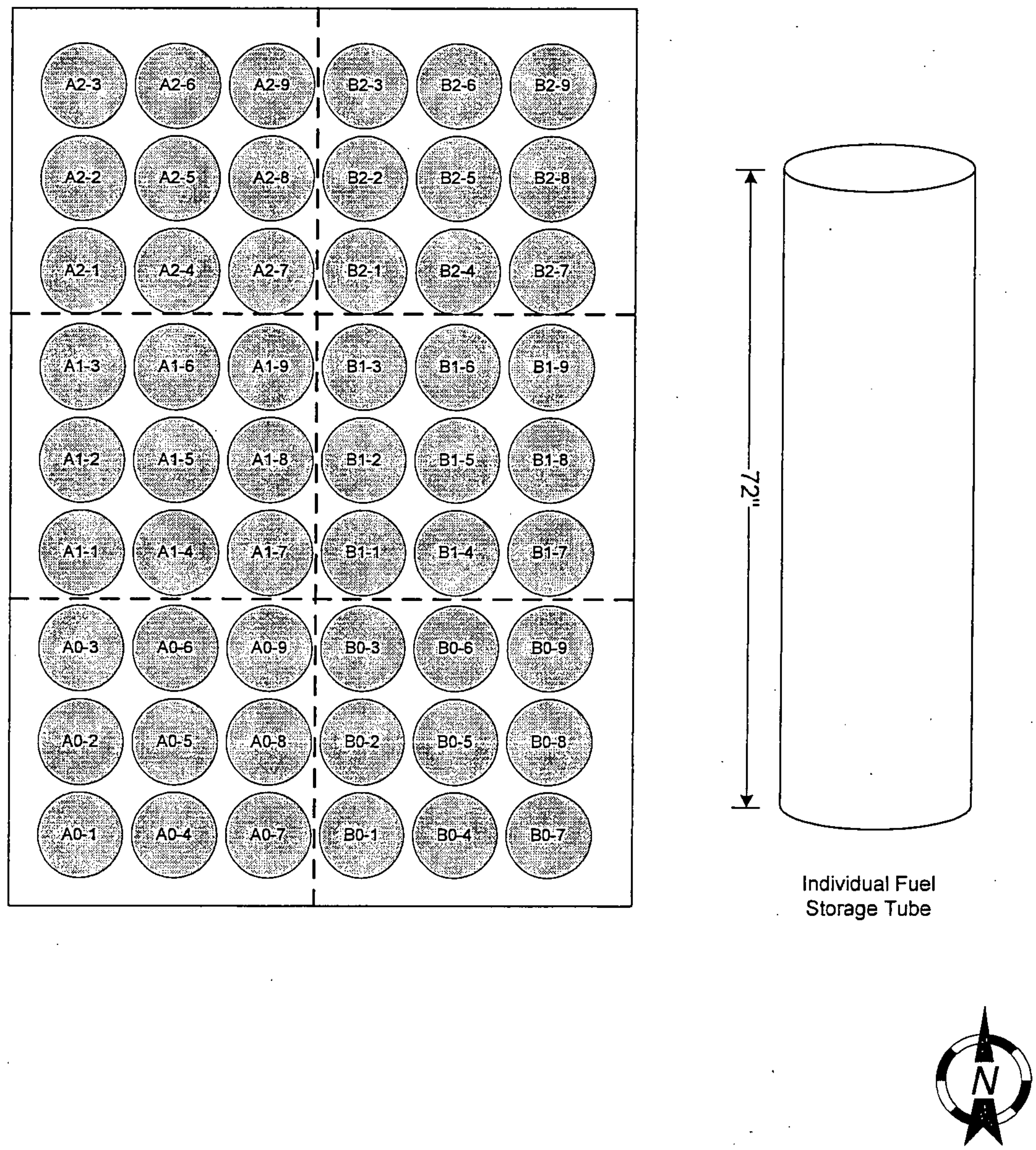
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
085	09/15/06	AA	1	Fuel Pits	B1 : 5-2		0	0	1	0	200	340	0	0		
085	09/15/06	AA	1	Fuel Pits	B1 : 5-3		0	0	0	0	160	380				
085	09/15/06	AA	1	Fuel Pits	B1 : 5-4		0	0	0	0	240	420				
085	09/15/06	AA	1	Fuel Pits	B1 : 5-5		0	0	0	0	200	460				
085	09/15/06	AA	1	Fuel Pits	B1 : 6-1		0	0	0	0	10	22	0	0	0	
085	09/15/06	AA	1	Fuel Pits	B1 : 6-2		0	0	1	944	160	360	0	0		
085	09/15/06	AA	1	Fuel Pits	B1 : 6-3		0	0	0	0	220	380				
085	09/15/06	AA	1	Fuel Pits	B1 : 6-4		0	0	0	0	160	420				
085	09/15/06	AA	1	Fuel Pits	B1 : 6-5		0	0	1	0	280	540				
085	09/15/06	AA	1	Fuel Pits	B1 : 7-1		0	0	1	0	11	17	4	21	0	
085	09/15/06	AA	1	Fuel Pits	B1 : 7-2		0	0	1	0	160	360	0	0		
085	09/15/06	AA	1	Fuel Pits	B1 : 7-3		0	0	0	0	200	500				
085	09/15/06	AA	1	Fuel Pits	B1 : 7-4		0	0	1	0	180	400				
085	09/15/06	AA	1	Fuel Pits	B1 : 7-5		0	0	0	0	160	360				
085	09/15/06	AA	1	Fuel Pits	B1 : 8-1		0	0	0	0	9	14	0	0	0	
085	09/15/06	AA	1	Fuel Pits	B1 : 8-2		0	0	1	0	160	400	8	0		
085	09/15/06	AA	1	Fuel Pits	B1 : 8-3		0	0	1	0	180	360				
085	09/15/06	AA	1	Fuel Pits	B1 : 8-4		0	0	0	0	160	440				
085	09/15/06	AA	1	Fuel Pits	B1 : 8-5		0	0	0	0	200	380				
085	09/15/06	AA	1	Fuel Pits	B1 : 9-1		31	0	1	0	11	23	0	0	0	
085	09/15/06	AA	1	Fuel Pits	B1 : 9-2		0	0	1	0	160	400	0	0		
085	09/15/06	AA	1	Fuel Pits	B1 : 9-3		0	0	0	0	200	480				
085	09/15/06	AA	1	Fuel Pits	B1 : 9-4		0	0	1	0	180	460				
085	09/15/06	AA	1	Fuel Pits	B1 : 9-5		0	0	1	0	240	500				
086	09/15/06	AA	1	Fuel Pits	A2 : 1-1		0	0	0	0	14	28	0	0	0	
086	09/15/06	AA	1	Fuel Pits	A2 : 1-2		0	0	1	0	140	420	0	0		
086	09/15/06	AA	1	Fuel Pits	A2 : 1-3		0	0	1	0	180	420				
086	09/15/06	AA	1	Fuel Pits	A2 : 1-4		0	0	0	0	200	480				
086	09/15/06	AA	1	Fuel Pits	A2 : 1-5		0	0	0	0	220	520				
086	09/15/06	AA	1	Fuel Pits	A2 : 2-1		0	0	0	0	13	20	0	0	0	
086	09/15/06	AA	1	Fuel Pits	A2 : 2-2		0	0	1	0	140	380	0	49		
086	09/15/06	AA	1	Fuel Pits	A2 : 2-3		0	0	1	0	180	420				
086	09/15/06	AA	1	Fuel Pits	A2 : 2-4		0	0	1	2444	220	400				
086	09/15/06	AA	1	Fuel Pits	A2 : 2-5		0	0	0	333	260	460				
086	09/15/06	AA	1	Fuel Pits	A2 : 3-1		0	0	1	0	12	30	0	0	0	
086	09/15/06	AA	1	Fuel Pits	A2 : 3-2		0	0	1	0	160	380	0	0		
086	09/15/06	AA	1	Fuel Pits	A2 : 3-3		0	0	0	389	200	400				
086	09/15/06	AA	1	Fuel Pits	A2 : 3-4		0	0	1	0	160	300				
086	09/15/06	AA	1	Fuel Pits	A2 : 3-5		0	0	0	0	140	440				Beta averaged via EAS
086	09/15/06	AA	1	Fuel Pits	A2 : 4-1		0	0	1	0	14	26	0	0	0	
086	09/15/06	AA	1	Fuel Pits	A2 : 4-2		0	0	1	3500	140	380	0	7		
086	09/15/06	AA	1	Fuel Pits	A2 : 4-3		0	0	0	0	200	560				
086	09/15/06	AA	1	Fuel Pits	A2 : 4-4		0	0	1	0	160	400				
086	09/15/06	AA	1	Fuel Pits	A2 : 4-5		0	0	0	0	240	460				
086	09/15/06	AA	1	Fuel Pits	A2 : 5-1		0	0	0	0	12	29	0	0	0	
086	09/15/06	AA	1	Fuel Pits	A2 : 5-2		0	0	0	0	140	380	0	7		
086	09/15/06	AA	1	Fuel Pits	A2 : 5-3		31	1	1	2389	240	480				
086	09/15/06	AA	1	Fuel Pits	A2 : 5-4		0	0	1	0	200	420				
086	09/15/06	AA	1	Fuel Pits	A2 : 5-5		0	0	1	0	180	400				
086	09/15/06	AA	1	Fuel Pits	A2 : 6-1		0	0	1	0	10	35	0	0	0	
086	09/15/06	AA	1	Fuel Pits	A2 : 6-2		0	0	1	0	160	440	13	0		
086	09/15/06	AA	1	Fuel Pits	A2 : 6-3		0	0	0	0	180	460				

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-3 (Fuel storage tubes - A0, A1)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
086	09/15/06	AA	1	Fuel Pits	A2 : 6-4		0	0	0	0	160	340				
086	09/15/06	AA	1	Fuel Pits	A2 : 6-5		0	0	1	0	220	480				
086	09/15/06	AA	1	Fuel Pits	A2 : 7-1		31	1	1	0	13	28	0	0	0	
086	09/15/06	AA	1	Fuel Pits	A2 : 7-2		0	0	1	278	200	440	4	0		
086	09/15/06	AA	1	Fuel Pits	A2 : 7-3		0	0	1	0	180	480				
086	09/15/06	AA	1	Fuel Pits	A2 : 7-4		0	0	0	0	220	400				
086	09/15/06	AA	1	Fuel Pits	A2 : 7-5		0	0	1	167	140	380				
086	09/15/06	AA	1	Fuel Pits	A2 : 8-1		0	0	1	0	13	26	0	17	0	
086	09/15/06	AA	1	Fuel Pits	A2 : 8-2		0	1	2	0	220	480	8	0		Alpha Averaged via EAS
086	09/15/06	AA	1	Fuel Pits	A2 : 8-3		0	0	1	0	240	460				
086	09/15/06	AA	1	Fuel Pits	A2 : 8-4		0	0	1	0	180	400				
086	09/15/06	AA	1	Fuel Pits	A2 : 8-5		0	0	0	0	180	340				
086	09/15/06	AA	1	Fuel Pits	A2 : 9-1		0	0	1	0	14	41	4	0	0	
086	09/15/06	AA	1	Fuel Pits	A2 : 9-2		0	0	1	0	160	380	0	0		
086	09/15/06	AA	1	Fuel Pits	A2 : 9-3		0	1	1	0	200	480				
086	09/15/06	AA	1	Fuel Pits	A2 : 9-4		0	1	1	0	220	420				
086	09/15/06	AA	1	Fuel Pits	A2 : 9-5		0	0	1	0	200	440				
091	09/18/06	AA	1	Fuel Pits	B2 : 1-1		0	0	0	0	12	20	0	0	0	
091	09/18/06	AA	1	Fuel Pits	B2 : 1-2		0	0	0	0	140	360	8	0		
091	09/18/06	AA	1	Fuel Pits	B2 : 1-3		8	0	1	0	180	420				
091	09/18/06	AA	1	Fuel Pits	B2 : 1-4		0	0	0	0	200	400				
091	09/18/06	AA	1	Fuel Pits	B2 : 1-5		8	0	1	0	160	440				
091	09/18/06	AA	1	Fuel Pits	B2 : 2-1		0	0	0	0	6	15	0	0	0	
091	09/18/06	AA	1	Fuel Pits	B2 : 2-2		8	0	1	0	180	460	8	0		
091	09/18/06	AA	1	Fuel Pits	B2 : 2-3		0	0	0	0	160	340				
091	09/18/06	AA	1	Fuel Pits	B2 : 2-4		8	0	1	0	240	460				
091	09/18/06	AA	1	Fuel Pits	B2 : 2-5		0	0	0	0	220	540				
091	09/18/06	AA	1	Fuel Pits	B2 : 3-1		8	0	1	0	9	29	0	0	0	
091	09/18/06	AA	1	Fuel Pits	B2 : 3-2		0	0	0	0	200	400	0	0		
091	09/18/06	AA	1	Fuel Pits	B2 : 3-3		0	0	0	0	240	460				
091	09/18/06	AA	1	Fuel Pits	B2 : 3-4		8	0	1	0	200	440				
091	09/18/06	AA	1	Fuel Pits	B2 : 3-5		8	0	1	1000	180	420				
091	09/18/06	AA	1	Fuel Pits	B2 : 4-1		0	0	0	0	8	19	4	0	0	
091	09/18/06	AA	1	Fuel Pits	B2 : 4-2		8	0	1	0	160	460	8	0		
091	09/18/06	AA	1	Fuel Pits	B2 : 4-3		8	0	1	0	180	360				
091	09/18/06	AA	1	Fuel Pits	B2 : 4-4		0	0	0	0	200	440				
091	09/18/06	AA	1	Fuel Pits	B2 : 4-5		8	0	1	0	160	380				
091	09/18/06	AA	1	Fuel Pits	B2 : 5-1		8	0	1	420	20	32	0	0	0	
091	09/18/06	AA	1	Fuel Pits	B2 : 5-2		8	0	1	0	160	380	0	0		
091	09/18/06	AA	1	Fuel Pits	B2 : 5-3		8	0	1	0	200	360				
091	09/18/06	AA	1	Fuel Pits	B2 : 5-4		0	0	0	0	240	480				
091	09/18/06	AA	1	Fuel Pits	B2 : 5-5		0	0	0	3167	180	340				
091	09/18/06	AA	1	Fuel Pits	B2 : 6-1		0	0	0	0	9	24	0	0	0	
091	09/18/06	AA	1	Fuel Pits	B2 : 6-2		8	0	1	0	220	480	4	0		
091	09/18/06	AA	1	Fuel Pits	B2 : 6-3		0	0	0	0	160	380				
091	09/18/06	AA	1	Fuel Pits	B2 : 6-4		8	0	1	0	160	360				
091	09/18/06	AA	1	Fuel Pits	B2 : 6-5		0	0	0	0	240	520				
091	09/18/06	AA	1	Fuel Pits	B2 : 7-1		0	0	0	0	14	27	4	0	0	
091	09/18/06	AA	1	Fuel Pits	B2 : 7-2		85	1	1	0	180	400	0	0		
091	09/18/06	AA	1	Fuel Pits	B2 : 7-3		8	0	1	0	160	380				
091	09/18/06	AA	1	Fuel Pits	B2 : 7-4		8	0	1	0	180	340				
091	09/18/06	AA	1	Fuel Pits	B2 : 7-5		19	1	2	0	240	460				Alpha Averaged via EAS

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-3 (Fuel storage tubes - A0, A1)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
091	09/18/06	AA	1	Fuel Pits	B2 : 8-1		0	0	0	0	11	33	0	0	0	
091	09/18/06	AA	1	Fuel Pits	B2 : 8-2		8	0	1	0	224	440	0	0		
091	09/18/06	AA	1	Fuel Pits	B2 : 8-3		9	1	2	111	260	520				Alpha Averaged via EAS
091	09/18/06	AA	1	Fuel Pits	B2 : 8-4		85	0	1	0	200	380				
091	09/18/06	AA	1	Fuel Pits	B2 : 8-5		0	0	0	0	220	400				
091	09/18/06	AA	1	Fuel Pits	B2 : 9-1		0	0	0	0	12	26	4	0	0	
091	09/18/06	AA	1	Fuel Pits	B2 : 9-2		8	0	1	0	180	360	0	0		
091	09/18/06	AA	1	Fuel Pits	B2 : 9-3		0	0	0	0	160	380				
091	09/18/06	AA	1	Fuel Pits	B2 : 9-4		8	0	1	0	220	420				
091	09/18/06	AA	1	Fuel Pits	B2 : 9-5		8	0	1	0	240	500				



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: MN
DRAWING	FUEL STORAGE PIT LAYOUT SURVEY UNIT 1-3		DRAWING 9

Attachment 7 - Fuel Storage Pit Liquid Scintillation Analytical Results

Fuel Storage Pit Liquid Scintillation Results

Location	Date	Background DPM	Gross DPM	Net DPM
Fuel Storage Pit - A0-1	9/14/2006	42	50	8
Fuel Storage Pit - A0-2	9/14/2006	42	49	7
Fuel Storage Pit - A0-3	9/14/2006	42	44	2
Fuel Storage Pit - A0-4	9/14/2006	42	45	3
Fuel Storage Pit - A0-5	9/14/2006	42	59	17
Fuel Storage Pit - A0-6	9/14/2006	42	35	0
Fuel Storage Pit - A0-7	9/14/2006	42	54	12
Fuel Storage Pit - A0-8	9/14/2006	42	52	10
Fuel Storage Pit - A0-9	9/14/2006	42	61	19
Fuel Storage Pit - A1-1	9/14/2006	42	56	14
Fuel Storage Pit - A1-2	9/14/2006	42	40	0
Fuel Storage Pit - A1-3	9/14/2006	42	58	16
Fuel Storage Pit - A1-4	9/14/2006	42	42	0
Fuel Storage Pit - A1-5	9/14/2006	42	37	0
Fuel Storage Pit - A1-6	9/14/2006	42	43	1
Fuel Storage Pit - A1-7	9/14/2006	42	59	17
Fuel Storage Pit - A1-8	9/14/2006	42	34	0
Fuel Storage Pit - A1-9	9/14/2006	42	42	0
Fuel Storage Pit - A2-1	9/14/2006	42	38	0
Fuel Storage Pit - A2-2	9/14/2006	42	53	11
Fuel Storage Pit - A2-3	9/14/2006	42	44	2
Fuel Storage Pit - A2-4	9/14/2006	42	62	20
Fuel Storage Pit - A2-5	9/14/2006	42	57	15
Fuel Storage Pit - A2-6	9/14/2006	42	41	0
Fuel Storage Pit - A2-7	9/14/2006	42	58	16
Fuel Storage Pit - A2-8	9/14/2006	42	54	12
Fuel Storage Pit - A2-9	9/14/2006	42	45	3
Fuel Storage Pit - B0-1	9/14/2006	42	59	17
Fuel Storage Pit - B0-2	9/14/2006	42	51	9
Fuel Storage Pit - B0-3	9/14/2006	42	66	24
Fuel Storage Pit - B0-4	9/14/2006	42	54	12
Fuel Storage Pit - B0-5	9/14/2006	42	47	5
Fuel Storage Pit - B0-6	9/14/2006	42	57	15
Fuel Storage Pit - B0-7	9/14/2006	42	50	8
Fuel Storage Pit - B0-8	9/14/2006	42	42	0
Fuel Storage Pit - B0-9	9/14/2006	42	26	0
Fuel Storage Pit - B1-1	9/14/2006	42	66	24
Fuel Storage Pit - B1-2	9/14/2006	42	49	7
Fuel Storage Pit - B1-3	9/14/2006	42	39	0
Fuel Storage Pit - B1-4	9/14/2006	42	56	14
Fuel Storage Pit - B1-5	9/14/2006	42	50	8
Fuel Storage Pit - B1-6	9/14/2006	42	35	0

Fuel Storage Pit Liquid Scintillation Results

Location	Date	Background DPM	Gross DPM	Net DPM
Fuel Storage Pit - B1-7	9/14/2006	42	46	4
Fuel Storage Pit - B1-8	9/14/2006	42	44	2
Fuel Storage Pit - B1-9	9/14/2006	42	60	18
Fuel Storage Pit - B2-1	9/14/2006	42	49	7
Fuel Storage Pit - B2-2	9/14/2006	42	45	3
Fuel Storage Pit - B2-3	9/14/2006	42	53	11
Fuel Storage Pit - B2-4	9/14/2006	42	49	7
Fuel Storage Pit - B2-5	9/14/2006	42	51	9
Fuel Storage Pit - B2-6	9/14/2006	42	51	9
Fuel Storage Pit - B2-7	9/14/2006	42	40	0
Fuel Storage Pit - B2-8	9/14/2006	42	55	13
Fuel Storage Pit - B2-9	9/14/2006	42	47	5

Attachment 8 - Sub-Unit 1-3-7 Reactor Room North Wall 0 To 4-m

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-7

(Reactor room north wall 0 to 4-m)

Survey Unit Information					
Unit Designator:	1-3-7	Class:	AA	Certainty %:	95
Location Description:	Reactor room north wall 0 to 4-m				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	55	55	55	55	N/A
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	29	8	220	91	N/A
Mean value of results:	7	1	100	23	N/A
Standard Deviation of results:	8	2	60	25	N/A
Degree of Freedom (2):	1.674	1.674	1.674	1.674	N/A
μ_α value:	9	1	113	28	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

(1) as interpolated from NUREG/CR-5849 Table B-2

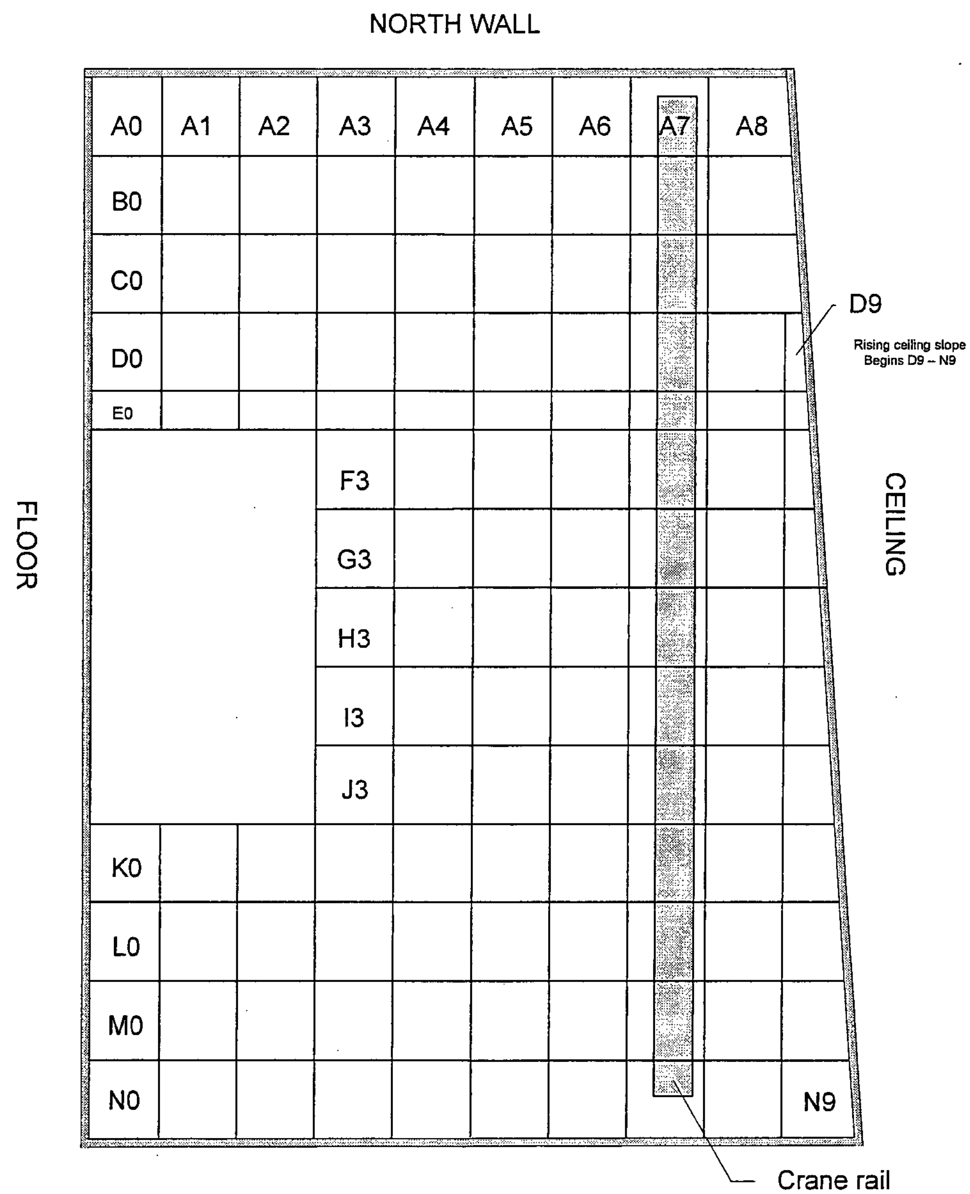
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-7 (Reactor room north wall 0 to 4-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
095	09/20/06	AA	1	N Wall	L	0	0	0	0	120	150	250	0	0		
095	09/20/06	AA	1	N Wall	M	0	0	0	1	147	120	200	0	0		
095	09/20/06	AA	1	N Wall	N	0	0	0	0	158	100	200	0	1		
095	09/20/06	AA	1	N Wall	L	1	0	0	1	162	100	180	0	86		
095	09/20/06	AA	1	N Wall	M	1	3	0	1	182	100	220	0	11		
095	09/20/06	AA	1	N Wall	N	1	22	1	1	165	120	240	0	36		
095	09/20/06	AA	1	N Wall	L	2	8	0	1	131	100	200	0	21		
095	09/20/06	AA	1	N Wall	M	2	0	0	0	136	100	260	0	11		
095	09/20/06	AA	1	N Wall	N	2	0	0	0	123	100	200	0	41		
095	09/20/06	AA	1	N Wall	L	3	3	0	1	173	100	220	0	71		
095	09/20/06	AA	1	N Wall	M	3	3	0	1	114	120	200	0	21		
095	09/20/06	AA	1	N Wall	N	3	8	0	1	76	100	200	0	0		
095	09/20/06	AA	1	N Wall	L	4	3	0	1	60	100	180	0	21		
095	09/20/06	AA	1	N Wall	M	4	18	0	1	0	120	240	0	0		
095	09/20/06	AA	1	N Wall	N	4	3	0	1	0	80	180	0	66		
095	09/20/06	AA	1	N Wall	K	0	0	0	1	165	100	240	0	26		
095	09/20/06	AA	1	N Wall	K	1	22	1	2	175	120	200	0	41		
095	09/20/06	AA	1	N Wall	K	2	3	0	1	147	140	180	0	6		
095	09/20/06	AA	1	N Wall	I	3	3	0	1	164	120	240	0	91		
095	09/20/06	AA	1	N Wall	J	3	0	0	1	127	100	280	0	36		
095	09/20/06	AA	1	N Wall	K	3	8	1	2	149	120	240	0	21		
095	09/20/06	AA	1	N Wall	I	4	3	0	1	21	80	240	0	26		
095	09/20/06	AA	1	N Wall	J	4	0	0	1	0	80	140	0	21		
095	09/20/06	AA	1	N Wall	K	4	3	0	1	0	80	160	0	41		
098	09/21/06	AA	1	N Wall	A	0	0	0	0	13	100	160	0	41		
098	09/21/06	AA	1	N Wall	A	1	0	0	1	64	100	180	4	1		
098	09/21/06	AA	1	N Wall	A	2	6	0	1	106	120	240	0	11		
098	09/21/06	AA	1	N Wall	B	0	0	0	0	136	140	220	0	0		
098	09/21/06	AA	1	N Wall	B	1	11	0	1	143	120	200	4	36		
098	09/21/06	AA	1	N Wall	B	2	20	0	1	51	100	180	0	0		
098	09/21/06	AA	1	N Wall	C	0	6	0	1	51	80	200	0	36		
098	09/21/06	AA	1	N Wall	C	1	15	0	2	142	100	220	0	1		
098	09/21/06	AA	1	N Wall	C	2	11	0	1	162	140	240	0	0		
098	09/21/06	AA	1	N Wall	D	0	0	0	1	153	120	180	0	76		
098	09/21/06	AA.	1	N Wall	D	1	6	0	1	160	140	220	4	11		
098	09/21/06	AA	1	N Wall	D	2	11	0	1	99	120	200	0	11		
098	09/21/06	AA	1	N Wall	E	0	2	0	1	108	100	180	0	0		
098	09/21/06	AA	1	N Wall	E	1	0	0	0	129	120	240	0	6		
098	09/21/06	AA	1	N Wall	E	2	2	0	1	69	100	180	0	0		
098	09/21/06	AA	1	N Wall	A	3	2	0	1	84	80	200	0	0		
098	09/21/06	AA	1	N Wall	B	3	24	1	2	138	140	220	0	0		
098	09/21/06	AA	1	N Wall	C	3	2	0	1	220	160	240	0	0		
098	09/21/06	AA	1	N Wall	D	3	2	0	1	112	120	180	0	46		
098	09/21/06	AA	1	N Wall	A	4	11	0	1	90	140	220	4	36		
098	09/21/06	AA	1	N Wall	B	4	15	0	2	41	100	220	8	51		
098	09/21/06	AA	1	N Wall	C	4	11	0	1	30	80	160	0	11		
098	09/21/06	AA	1	N Wall	D	4	6	0	1	0	80	140	4	1		
098	09/21/06	AA	1	N Wall	E	3	29	2	3	78	140	220	0	41		
098	09/21/06	AA	1	N Wall	F	3	2	0	1	143	100	240	0	0		
098	09/21/06	AA	1	N Wall	G	3	11	0	1	91	120	200	4	0		
098	09/21/06	AA	1	N Wall	E	4	29	2	3	90	140	240	4	36		
098	09/21/06	AA	1	N Wall	F	4	29	1	3	0	120	200	4	36		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-7 (Reactor room north wall 0 to 4-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
098	09/21/06	AA	1	N Wall	G	4	15	0	1	82	140	220	4	0		
140	10/02/06	AA	1	N Wall	H	3	11	0	2	0	100	180	0	65		North Wall Reactor Room
140	10/02/06	AA	1	N Wall	H	4	0	0	2	0	100	200	0	0		North Wall Reactor Room



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM NORTH WALL SURVEY UNIT 1-3		DRAWING 10

Attachment 9 - Sub-Unit 1-3-8 Reactor Room North Wall 5 To 9-m

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-8

(Reactor room north wall 5 to 9-m)

Survey Unit Information					
Unit Designator:	1-3-8	Class:	AA	Certainty %:	95
Location Description:	Reactor room north wall 5 to 9-m				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	67	67	67	67	N/A
Number of measurements needed [(1)]:	9	9	9	9	N/A
Maximum value of results:	58	12	255	122	N/A
Mean value of results:	18	1	113	30	N/A
Standard Deviation of results:	17	2	71	28	N/A
Degree of Freedom [(2)]:	1.670	1.670	1.670	1.670	N/A
μ_α value:	21	1	128	35	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

[(1)] as interpolated from NUREG/CR-5849 Table B-2

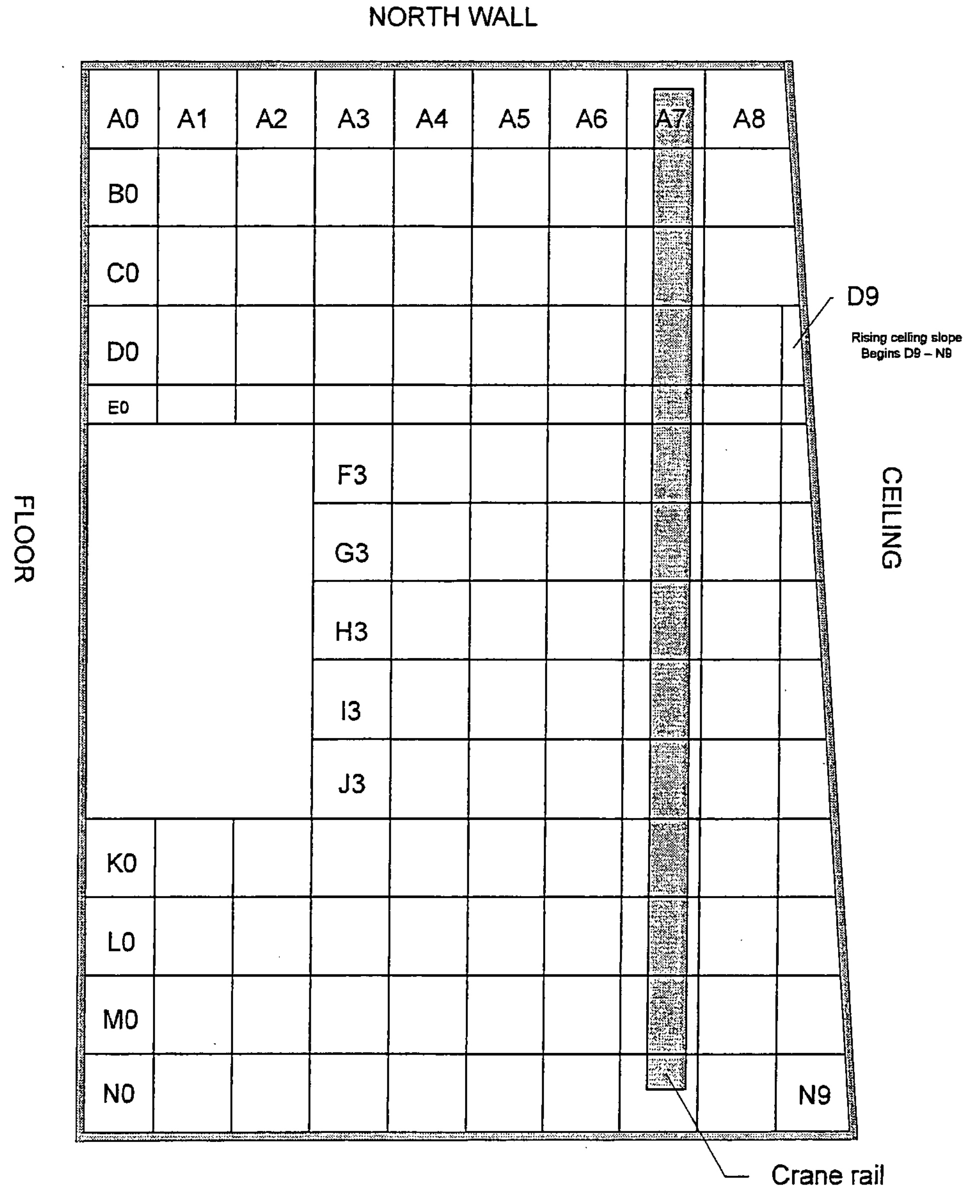
[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-8 (Reactor room north wall 5 to 9-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
095	09/20/06	AA	1	N Wall	L	5	0	0	1	0	80	200	0	36		
095	09/20/06	AA	1	N Wall	M	5	8	1	1	16	100	180	0	56		
095	09/20/06	AA	1	N Wall	N	5	0	0	1	54	120	220	0	66		
095	09/20/06	AA	1	N Wall	L	6	3	0	1	21	100	240	0	61		
095	09/20/06	AA	1	N Wall	M	6	8	1	1	0	60	160	0	1		
095	09/20/06	AA	1	N Wall	N	6	8	1	1	43	120	240	0	6		
095	09/20/06	AA	1	N Wall	L	7	13	1	1	151	100	260	0	61		
095	09/20/06	AA	1	N Wall	M	7	8	0	1	131	140	200	0	36		
095	09/20/06	AA	1	N Wall	N	7	8	1	1	158	120	260	0	66		
095	09/20/06	AA	1	N Wall	L	8	0	0	1	78	100	180	0	56		
095	09/20/06	AA	1	N Wall	M	8	3	0	1	123	140	220	0	41		
095	09/20/06	AA	1	N Wall	N	8	0	0	1	56	120	200	0	6		
095	09/20/06	AA	1	N Wall	L	9	0	0	1	138	140	240	0	36		
095	09/20/06	AA	1	N Wall	M	9	3	0	1	144	160	240	0	36		
095	09/20/06	AA	1	N Wall	N	9	0	0	0	92	120	180	0	86		
095	09/20/06	AA	1	N Wall	I	5	0	0	1	0	80	140	0	56		
095	09/20/06	AA	1	N Wall	J	5	0	0	1	39	140	200	0	0		
095	09/20/06	AA	1	N Wall	K	5	37	2	2	0	120	220	0	26		
095	09/20/06	AA	1	N Wall	I	6	27	2	3	0	140	260	7	36		
095	09/20/06	AA	1	N Wall	J	6	27	2	2	0	120	180	0	0		
095	09/20/06	AA	1	N Wall	K	6	18	1	1	28	100	200	0	31		
095	09/20/06	AA	1	N Wall	I	7	13	1	2	131	120	240	0	51		
095	09/20/06	AA	1	N Wall	J	7	13	1	1	158	140	220	0	21		
095	09/20/06	AA	1	N Wall	K	7	0	0	1	178	160	280	0	16		
095	09/20/06	AA	1	N Wall	I	8	8	1	1	114	100	200	0	26		
095	09/20/06	AA	1	N Wall	J	8	18	1	2	145	120	200	0	0		
095	09/20/06	AA	1	N Wall	K	8	3	0	1	118	120	180	0	0		
095	09/20/06	AA	1	N Wall	I	9	8	1	1	85	100	160	0	86		
095	09/20/06	AA	1	N Wall	J	9	8	0	1	167	160	240	0	11		
095	09/20/06	AA	1	N Wall	K	9	8	1	1	140	160	220	0	122		
098	09/21/06	AA	1	N Wall	A	5	2	0	1	112	100	180	0	0		
098	09/21/06	AA	1	N Wall	B	5	0	0	0	132	120	200	0	56		
098	09/21/06	AA	1	N Wall	C	5	15	1	2	0	80	160	4	0		
098	09/21/06	AA	1	N Wall	D	5	20	1	2	4	100	180	0	76		
098	09/21/06	AA	1	N Wall	A	6	2	0	1	199	140	260	0	36		
098	09/21/06	AA	1	N Wall	B	6	0	0	0	49	120	220	0	6		
098	09/21/06	AA	1	N Wall	C	6	2	0	1	99	140	260	0	36		
098	09/21/06	AA	1	N Wall	D	6	0	0	0	71	120	240	0	41		
100	09/22/06	AA	1	N Wall	E	5	34	1	2	29	100	180	4	54		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	F	5	24	1	1	41	120	200	0	49		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	G	5	10	0	1	59	80	160	4	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	H	5	10	0	1	43	100	160	8	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	E	6	44	2	3	142	100	180	0	24		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	F	6	29	1	2	150	120	180	0	14		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	G	6	49	2	3	174	100	220	0	29		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	H	6	24	1	1	161	120	200	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	E	7	29	1	2	182	120	180	0	34		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	F	7	58	2	3	167	160	240	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	G	7	34	1	2	159	140	260	0	54		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	H	7	24	1	1	154	120	200	0	54		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	E	8	39	1	2	255	140	260	0	19		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	F	8	5	0	0	178	120	220	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-8 (Reactor room north wall 5 to 9-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
100	09/22/06	AA	1	N Wall	G	8	29	1	2	152	140	200	0	54		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	H	8	39	1	2	199	120	240	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	E	9	5	0	1	140	80	160	12	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	F	9	44	1	2	225	120	200	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	G	9	34	1	2	231	140	200	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	H	9	29	1	1	16	100	160	0	79		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	A	7	44	1	2	161	140	220	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	B	7	44	2	3	118	100	180	0	54		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	C	7	5	0	1	140	120	200	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	D	7	24	1	2	159	120	220	0	24		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	A	8	49	2	4	195	140	260	0	44		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	B	8	39	2	3	202	120	260	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	C	8	39	2	2	169	100	240	0	24		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	D	8	39	1	2	155	120	200	0	0		Due to sloping ceiling, grids A9, B9, C9 are not present
100	09/22/06	AA	1	N Wall	D	9	44	2	3	253	160	260	4	0		Due to sloping ceiling, grids A9, B9, C9 are not present



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM NORTH WALL SURVEY UNIT 1-3		DRAWING 10

Attachment 10 - Sub-Unit 1-3-9 Reactor Room South Wall 0 To 4-m

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-9

(Reactor room south wall 0 to 4-m)

Survey Unit Information					
Unit Designator:	1-3-9	Class:	AA	Certainty %:	95
Location Description:	Reactor room south wall 0 to 4-m				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	58	60	58	60	N/A
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	71	13	1228	78	N/A
Mean value of results:	25	2	175	17	N/A
Standard Deviation of results:	20	3	211	22	N/A
Degree of Freedom [2]:	1.672	1.671	1.672	1.671	N/A
μ_α value:	29	2	222	22	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

(1) as interpolated from NUREG/CR-5849 Table B-2

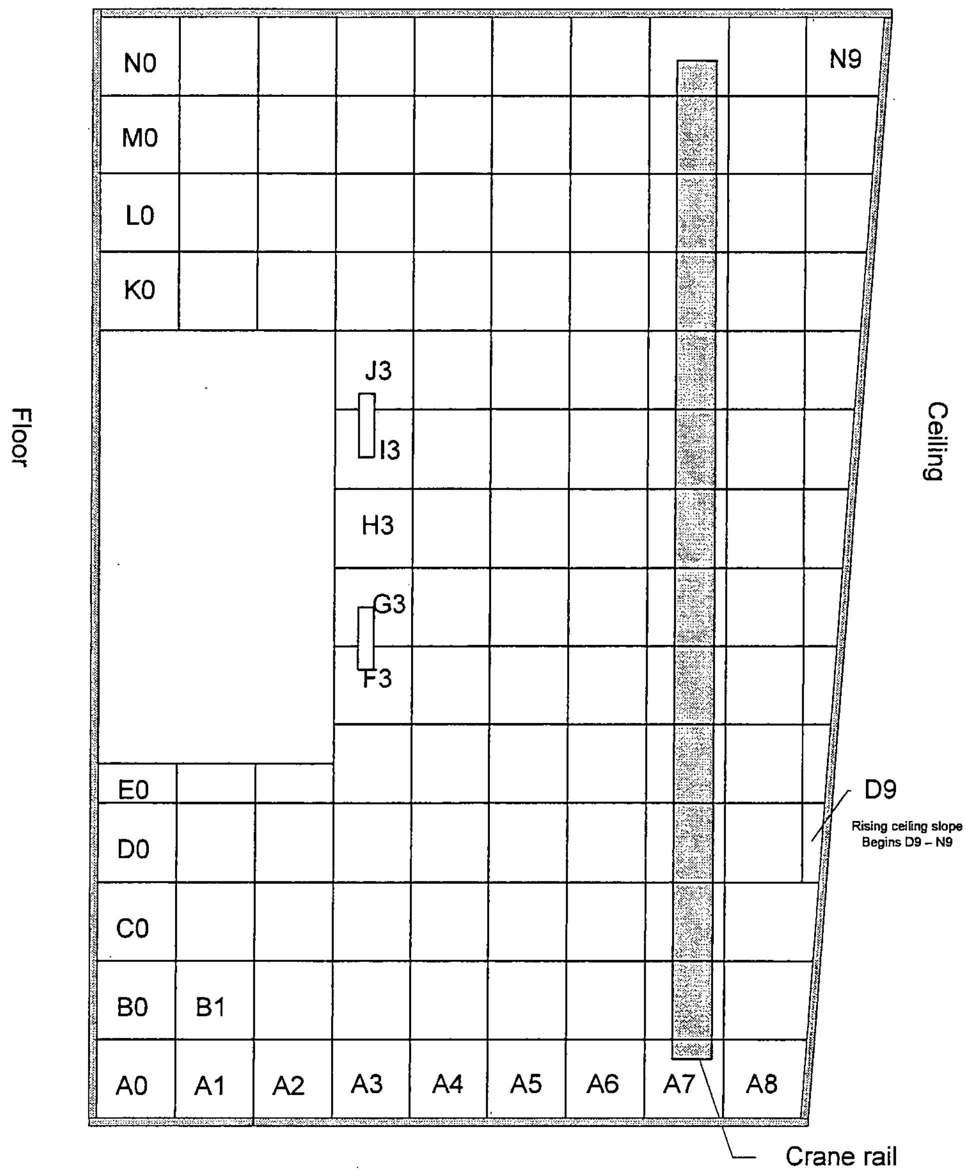
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-9 (Reactor room south wall 0 to 4-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
054	08/30/06	GA	1	Pipe	A	28					88	144	4	23		Survey of main drainline (1.5") left in reactor room fl - 28ft
054	08/30/06	GA	1	Pipe	A	0					88	144	0	9		Survey of main drainline (1.5") left in reactor room fl - 28ft
099	09/21/06	AA	1	S Wall	A	0	16	0	2	165	40	320	0	42		
099	09/21/06	AA	1	S Wall	A	1	16	0	1	195	40	400	0	0		
099	09/21/06	AA	1	S Wall	A	2	1	0	1	203	40	400	0	0		
099	09/21/06	AA	1	S Wall	B	0	6	0	1	276	40	400	4	19		Void Space
099	09/21/06	AA	1	S Wall	B	1	11	0	2	209	40	380	0	19		
099	09/21/06	AA	1	S Wall	B	2	6	0	1	192	40	380	0	51		
099	09/21/06	AA	1	S Wall	C	0	11	0	1	126	40	310	0	0		Void Space
099	09/21/06	AA	1	S Wall	C	1	1	0	1	93	40	300	4	0		
099	09/21/06	AA	1	S Wall	C	2	16	0	1	42	40	300	0	0		
099	09/21/06	AA	1	S Wall	D	0	21	0	1	128	40	310	0	0		
099	09/21/06	AA	1	S Wall	D	1	27	0	1	1228	40	480	0	0		
099	09/21/06	AA	1	S Wall	D	2	0	0	0	95	40	310	0	70		
099	09/21/06	AA	1	S Wall	E	0	32	0	2	86	40	310	0	0		
099	09/21/06	AA	1	S Wall	E	1	11	0	1	120	40	310	0	14		
099	09/21/06	AA	1	S Wall	E	2	1	0	1	126	40	310	0	0		Void Space
099	09/21/06	AA	1	S Wall	K	0	6	0	1	76	40	300	4	47		
099	09/21/06	AA	1	S Wall	K	1	52	0	3	234	40	400	4	42		
099	09/21/06	AA	1	S Wall	K	2	11	0	1	86	40	310	0	0		
099	09/21/06	AA	1	S Wall	L	0	32	0	1	153	40	320	0	0		Doorway
099	09/21/06	AA	1	S Wall	L	1	27	0	1	1090	40	500	0	0		Doorway
099	09/21/06	AA	1	S Wall	L	2	21	0	1	142	40	320	4	0		
099	09/21/06	AA	1	S Wall	M	0	1	0	1	118	40	310	0	0		
099	09/21/06	AA	1	S Wall	M	1	16	0	1	107	40	310	0	0		
099	09/22/06	AA	1	S Wall	M	2	20	0	1	153	40	320	0	13		Doorway
099	09/22/06	AA	1	S Wall	N	0	10	0	1	122	40	310	0	0		
099	09/22/06	AA	1	S Wall	N	1	40	0	3	212	40	310	4	69		Crane Power Box
099	09/22/06	AA	1	S Wall	N	2	55	0	3	159	40	300	0	0		
099	09/22/06	AA	1	S Wall	N	3	40	0	2	140	40	300	0	31		
099	09/22/06	AA	1	S Wall	N	4	35	0	2	3	40	400	0	13		
099	09/22/06	AA	1	S Wall	M	4	71	0	4	0	40	340	4	27		
099	09/22/06	AA	1	S Wall	L	3	45	0	3	54	40	310	0	0		Voided space
099	09/22/06	AA	1	S Wall	L	4	40	0	2	553	40	500	13	78		
099	09/22/06	AA	1	S Wall	K	4	35	0	2	44	40	300	13	31		
099	09/22/06	AA	1	S Wall	K	3	50	0	1	114	40	310	0	8		
099	09/22/06	AA	1	S Wall	J	2	10	0	1	286	40	400	4	13		
099	09/22/06	AA	1	S Wall	J	3	55	0	3	153	40	310	9	4		
099	09/22/06	AA	1	S Wall	M	3	20	0	2	146	40	380	0	0		
099	09/23/06	AA	1	S Wall	H	2	33	0	2	19	40	260	0	54		
099	09/23/06	AA	1	S Wall	I	4	28	0	2	30	40	280	4	54		
099	09/23/06	AA	1	S Wall	I	3	65	0	3	18	40	260	0	3		Void space
099	09/23/06	AA	1	S Wall	I	2	65	0	2	120	40	300	0	40		
099	09/23/06	AA	1	S Wall	H	4	39	0	1	0	40	260	8	0		
101	09/23/06	AA	1	S Wall	A	3	45	1	2	290	140	220	0	8		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	B	3	54	2	3	243	120	200	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	C	3	50	1	2	290	140	260	0	38		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	D	3	25	0	1	256	120	240	0	13		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	A	4	35	1	2	273	100	240	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	B	4	40	1	1	180	80	180	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	C	4	30	0	1	187	100	160	12	18		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	D	4	40	1	2	144	80	180	0	33		Due to sloping ceiling grids A9, B9, and C9 not present

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-9 (Reactor room south wall 0 to 4-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
107	09/25/06	AA	1	S Wall	E	4	6	0	1	43	100	180	3	0		
107	09/25/06	AA	1	S Wall	F	4	1	0	1	0	80	140	0	0		
107	09/25/06	AA	1	S Wall	G	4	6	0	1	0	100	180	0	26		
107	09/25/06	AA	1	S Wall	E	3	6	0	1	155	120	240	0	46		
107	09/25/06	AA	1	S Wall	F	3	0	0	0	102	140	200	0	0		
107	09/25/06	AA	1	S Wall	G	3	1	0	1	186	140	220	3	31		
107	09/25/06	AA	1	S Wall	H	3	6	1	1	140	120	260	0	62		
107	09/25/06	AA	1	S Wall	J	4	0	0	0	60	100	180	0	1		



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM SOUTH WALL SURVEY UNIT 1-3		DRAWING 11

Attachment 11 - Sub-Unit 1-3-10 Reactor Room South Wall 5 To 9-m

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-10

(Reactor room south wall 5 to 9-m)

Survey Unit Information					
Unit Designator:	1-3-10	Class:	AA	Certainty %:	95
Location Description:	Reactor room south wall 5 to 9-m				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	67	67	67	67	N/A
Number of measurements needed [(1)]:	9	9	9	9	N/A
Maximum value of results:	76	12	442	101	N/A
Mean value of results:	37	1	168	21	N/A
Standard Deviation of results:	19	3	104	25	N/A
Degree of Freedom [(2)]:	1.670	1.670	1.670	1.670	N/A
μ_α value:	40	2	189	26	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

[(1)] as interpolated from NUREG/CR-5849 Table B-2

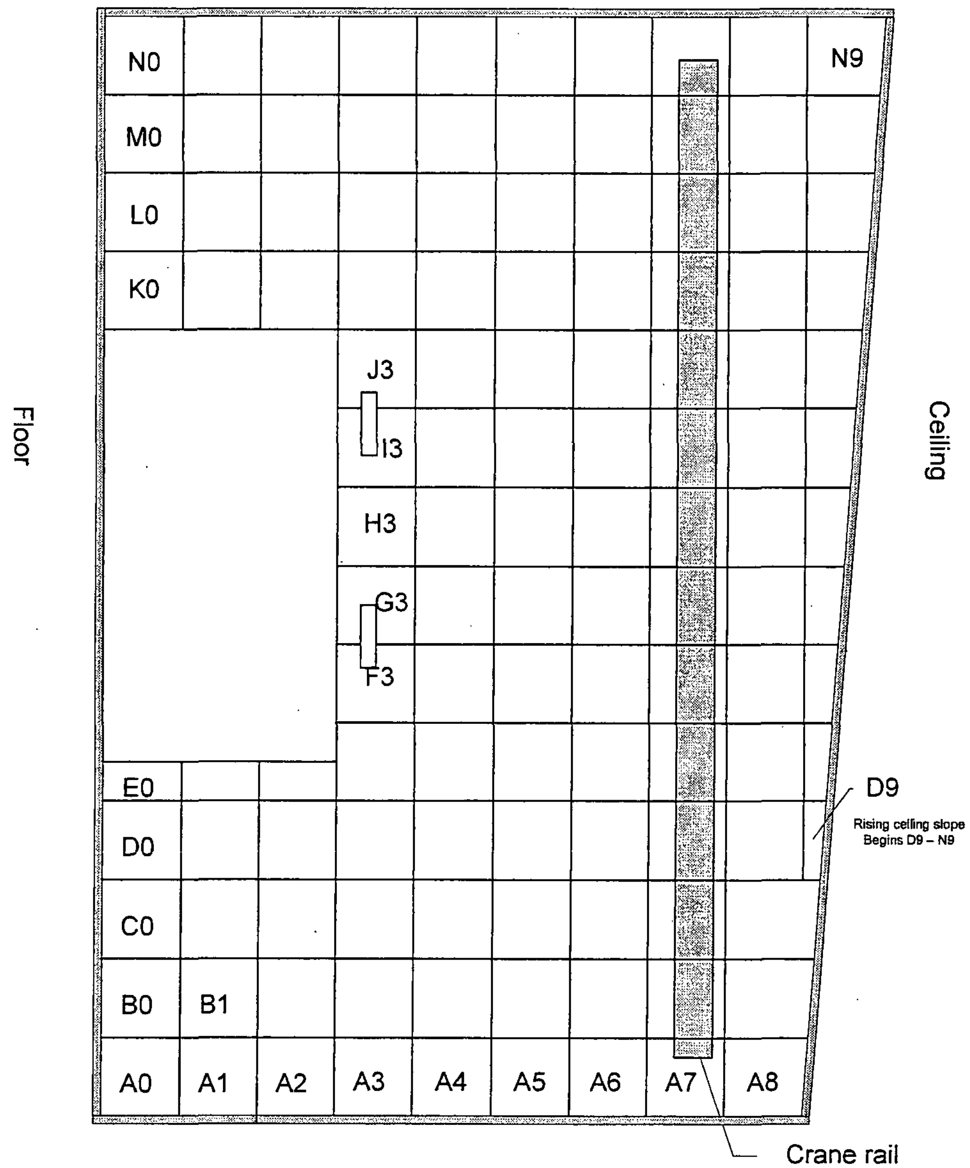
[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-10 (Reactor room south wall 5 to 9-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
099	09/22/06	AA	1	S Wall	N	5	20	0	1	0	40	380	4	13		
099	09/22/06	AA	1	S Wall	N	6	45	0	3	83	40	380	0	0		
099	09/22/06	AA	1	S Wall	N	7	60	0	4	146	40	290	0	18		
099	09/22/06	AA	1	S Wall	M	7	35	0	2	52	40	250	0	0		
099	09/22/06	AA	1	S Wall	M	6	45	0	3	169	40	360	0	69		
099	09/22/06	AA	1	S Wall	M	5	30	0	2	0	40	360	0	101		
099	09/22/06	AA	1	S Wall	L	5	25	0	1	17	40	300	4	69		
099	09/22/06	AA	1	S Wall	L	6	40	0	1	0	40	300	0	4		
099	09/22/06	AA	1	S Wall	L	7	40	0	1	101	40	310	0	0		
099	09/22/06	AA	1	S Wall	K	7	76	0	3	77	40	300	4	73		
099	09/22/06	AA	1	S Wall	K	6	5	0	1	62	40	300	0	18		
099	09/22/06	AA	1	S Wall	K	5	20	0	1	73	40	300	9	59		
099	09/23/06	AA	1	S Wall	J	5	39	0	3	49	40	300	8	7		
099	09/23/06	AA	1	S Wall	J	6	33	0	2	442	40	490	0	26		
099	09/23/06	AA	1	S Wall	J	7	39	0	2	93	40	300	8	21		
099	09/23/06	AA	1	S Wall	I	7	60	0	3	142	40	300	0	3		
099	09/23/06	AA	1	S Wall	I	6	49	0	2	147	40	300	0	12		
099	09/23/06	AA	1	S Wall	I	5	44	0	2	93	40	300	0	0		
099	09/23/06	AA	1	S Wall	H	5	49	0	2	34	40	300	0	3		
099	09/23/06	AA	1	S Wall	H	6	28	0	2	169	40	320	0	40		
099	09/23/06	AA	1	S Wall	H	7	23	0	1	32	40	230	0	0		
099	09/23/06	AA	1	S Wall	G	7	70	0	3	151	40	330	0	0		
099	09/23/06	AA	1	S Wall	G	6	28	0	2	233	40	400	4	35		
099	09/23/06	AA	1	S Wall	G	5	65	0	3	0	40	200	0	68		
101	09/23/06	AA	1	S Wall	A	5	50	2	2	236	120	240	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	B	5	30	1	1	139	80	140	8	28		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	C	5	45	0	2	154	100	140	0	18		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	D	5	11	0	0	170	120	200	12	53		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	A	6	54	2	3	217	140	260	4	3		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	B	6	54	1	2	293	140	260	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	C	6	25	0	1	202	120	220	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	D	6	35	1	2	228	140	260	0	3		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	A	7	30	1	1	301	160	280	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	B	7	50	2	3	224	120	240	4	13		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	C	7	35	1	1	271	140	260	0	28		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	D	7	40	1	2	249	120	260	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	A	8	50	1	3	228	140	260	0	46		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	B	8	6	0	0	256	120	240	3	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	C	8	16	0	1	230	100	240	0	31		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	D	8	30	1	2	228	140	220	0	21		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	N	8	50	2	3	247	140	260	0	6		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	M	8	35	1	2	286	160	240	0	31		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	L	8	25	0	1	297	140	260	0	16		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	N	9	25	0	2	213	100	220	0	26		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	M	9	50	2	3	224	140	240	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	L	9	45	2	2	303	120	200	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	K	8	59	2	3	226	140	220	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	J	8	59	3	3	223	160	280	0	97		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	I	8	54	2	2	342	160	280	0	21		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	K	9	40	1	2	219	120	200	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	J	9	25	0	1	230	100	220	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	I	9	64	2	4	258	140	240	0	6		Due to sloping ceiling grids A9, B9, and C9 not present

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-10 (Reactor room south wall 5 to 9-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
101	09/23/06	AA	1	S Wall	H	8	50	1	2	273	140	260	0	31		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	G	8	30	0	2	254	100	220	0	0		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	F	8	35	1	2	273	120	240	0	21		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	H	9	64	3	4	286	160	260	3	46		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	G	9	69	3	4	237	100	220	0	62		Due to sloping ceiling grids A9, B9, and C9 not present
101	09/23/06	AA	1	S Wall	F	9	59	2	3	284	120	240	3	36		Due to sloping ceiling grids A9, B9, and C9 not present
107	09/25/06	AA	1	S Wall	D	9	1	0	1	0	100	160	0	1		
107	09/25/06	AA	1	S Wall	E	9	15	1	1	0	80	180	3	0		
107	09/25/06	AA	1	S Wall	E	8	24	1	2	62	100	220	0	6		
107	09/25/06	AA	1	S Wall	E	7	1	0	1	111	120	240	0	1		
107	09/25/06	AA	1	S Wall	F	7	1	0	1	84	140	220	0	0		
107	09/25/06	AA	1	S Wall	E	6	19	1	2	87	120	240	0	21		
107	09/25/06	AA	1	S Wall	F	6	10	0	1	170	160	280	0	52		
107	09/25/06	AA	1	S Wall	E	5	15	1	1	43	120	240	3	41		
107	09/25/06	AA	1	S Wall	F	5	1	0	1	1	80	180	0	26		



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM SOUTH WALL SURVEY UNIT 1-3		DRAWING 11

Attachment 12 Sub-Unit 1-3-11 Reactor Room West Ceiling Grids A-D Including Beams

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-11

(Reactor room west ceiling grids A-D including beams)

Survey Unit Information					
Unit Designator:	1-3-11	Class:	AA	Certainty %:	95
Location Description:	Reactor room west ceiling grids A-D including beams				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	88	88	88	88	N/A
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	32	4	266	53	N/A
Mean value of results:	8	0	112	7	N/A
Standard Deviation of results:	8	1	74	13	N/A
Degree of Freedom [2]:	1.665	1.665	1.665	1.665	N/A
μ_α value:	9	0	125	9	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

[1] as interpolated from NUREG/CR-5849 Table B-2

[2] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-11 (Reactor room west ceiling grids A-D including beams)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
067	09/09/06	AA	1	Ceiling	A	0	8	0	0	243	120	180	0	33		
067	09/09/06	AA	1	Ceiling	A	1	25	1	2	212	120	200	0	0		
067	09/09/06	AA	1	Ceiling	A	2	0	0	1	189	120	160	0	8		
067	09/09/06	AA	1	Ceiling	A	3	30	0	1	170	120	160	0	0		
067	09/09/06	AA	1	Ceiling	A	4	21	1	2	202	140	220	0	0		
067	09/09/06	AA	1	Ceiling	A	5	17	0	2	191	120	220	0	0		
067	09/09/06	AA	1	Ceiling	A	6	17	0	1	197	120	240	0	0		
067	09/09/06	AA	1	Ceiling	A	7	25	1	2	177	120	220	0	8		
067	09/09/06	AA	1	Ceiling	A	8	0	0	1	160	120	200	0	8		
067	09/09/06	AA	1	Ceiling	A	9	12	0	1	114	120	200	0	0		
067	09/09/06	AA	1	Ceiling	A	10	3	0	1	156	120	200	0	13		
067	09/09/06	AA	1	Ceiling	B	0	3	0	1	139	120	180	0	0		
067	09/09/06	AA	1	Ceiling	B	1	12	1	2	139	120	200	0	43		
067	09/09/06	AA	1	Ceiling	B	2	21	1	2	87	120	180	0	28		
067	09/09/06	AA	1	Ceiling	B	3	21	2	2	107	120	220	0	0		
067	09/09/06	AA	1	Ceiling	B	4	8	0	1	89	120	200	0	0		
067	09/09/06	AA	1	Ceiling	B	5	0	0	1	85	120	180	0	0		
067	09/09/06	AA	1	Ceiling	B	6	12	1	2	128	120	200	0	0		
067	09/09/06	AA	1	Ceiling	B	7	8	0	1	85	120	180	0	0		
067	09/09/06	AA	1	Ceiling	B	8	0	0	1	59	120	180	0	28		
067	09/09/06	AA	1	Ceiling	B	9	17	1	2	189	120	220	0	8		
067	09/09/06	AA	1	Ceiling	B	10	12	1	1	87	120	200	0	13		
068	09/09/06	AA	1	Beam	A	0	9	0	0	0	40	160	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	1	0	0	1	2	40	220	3	3		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	2	9	0	1	0	40	200	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	3	13	0	1	21	40	240	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	4	4	0	1	49	40	260	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	5	13	0	1	11	40	220	0	53		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	6	9	0	1	0	40	190	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	7	0	0	1	0	40	180	3	18		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	8	0	0	1	0	40	180	0	38		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	9	0	0	1	0	40	160	0	3		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	A	10	0	0	1	0	40	220	0	13		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	0	0	0	1	0	40	180	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	1	0	0	1	0	40	160	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	2	0	0	1	0	40	200	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	3	0	0	1	0	40	200	0	8		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	4	0	0	0	0	40	200	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	5	0	0	1	0	40	170	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	6	0	0	1	0	40	160	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	7	0	0	1	0	40	180	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	8	0	0	1	0	40	130	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	9	0	0	1	0	40	200	0	0		Concrete Ceiling Beams
068	09/09/06	AA	1	Beam	B	10	0	0	1	0	40	190	0	28		Concrete Ceiling Beams
069	09/09/06	AA	1	Ceiling	C	0	0	0	1	116	100	200	0	53		
069	09/09/06	AA	1	Ceiling	C	1	5	0	2	94	100	200	0	7		
069	09/09/06	AA	1	Ceiling	C	2	0	ND	ND	128	100	200	0	35		
069	09/09/06	AA	1	Ceiling	C	3	0	0	1	122	100	200	0	0		
069	09/09/06	AA	1	Ceiling	C	4	5	0	2	133	100	200	0	44		
069	09/09/06	AA	1	Ceiling	C	5	10	1	3	200	100	200	0	0		
069	09/09/06	AA	1	Ceiling	D	0	10	1	3	164	100	200	0	0		
069	09/09/06	AA	1	Ceiling	D	1	5	0	2	141	100	200	0	21		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-11 (Reactor room west ceiling grids A-D including beams)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
069	09/09/06	AA	1	Ceiling	D	2	5	0	2	156	100	200	0	0		
069	09/09/06	AA	1	Ceiling	D	3	19	2	3	230	100	200	0	0		
069	09/09/06	AA	1	Ceiling	D	4	0	ND	ND	124	100	200	0	0		
069	09/09/06	AA	1	Ceiling	D	5	10	1	3	168	100	200	0	0		
069	09/09/06	AA	1	Beam	C	0	14	1	4	116	100	200	4	0		Beams
069	09/09/06	AA	1	Beam	C	1	19	2	3	126	100	200	4	0		Beams
069	09/09/06	AA	1	Beam	C	2	0	0	1	115	100	200	0	0		Beams
069	09/09/06	AA	1	Beam	C	3	19	2	3	75	100	200	0	0		Beams
069	09/09/06	AA	1	Beam	C	4	10	1	3	145	100	200	0	0		Beams
069	09/09/06	AA	1	Beam	C	5	19	2	3	171	100	200	0	2		Beams
071	09/11/06	AA	1	Ceiling	C	6	32	4	8	155	100	200	0	21		
071	09/11/06	AA	1	Ceiling	C	7	9	1	3	180	100	220	0	0		
071	09/11/06	AA	1	Ceiling	C	8	4	0	2	142	100	200	0	16		
071	09/11/06	AA	1	Ceiling	C	9	9	1	3	127	100	200	0	0		
071	09/11/06	AA	1	Ceiling	C	10	0	ND	ND	266	80	200	0	0		
071	09/11/06	AA	1	Ceiling	D	6	9	1	3	197	100	200	0	0		
071	09/11/06	AA	1	Ceiling	D	7	0	0	1	167	100	220	0	0		
071	09/11/06	AA	1	Ceiling	D	8	0	ND	ND	157	120	200	0	0		
071	09/11/06	AA	1	Ceiling	D	9	9	1	3	125	100	180	0	0		
071	09/11/06	AA	1	Ceiling	D	10	13	2	3	146	100	200	0	0		
071	09/11/06	AA	1	Beam	C	6	4	0	2	238	100	200	0	0		Beams
071	09/11/06	AA	1	Beam	C	7	18	2	4	185	100	200	0	0		Beams
071	09/11/06	AA	1	Beam	C	8	9	1	3	165	100	200	0	0		Beams
071	09/11/06	AA	1	Beam	C	9	9	1	3	178	100	200	0	21		Beams
071	09/11/06	AA	1	Beam	C	10	0	0	1	174	100	200	0	0		Beams
071	09/11/06	AA	1	Beam	D	8	0	0	1	148	120	220	0	0		Beams
071	09/11/06	AA	1	Beam	D	9	18	2	4	118	100	200	0	0		Beams
071	09/11/06	AA	1	Beam	D	10	0	0	1	134	100	200	0	0		Beams
089	09/14/06	AA	1	Beam	D	0	23	0	ND	149	140	180	4	0		Beams
089	09/14/06	AA	1	Beam	D	1	27	0	ND	21	140	200	4	0		Beams
089	09/14/06	AA	1	Beam	D	2	9	0	ND	151	160	200	0	0		Beams
089	09/14/06	AA	1	Beam	D	3	9	0	ND	144	180	200	0	7		Beams
089	09/14/06	AA	1	Beam	D	4	0	0	ND	149	140	180	0	17		Beams
089	09/14/06	AA	1	Beam	D	5	0	0	ND	148	140	200	0	0		Beams
090	09/18/06	AA	1	Beam	D	6	9	1	3	113	100	200	0	0		Beams
090	09/18/06	AA	1	Beam	D	7	4	1	3	163	100	200	0	0		Beams

A0	A1	A2	A3	A4	A5	A6	A7	A8	A9
A0b*									
B0									
B0b*									
C0									
C0b*									
D0									
D0b*									
E0									
E0b*									
F0									
F0b*									
G0									
G0b*									
H0									
H0b*									
I0									
I0b*									
J0									
J0b*									
K0									
K0b*									
L0									

NOTE * "b" denotes concrete beam

PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM CEILING SURVEY UNIT 1-3		DRAWING 12

Attachment 13 - Sub-Unit 1-3-12 Reactor Room Center Ceiling Grids E-H Including Beams

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-12

(Reactor room center ceiling grids E-H including beams)

Survey Unit Information					
Unit Designator:	1-3-12	Class:	AA	Certainty %:	95
Location Description:	Reactor room center ceiling grids E-H including beams				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	88	88	88	88	N/A
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	46	9	257	97	N/A
Mean value of results:	13	1	164	12	N/A
Standard Deviation of results:	12	2	39	23	N/A
Degree of Freedom (2):	1.665	1.665	1.665	1.665	N/A
μ_α value:	15	1	171	16	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

(1) as interpolated from NUREG/CR-5849 Table B-2

(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-12 (Reactor room center ceiling grids E-H including beams)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
071	09/11/06	AA	1	Ceiling	E	8	9	1	3	138	100	200	0	0		
071	09/11/06	AA	1	Ceiling	E	9	32	4	8	199	80	200	0	0		
071	09/11/06	AA	1	Ceiling	E	10	0	0	1	229	100	180	0	16		
071	09/11/06	AA	1	Ceiling	F	8	0	0	1	157	100	200	0	0		
071	09/11/06	AA	1	Ceiling	F	9	13	2	3	142	100	200	0	0		
071	09/11/06	AA	1	Ceiling	G	8	4	0	2	174	100	200	0	0		
071	09/11/06	AA	1	Ceiling	G	9	4	0	2	197	100	200	0	0		
071	09/11/06	AA	1	Ceiling	H	8	9	1	3	229	120	180	0	0		
071	09/11/06	AA	1	Ceiling	H	9	0	0	1	161	100	200	0	0		
071	09/11/06	AA	1	Beam	E	8	4	0	2	153	80	200	0	0		Beams
071	09/11/06	AA	1	Beam	E	9	13	2	3	123	100	200	0	0		Beams
071	09/11/06	AA	1	Beam	F	8	18	2	4	221	100	220	0	0		Beams
071	09/11/06	AA	1	Beam	F	9	18	2	4	178	100	200	0	0		Beams
071	09/11/06	AA	1	Beam	G	8	0	ND	ND	168	120	200	0	0		Beams
071	09/11/06	AA	1	Beam	G	9	0	0	1	127	100	220	0	0		Beams
072	09/12/06	GA	1	Beam	H	8	37	3	5	159	100	200	0	2		Beams
072	09/12/06	GA	1	Beam	H	9	22	2	3	174	100	200	0	0		Beams
089	09/14/06	AA	1	Ceiling	E	0	9	0	ND	110	200	240	0	0		
089	09/14/06	AA	1	Ceiling	E	1	32	0	ND	185	180	260	4	31		
089	09/14/06	AA	1	Ceiling	E	2	0	0	ND	217	180	240	0	3		
089	09/14/06	AA	1	Ceiling	E	3	18	0	ND	173	180	240	0	0		
089	09/14/06	AA	1	Ceiling	E	4	14	0	ND	183	160	200	0	0		
089	09/14/06	AA	1	Ceiling	E	5	0	0	ND	96	180	220	0	0		
089	09/14/06	AA	1	Beam	E	0	46	0	ND	121	180	220	0	0		Beams
089	09/14/06	AA	1	Beam	E	1	32	0	ND	196	160	220	0	0		Beams
089	09/14/06	AA	1	Beam	E	2	23	0	ND	199	160	240	0	0		Beams
089	09/14/06	AA	1	Beam	E	3	9	0	ND	144	180	200	0	7		Beams
089	09/14/06	AA	1	Beam	E	4	5	0	ND	178	180	220	0	0		Beams
089	09/14/06	AA	1	Beam	E	5	37	0	ND	224	180	220	0	0		Beams
089	09/14/06	AA	1	Ceiling	F	0	41	0	ND	189	160	240	0	0		
089	09/14/06	AA	1	Ceiling	F	1	32	0	ND	203	180	260	0	0		
089	09/14/06	AA	1	Ceiling	F	2	18	0	ND	162	180	220	0	0		
089	09/14/06	AA	1	Ceiling	F	3	9	0	ND	167	180	220	0	72		
089	09/14/06	AA	1	Beam	F	1	14	0	ND	199	160	200	0	0		Beams
089	09/14/06	AA	1	Beam	F	2	0	0	ND	140	160	220	0	0		Beams
089	09/14/06	AA	1	Beam	F	3	27	0	ND	167	180	220	0	0		Beams
089	09/14/06	AA	1	Beam	F	0	14	0	ND	101	160	200	0	0		Beams
089	09/14/06	AA	1	Beam	F	4	9	0	ND	94	160	260	4	0		Beams
089	09/14/06	AA	1	Ceiling	F	4	5	0	ND	232	180	240	4	0		
089	09/14/06	AA	1	Ceiling	F	5	14	0	ND	215	180	240	0	0		
089	09/14/06	AA	1	Beam	F	5	5	0	ND	165	140	240	0	0		Beams, See G4b comments
089	09/14/06	AA	1	Ceiling	G	0	27	0	ND	255	160	200	0	40		
089	09/14/06	AA	1	Beam	G	0	0	0	ND	139	160	200	0	0		Beams, See G4b comments
089	09/14/06	AA	1	Ceiling	G	1	18	0	ND	157	180	200	0	0		
089	09/14/06	AA	1	Beam	G	1	18	0	ND	198	160	200	0	0		Beams, See G4b comments
089	09/14/06	AA	1	Ceiling	G	2	18	0	ND	164	160	200	0	0		
089	09/14/06	AA	1	Beam	G	2	5	0	ND	162	160	200	0	0		Beams, See G4b comments
089	09/14/06	AA	1	Ceiling	G	3	27	0	ND	257	180	220	0	0		
089	09/14/06	AA	1	Beam	G	3	9	0	ND	239	180	200	0	0		Beams, See G4b comments
089	09/14/06	AA	1	Ceiling	G	4	9	0	ND	94	180	240	0	49		
089	09/14/06	AA	1	Beam	G	4	0	0	ND	151	160	220	0	26		Beams, East side needs surveyed smeared & static
089	09/14/06	AA	1	Ceiling	G	5	14	0	ND	171	180	220	0	0		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-12 (Reactor room center ceiling grids E-H including beams)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
089	09/14/06	AA	1	Beam	G	5	5	0	ND	165	140	180	0	40		Beams, East face needs surveyed, static, smear
090	09/18/06	AA	1	Ceiling	E	6	31	3	6	129	100	200	0	23		
090	09/18/06	AA	1	Ceiling	E	7	13	2	4	152	120	220	0	0		
090	09/18/06	AA	1	Beam	E	6	0	0	2	174	100	200	0	0		Beams
090	09/18/06	AA	1	Beam	E	7	22	3	5	160	100	200	0	0		Beams
090	09/18/06	AA	1	Ceiling	F	6	13	2	3	120	120	200	0	51		
090	09/18/06	AA	1	Ceiling	F	7	0	0	2	248	100	220	0	28		
090	09/18/06	AA	1	Ceiling	H	0	22	3	4	181	100	220	0	0		
090	09/18/06	AA	1	Ceiling	H	1	4	1	3	140	100	200	0	0		
090	09/18/06	AA	1	Ceiling	H	2	0	0	2	149	100	200	0	0		
090	09/18/06	AA	1	Ceiling	H	3	22	3	5	172	100	200	0	0		
090	09/18/06	AA	1	Ceiling	H	4	9	1	3	102	100	180	4	0		
090	09/18/06	AA	1	Ceiling	H	5	9	1	4	113	100	200	4	0		
090	09/18/06	AA	1	Beam	H	0	9	1	3	163	100	200	0	32		Beams
090	09/18/06	AA	1	Beam	H	1	0	0	2	96	100	180	0	0		Beams
090	09/18/06	AA	1	Beam	H	2	18	3	4	129	100	200	0	0		Beams
093	09/19/06	AA	1	Beam	F	6	36	3	5	219	100	200	0	0		Beams
093	09/19/06	AA	1	Ceiling	G	6	26	3	4	194	100	200	9	0		
093	09/19/06	AA	1	Beam	G	6	21	2	4	144	100	180	0	13		Beams
093	09/19/06	AA	1	Ceiling	H	6	36	3	5	204	100	200	0	8		
093	09/19/06	AA	1	Beam	H	3	2	0	1	200	100	200	0	0		Beams
093	09/19/06	AA	1	Beam	H	4	2	0	1	148	100	200	9	17		Beams
093	09/19/06	AA	1	Beam	H	5	21	2	3	161	100	180	0	0		Beams
106	09/25/06	AA	1	Beam	E	10	8	0	1	162	80	280	0	36		Beam
106	09/25/06	AA	1	Ceiling	F	10	3	0	1	119	80	300	0	77		Ceiling
106	09/25/06	AA	1	Beam	F	10	8	0	3	130	80	300	0	21		Beam
106	09/25/06	AA	1	Ceiling	G	10	8	0	1	151	80	300	0	26		Ceiling
106	09/25/06	AA	1	Beam	F	7	0	0	3	122	80	340	0	57		Beam
106	09/25/06	AA	1	Ceiling	G	7	17	0	3	113	80	340	0	67		Ceiling
106	09/25/06	AA	1	Beam	G	7	0	0	3	98	80	320	0	41		Beam
106	09/25/06	AA	1	Ceiling	H	7	17	0	5	141	80	320	0	97		Ceiling
106	09/25/06	AA	1	Beam	H	7	3	0	3	156	80	340	0	11		Beam
106	09/25/06	AA	1	Beam	H	6	0	0	1	170	80	300	3	0		Beam
106	09/25/06	AA	1	Beam	H	10	3	0	3	194	80	300	0	26		Beam
106	09/25/06	AA	1	Beam	G	10	3	0	3	126	80	300	3	77		Beam
106	09/25/06	AA	1	Ceiling	H	10	3	0	3	132	80	300	0	77		Ceiling

A0	A1	A2	A3	A4	A5	A6	A7	A8	A9
A0b*									
B0									
B0b*									
C0									
C0b*									
D0									
D0b*									
E0									
E0b*									
F0									
F0b*									
G0									
G0b*									
H0									
H0b*									
I0									
I0b*									
J0									
J0b*									
K0									
K0b*									
L0									

NOTE * "b" denotes concrete beam

PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM CEILING SURVEY UNIT 1-3		DRAWING 12

Attachment 14 - Sub-Unit 1-3-13 Reactor Room East Ceiling Grids I-L Including Beams

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-13

(Reactor room east ceiling grids I-L including beams)

Survey Unit Information					
Unit Designator:	1-3-13	Class:	AA	Certainty %:	95
Location Description:	Reactor room east ceiling grids I-L including beams				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	77	77	77	77	N/A
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	45	9	226	112	N/A
Mean value of results:	10	1	164	24	N/A
Standard Deviation of results:	10	2	31	26	N/A
Degree of Freedom [2]:	1.667	1.667	1.667	1.667	N/A
μ_α value:	12	1	170	29	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

[1] as interpolated from NUREG/CR-5849 Table B-2

[2] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-13 (Reactor room east ceiling grids I-L including beams)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
072	09/12/06	AA	1	Ceiling	I	8	3	0	1	119	100	200	0	2		
072	09/12/06	AA	1	Ceiling	I	9	13	1	3	152	100	220	0	0		
090	09/18/06	AA	1	Ceiling	I	0	0	0	2	161	100	200	0	32		
090	09/18/06	AA	1	Ceiling	I	1	22	3	4	185	100	220	0	19		
090	09/18/06	AA	1	Ceiling	I	2	13	2	3	145	100	200	0	0		
090	09/18/06	AA	1	Ceiling	I	3	4	1	3	226	100	220	0	0		
093	09/19/06	AA	1	Ceiling	I	4	26	3	4	140	100	200	0	0		
093	09/19/06	AA	1	Ceiling	I	5	16	2	3	170	100	200	0	13		
093	09/19/06	AA	1	Beam	I	0	12	1	3	161	100	200	0	0		Beams
093	09/19/06	AA	1	Beam	I	1	26	2	4	178	100	180	0	0		Beams
093	09/19/06	AA	1	Beam	I	2	7	0	2	170	100	200	0	0		Beams
093	09/19/06	AA	1	Beam	I	3	12	1	3	185	100	220	0	31		Beams
093	09/19/06	AA	1	Beam	I	4	45	4	6	193	100	200	0	8		Beams
093	09/19/06	AA	1	Beam	I	5	7	0	2	206	120	200	0	17		Beams
093	09/19/06	AA	1	Ceiling	J	0	7	0	2	168	100	200	4	8		
093	09/19/06	AA	1	Ceiling	J	1	21	2	3	164	100	200	0	0		
093	09/19/06	AA	1	Ceiling	J	2	2	0	1	166	100	200	0	0		
093	09/19/06	AA	1	Ceiling	J	3	16	2	3	157	100	200	0	13		
093	09/19/06	AA	1	Ceiling	J	4	31	3	5	129	100	180	9	0		
093	09/19/06	AA	1	Ceiling	J	5	16	2	3	226	100	220	0	31		
093	09/19/06	AA	1	Ceiling	J	6	2	0	1	129	100	200	0	0		
093	09/19/06	AA	1	Ceiling	J	7	16	2	3	187	100	200	0	0		
093	09/19/06	AA	1	Beam	J	0	26	2	4	168	120	200	0	0		Beams
093	09/19/06	AA	1	Beam	J	1	7	0	2	164	100	200	0	0		Beams
093	09/19/06	AA	1	Beam	J	2	7	0	2	166	100	200	0	31		Beams
093	09/19/06	AA	1	Beam	J	3	36	3	5	157	100	200	0	0		Beams
093	09/19/06	AA	1	Beam	J	4	16	2	3	129	100	180	4	0		Beams
093	09/19/06	AA	1	Beam	J	5	12	1	3	149	100	200	0	45		Beams
093	09/19/06	AA	1	Beam	J	6	7	0	2	159	100	200	0	0		Beams
093	09/19/06	AA	1	Beam	J	7	12	1	3	204	120	220	4	0		Beams
093	09/19/06	AA	1	Ceiling	K	0	12	1	3	142	100	200	0	0		West and bottom scanned a: 0-6 cpm /B 100-200 cpm
093	09/19/06	AA	1	Ceiling	K	1	12	2	3	215	100	220	0	0		West and bottom scanned a: 0-6 cpm /B 100-200 cpm
093	09/19/06	AA	1	Ceiling	K	2	26	3	4	193	100	200	0	0		West and bottom scanned a: 0-6 cpm /B 100-200 cpm
093	09/19/06	AA	1	Ceiling	K	3	16	1	4	178	100	200	0	0		West and bottom scanned a: 0-6 cpm /B 100-200 cpm
093	09/19/06	AA	1	Ceiling	K	4	21	2	4	157	100	200	0	17		West and bottom scanned a: 0-6 cpm /B 100-200 cpm
093	09/19/06	AA	1	Ceiling	K	5	26	2	4	198	120	200	0	0		
096	09/20/06	AA	1	Ceiling	J	10	0	0	0	83	140	260	0	6		
096	09/20/06	AA	1	Ceiling	J	9	18	1	2	187	140	280	0	26		
096	09/20/06	AA	1	Ceiling	K	10	13	1	1	167	160	280	0	16		
096	09/20/06	AA	1	Ceiling	K	9	22	1	2	180	140	300	0	26		
097	09/20/06	AA	1	Beam	J	10	13	1	2	167	180	280	0	46		Beams
097	09/20/06	AA	1	Beam	J	9	0	0	1	118	160	300	0	0		Beams
097	09/20/06	AA	1	Beam	K	10	22	1	2	165	180	320	0	21		Beams
097	09/20/06	AA	1	Beam	K	9	3	0	1	164	140	280	3	66		Beams
106	09/25/06	AA	1	Ceiling	I	7	0	0	3	187	80	280	0	36		Ceiling
106	09/25/06	AA	1	Ceiling	I	6	0	0	3	202	80	300	0	41		Ceiling
106	09/25/06	AA	1	Beam	I	6	22	0	1	128	80	340	0	36		Beam
106	09/25/06	AA	1	Beam	I	7	8	0	3	185	80	340	0	11		Beam
106	09/25/06	AA	1	Beam	I	8	8	0	3	162	80	320	0	16		Beam
106	09/25/06	AA	1	Beam	I	9	0	0	3	171	80	320	0	41		Beam
106	09/25/06	AA	1	Beam	I	10	3	0	5	192	80	340	0	36		Beam
106	09/25/06	AA	1	Ceiling	I	10	0	0	3	98	80	300	0	31		Ceiling

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-13 (Reactor room east ceiling grids I-L including beams)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
106	09/25/06	AA	1	Beam	J	8	**8**	0	3	**156**	80	320	**0**	**41**		Beam
106	09/25/06	AA	1	Ceiling	K	8	**17**	0	5	**79**	80	300	**0**	**62**		Ceiling
106	09/25/06	AA	1	Beam	K	8	**17**	0	3	**105**	80	300	**0**	**57**		Beam
106	09/25/06	AA	1	Ceiling	K	7	**0**	0	4	**117**	80	320	**0**	**67**		Ceiling
106	09/25/06	AA	1	Beam	K	7	**0**	0	2	**209**	80	280	**0**	**36**		Beam
106	09/25/06	AA	1	Ceiling	K	6	**3**	0	5	**117**	80	320	**0**	**0**		Ceiling
106	09/25/06	AA	1	Beam	K	6	**0**	0	4	**141**	80	280	**0**	**46**		Beam
106	09/25/06	AA	1	Beam	K	0	**8**	0	5	**183**	80	320	**0**	**112**		Beam
106	09/25/06	AA	1	Ceiling	L	0	**8**	0	4	**177**	80	300	**0**	**102**		Ceiling
106	09/25/06	AA	1	Beam	K	1	**0**	0	3	**194**	80	300	**3**	**16**		Beam
106	09/25/06	AA	1	Ceiling	L	1	**0**	0	3	**170**	80	300	**0**	**0**		Ceiling
106	09/25/06	AA	1	Beam	K	2	**0**	0	3	**162**	80	320	**3**	**21**		Beam
106	09/25/06	AA	1	Beam	K	3	**3**	0	3	**154**	80	280	**0**	**36**		Beam
106	09/25/06	AA	1	Ceiling	L	2	**3**	0	3	**141**	80	320	**0**	**26**		Ceiling
106	09/25/06	AA	1	Ceiling	L	3	**17**	0	3	**187**	80	340	**0**	**36**		Ceiling
106	09/25/06	AA	1	Beam	K	4	**8**	0	5	**162**	80	320	**0**	**77**		Beam
106	09/25/06	AA	1	Beam	K	5	**3**	0	4	**156**	80	320	**0**	**36**		Beam
106	09/25/06	AA	1	Ceiling	L	4	**0**	0	3	**192**	80	320	**0**	**41**		Ceiling
106	09/25/06	AA	1	Ceiling	L	5	**3**	0	3	**196**	80	320	**0**	**16**		Ceiling
106	09/25/06	AA	1	Ceiling	L	6	**8**	0	3	**207**	80	320	**0**	**77**		Ceiling
106	09/25/06	AA	1	Ceiling	L	7	**3**	0	3	**204**	80	320	**7**	**82**		Ceiling
106	09/25/06	AA	1	Ceiling	L	8	**0**	0	5	**137**	80	300	**0**	**57**		Ceiling
106	09/25/06	AA	1	Ceiling	L	9	**0**	0	3	**147**	80	300	**7**	**31**		Ceiling
106	09/25/06	AA	1	Ceiling	L	10	**0**	0	4	**109**	80	320	**0**	**41**		Ceiling
106	09/25/06	AA	1	Ceiling	J	8	**8**	0	3	**141**	80	320	**0**	**26**		Ceiling

A0	A1	A2	A3	A4	A5	A6	A7	A8	A9
A0b*									
B0									
B0b*									
C0									
C0b*									
D0									
D0b*									
E0									
E0b*									
F0									
F0b*									
G0									
G0b*									
H0									
H0b*									
I0									
I0b*									
J0									
J0b*									
K0									
K0b*									
L0									

NOTE * "b" denotes concrete beam

PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM CEILING SURVEY UNIT 1-3		DRAWING 12

Attachment 15 - Sub-Unit 1-3-14 Reactor Room West Wall

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-14

(Reactor room west wall)

Survey Unit Information					
Unit Designator:	1-3-14	Class:	AA	Certainty %:	95
Location Description:	Reactor room west wall				

Measurement Results Summary					
All Surfaces	Direct Alpha Results (dpm/100cm^2)	Removable Alpha Results (dpm/100cm^2)	Direct Beta Results (dpm/100cm^2)	Removable Beta Results (dpm/100cm^2)	Gamma Results (μR/hr)
Number of measurements:	91	91	91	91	N/A
Number of measurements needed [(1)]:	9	9	9	9	N/A
Maximum value of results:	56	8	294	92	N/A
Mean value of results:	6	1	90	10	N/A
Standard Deviation of results:	10	2	96	20	N/A
Degree of Freedom [(2)]:	1.664	1.664	1.664	1.664	N/A
μ_α value:	8	1	107	14	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

[(1)] as interpolated from NUREG/CR-5849 Table B-2

[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-14 (Reactor room west wall)

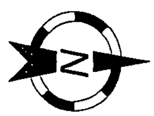
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
045	08/29/06	AA	1	W Wall	I	8	0	0	0	0	100	140	0	0		10" lip right end & face
045	08/29/06	AA	1	W Wall	I	7	3	0	0	0	0	200	8	0		face 2nd meter from right
045	08/29/06	AA	1	W Wall	H	7	10	0	0	0	0	220	0	41		face 3rd meter from right
045	08/29/06	AA	1	W Wall	H	8	0	0	0	0	0	180	0	16		3rd window meter from right & lip
045	08/29/06	AA	1	W Wall	H	9	3	0	0	0	0	240	8	6		3rd meter from right up to ceiling
045	08/29/06	AA	1	W Wall	I	9	0	0	0	0	0	220	0	1		2nd meter from right up to ceiling
045	08/29/06	AA	1	W Wall	G	9	0	0	0	0	0	260	0	0		4th meter from right top to ceiling
045	08/29/06	AA	1	W Wall	G	8	10	0	0	0	0	200	0	0		4th meter from right, window & lip
045	08/29/06	AA	1	W Wall	G	7	10	0	0	0	0	260	0	0		4th meter from right face
045	08/29/06	AA	1	W Wall	F	9	16	0	0	0	0	220	4	0		5th meter from right-top
045	08/29/06	AA	1	W Wall	F	8	0	0	0	0	0	220	0	36		5th meter from right window & lip
045	08/29/06	AA	1	W Wall	F	7	0	0	0	0	0	200	0	0		5th meter from right face
045	08/29/06	AA	1	W Wall	E	9	3	0	0	0	0	180	4	16		6th meter from right top
045	08/29/06	AA	1	W Wall	E	8	0	0	0	0	0	220	0	0		6th meter from right window & lip
045	08/29/06	AA	1	W Wall	E	7	3	0	0	0	0	180	0	0		6th meter from right floor
045	08/29/06	AA	1	W Wall	G	6	0	0	0	0	0	180	4	6		
045	08/29/06	AA	1	W Wall	F	6	0	0	0	0	0	200	0	0		
045	08/29/06	AA	1	W Wall	F	5	16	0	0	0	0	160	0	0		
045	08/29/06	AA	1	W Wall	F	4	0	0	0	0	0	180	0	31		
045	08/29/06	AA	1	W Wall	F	3	0	0	0	0	0	200	0	26		
045	08/29/06	AA	1	W Wall	B	6	3	0	ND	20	0	220	0	6		
045	08/29/06	AA	1	W Wall	C	6	16	0	ND	19	0	200	4	0		
045	08/29/06	AA	1	W Wall	D	6	23	0	6	0	0	200	4	36		
046	08/29/06	AA	1	W Wall	A	1	3	0	ND	188	0	180	0	0		
046	08/29/06	AA	1	W Wall	B	1	0	1	ND	164	0	180	0	0		
046	08/29/06	AA	1	W Wall	C	1	3	0	ND	238	0	200	0	0		
046	08/29/06	AA	1	W Wall	D	1	10	0	ND	184	0	200	0	0		
046	08/29/06	AA	1	W Wall	E	1	0	0	ND	242	0	180	0	0		
046	08/29/06	AA	1	W Wall	F	1	3	0	ND	247	0	200	0	0		
046	08/29/06	AA	1	W Wall	A	9	10	0	ND	0	0	260	0	27		
046	08/29/06	AA	1	W Wall	B	9	5	0	ND	0	0	240	4	82		
046	08/29/06	AA	1	W Wall	C	9	33	0	ND	0	0	380	0	4		
046	08/29/06	AA	1	W Wall	D	9	10	0	ND	0	0	300	0	0		
046	08/29/06	AA	1	W Wall	D	8	1	0	ND	294	0	340	0	31		
046	08/29/06	AA	1	W Wall	C	8	56	0	ND	252	0	380	0	27		
046	08/29/06	AA	1	W Wall	B	8	1	0	ND	188	0	360	0	41		
046	08/29/06	AA	1	W Wall	A	8	1	0	ND	111	0	400	0	0		
046	08/29/06	AA	1	W Wall	A	7	1	0	ND	0	0	320	0	69		
046	08/29/06	AA	1	W Wall	B	7	0	0	7	0	0	360	4	4		
046	08/29/06	AA	1	W Wall	C	7	0	0	ND	0	0	320	0	0		
046	08/29/06	AA	1	W Wall	D	7	0	0	ND	0	0	300	4	0		
046	08/29/06	AA	1	W Wall	A	6	1	0	ND	0	0	300	4	8		
047	08/31/06	AA	1	W Wall	J	9	18	ND	ND	59	0	220	8	0		
047	08/31/06	AA	1	W Wall	J	8	5	ND	ND	39	0	200	8	0		
047	08/31/06	AA	1	W Wall	J	7	5	ND	ND	205	0	300	0	0		
047	08/31/06	AA	1	W Wall	J	6	50	ND	ND	7	0	180	0	26		
047	08/31/06	AA	1	W Wall	J	5	0	ND	ND	101	0	280	0	0		
047	08/31/06	AA	1	W Wall	J	4	18	ND	ND	208	0	180	0	0		
047	08/31/06	AA	1	W Wall	J	3	18	ND	ND	195	0	160	0	0		
047	08/31/06	AA	1	W Wall	I	6	24	ND	ND	122	0	180	0	0		
047	08/31/06	AA	1	W Wall	I	5	0	ND	ND	35	0	180	4	0		
047	08/31/06	AA	1	W Wall	I	4	5	ND	ND	197	0	180	0	0		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-14 (Reactor room west wall)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
047	08/31/06	AA	1	W Wall	I	3	5	ND	ND	76	0	200	0	6		
047	08/31/06	AA	1	W Wall	H	5	11	ND	ND	98	0	160	0	0		
047	08/31/06	AA	1	W Wall	H	4	5	ND	ND	219	0	180	0	92		
047	08/31/06	AA	1	W Wall	H	3	0	ND	ND	221	0	180	0	0		
047	08/31/06	AA	1	W Wall	G	5	0	ND	ND	100	0	160	4	0		
047	08/31/06	AA	1	W Wall	G	4	5	ND	ND	179	0	200	0	0		
047	08/31/06	AA	1	W Wall	G	3	5	ND	ND	236	0	200	0	31		
047	08/31/06	AA	1	W Wall	E	3	18	ND	ND	184	0	200	0	6		
047	08/31/06	AA	1	W Wall	H	6	5	ND	ND	103	0	200	8	77		
047	08/31/06	AA	1	W Wall	E	5	0	0	ND	0	0	160	0	0		
047	08/31/06	AA	1	W Wall	E	6	0	0	ND	0	0	180	0	0		
048	09/01/06	AA	1	W Wall	D	5	11	0	11	164	0	240	0	0		
048	09/01/06	AA	1	W Wall	C	5	0	0	ND	148	0	280	0	1		
048	09/01/06	AA	1	W Wall	B	5	0	0	5	69	0	280	4	0		
048	09/01/06	AA	1	W Wall	A	5	0	0	5	99	0	260	0	0		
048	09/01/06	AA	1	W Wall	A	4	17	0	ND	153	0	300	0	16		
048	09/01/06	AA	1	W Wall	B	4	11	0	9	185	0	240	0	0		
048	09/01/06	AA	1	W Wall	C	4	0	0	ND	0	0	200	0	0		
048	09/01/06	AA	1	W Wall	D	4	5	0	ND	187	0	100	0	0		
048	09/01/06	AA	1	W Wall	E	4	5	0	ND	229	0	300	0	0		
048	09/01/06	AA	1	W Wall	A	3	5	0	ND	217	0	200	4	36		
048	09/01/06	AA	1	W Wall	B	3	17	0	ND	171	0	200	0	0		
048	09/01/06	AA	1	W Wall	C	3	11	0	ND	90	0	220	0	0		
048	09/01/06	AA	1	W Wall	D	3	5	0	ND	234	0	220	0	0		
048	09/01/06	AA	1	W Wall	E	3	0	0	ND	194	0	220	0	0		
048	09/01/06	AA	1	W Wall	A	2	5	0	ND	206	0	220	0	1		
048	09/01/06	AA	1	W Wall	B	2	0	0	ND	224	0	240	0	0		
048	09/01/06	AA	1	W Wall	C	2	11	0	ND	189	0	220	0	46		
048	09/01/06	AA	1	W Wall	D	2	11	0	ND	180	0	200	0	0		
048	09/01/06	AA	1	W Wall	E	2	23	0	ND	180	0	200	0	31		
048	09/01/06	AA	1	W Wall	F	2	0	0	ND	187	0	200	0	0		
048	09/01/06	AA	1	W Wall	G	1	0	ND	ND	0	0	180	4	1		
048	09/01/06	AA	1	W Wall	G	2	0	ND	ND	0	0	180	0	26		
048	09/01/06	AA	1	W Wall	H	1	0	ND	ND	0	0	220	0	1		
048	09/01/06	AA	1	W Wall	H	2	0	ND	ND	0	0	200	0	0		
048	09/01/06	AA	1	W Wall	I	1	0	ND	ND	0	0	220	0	16		
048	09/01/06	AA	1	W Wall	I	2	0	ND	ND	0	0	220	0	0		
048	09/01/06	AA	1	W Wall	J	1		ND	ND		0	200	0	0		
048	09/01/06	AA	1	W Wall	J	2	0	ND	ND	0	0	200	0	0		
146	10/02/06	AA	1	W Wall	J	1	0	0	2	191	100	220				

A9									
A8									
A7									
A6									
A5									
A4									
A3									
A2									
A1	B1	C1	D1	E1	F1	G1	H1	I1	J1

Note: Wall was inadvertently labeled A1 to A9 during FSS survey instead of A0 to A8.



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM WEST WALL SURVEY UNIT 1-3		DRAWING 13

Attachment 16 - Sub-Unit 1-3-15 Reactor Room East Wall 0 To 4-m

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-15

(Reactor room east wall 0 to 4-m)

Survey Unit Information					
Unit Designator:	1-3-15	Class:	AA	Certainty %:	95
Location Description:	Reactor room east wall 0 to 4-m				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	60	60	60	60	N/A
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	74	8	980	102	N/A
Mean value of results:	12	1	201	17	N/A
Standard Deviation of results:	16	2	172	25	N/A
Degree of Freedom (2):	1.671	1.671	1.671	1.671	N/A
μ_α value:	15	1	238	22	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

(1) as interpolated from NUREG/CR-5849 Table B-2

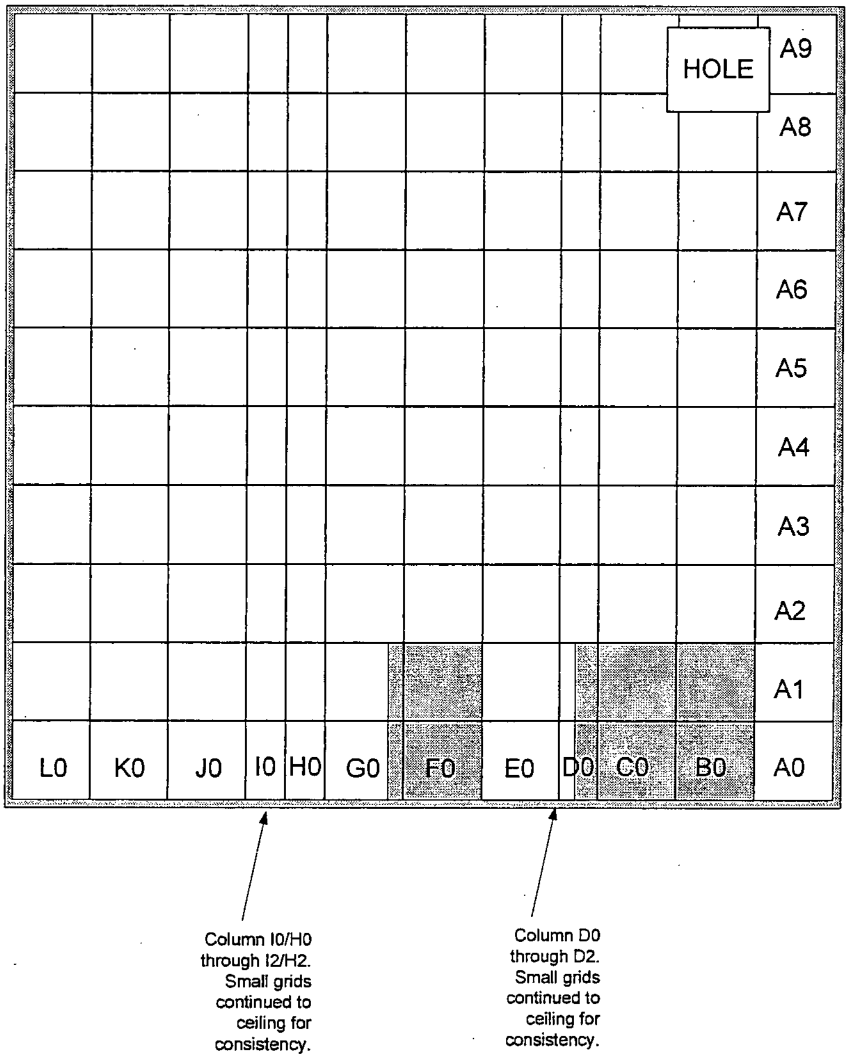
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

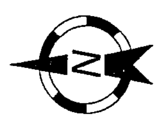
University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-15 (Reactor room east wall 0 to 4-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
094	09/19/06	AA	1	E Wall	C	0	74	0	4	132	40	220	0	0		
094	09/19/06	AA	1	E Wall	C	1	21	0	2	190	40	280	0	36		
094	09/19/06	AA	1	E Wall	D	0	29	0	2	205	40	300	4	45		
094	09/19/06	AA	1	E Wall	D	1	0	0	1	181	40	280	4	0		
094	09/19/06	AA	1	E Wall	E	0	14	0	1	179	40	260	0	0		
094	09/19/06	AA	1	E Wall	E	1	14	0	1	181	40	260	0	0		
094	09/19/06	AA	1	E Wall	F	0	44	0	3	205	40	280	0	31		Door
094	09/19/06	AA	1	E Wall	F	1	0	0	1	204	40	280	0	26		Door
094	09/19/06	AA	1	E Wall	G	0	14	0	2	245	40	300	0	0		Door
094	09/19/06	AA	1	E Wall	G	1	29	0	3	381	40	360	0	8		Door
094	09/19/06	AA	1	E Wall	H	0	0	0	1	413	40	400	0	22		
094	09/19/06	AA	1	E Wall	H	1	0	0	1	407	40	380	0	40		
094	09/19/06	AA	1	E Wall	I	0	0	0	1	311	40	300	0	0		
094	09/19/06	AA	1	E Wall	I	1	6	0	1	339	40	300	0	0		
094	09/19/06	AA	1	E Wall	J	0	0	0	1	283	40	300	0	22		
094	09/19/06	AA	1	E Wall	J	1	0	0	1	343	40	300	0	0		
094	09/19/06	AA	1	E Wall	K	0	0	0	1	432	40	360	0	0		
094	09/19/06	AA	1	E Wall	K	1	0	0	0	519	40	360	4	0		
094	09/19/06	AA	1	E Wall	L	0	0	0	0	338	40	320	0	0		
094	09/19/06	AA	1	E Wall	L	1	0	0	1	385	40	360	0	0		
094	09/20/06	AA	1	E Wall	A	3	0	0	0	129	40	280	0	0		
094	09/20/06	AA	1	E Wall	A	4	0	0	1	307	40	400	8	96		
094	09/20/06	AA	1	E Wall	B	3	13	0	1	135	40	280	0	31		
094	09/20/06	AA	1	E Wall	B	4	0	0	1	0	40	200	0	0		
094	09/20/06	AA	1	E Wall	C	3	13	0	1	149	40	310	0	0		
094	09/20/06	AA	1	E Wall	C	4	8	0	1	0	40	220	0	40		
094	09/20/06	AA	1	E Wall	D	3	8	0	1	89	40	310	0	0		Partial grid, not full meter
094	09/20/06	AA	1	E Wall	D	4	3	0	1	0	40	300	8	0		Partial grid, not full meter
094	09/20/06	AA	1	E Wall	E	3	3	0	1	106	40	300	4	3		
094	09/20/06	AA	1	E Wall	E	4	13	0	1	539	40	460	0	8		
094	09/20/06	AA	1	E Wall	F	3	3	0	1	311	40	400	4	8		
094	09/20/06	AA	1	E Wall	F	4	8	0	1	329	40	400	0	8		
094	09/20/06	AA	1	E Wall	G	3	8	0	2	50	40	300	0	0		
094	09/20/06	AA	1	E Wall	G	4	3	0	1	0	40	240	4	0		
094	09/20/06	AA	1	E Wall	H	3	3	0	1	69	40	300	0	0		Partial grid, not full meter
094	09/20/06	AA	1	E Wall	H	4	8	0	1	87	40	300	0	0		Partial grid, not full meter
094	09/21/06	AA	1	E Wall	I	3	11	0	1	67	40	300	0	6		Partial grid, not full meter
094	09/21/06	AA	1	E Wall	I	4	1	0	0	0	40	200	8	46		Partial grid, not full meter
094	09/21/06	AA	1	E Wall	A	0	21	0	2	161	40	310	0	41		Door
094	09/21/06	AA	1	E Wall	A	1	67	0	4	93	40	310	0	6		Door
094	09/21/06	AA	1	E Wall	A	2	6	0	1	218	40	390	0	0		
094	09/21/06	AA	1	E Wall	B	0	11	0	2	295	40	420	0	16		Door
094	09/21/06	AA	1	E Wall	B	1	32	0	3	434	40	480	0	41		Door
094	09/21/06	AA	1	E Wall	B	2	11	0	2	126	40	320	0	41		
094	09/21/06	AA	1	E Wall	C	2	27	0	2	118	40	310	0	36		
094	09/21/06	AA	1	E Wall	D	2	1	0	1	153	40	310	0	81		
094	09/21/06	AA	1	E Wall	E	2	32	0	2	149	40	310	0	6		
094	09/21/06	AA	1	E Wall	F	2	27	0	2	151	40	310	0	0		
094	09/21/06	AA	1	E Wall	G	2	21	0	2	138	40	290	0	0		
094	09/21/06	AA	1	E Wall	H	2	37	0	3	92	40	310	0	11		
094	09/21/06	AA	1	E Wall	I	2	27	0	2	188	40	390	0	76		
094	09/21/06	AA	1	E Wall	J	2	16	0	2	122	40	310	0	102		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-15 (Reactor room east wall 0 to 4-m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
094	09/21/06	AA	1	E Wall	K	2	1	0	0	190	40	380	0	6		
094	09/21/06	AA	1	E Wall	L	2	16	0	2	980	40	500	0	0		
116	09/28/06	AA	1	E Wall	J	3	0	0	1	0	80	220	4	0		
116	09/28/06	AA	1	E Wall	J	4	0	0	3	9	80	200	4	15		
116	09/28/06	AA	1	E Wall	K	3	0	0	3	47	80	200	0	0		
116	09/28/06	AA	1	E Wall	K	4	0	0	3	110	80	220	0	10		
116	09/28/06	AA	1	E Wall	L	3	0	0	3	40	80	240	0	0		
116	09/28/06	AA	1	E Wall	L	4	0	0	3	7	80	220	0	30		





PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM EAST WALL SURVEY UNIT 1-3		DRAWING 14

Attachment 17 - Sub-Unit 1-3-16 Reactor Room East Wall 5 To 9-m

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-16

(Reactor room east wall 5 to 9m)

Survey Unit Information					
Unit Designator:	1-3-16	Class:	AA	Certainty %:	95
Location Description:	Reactor room east wall 5 to 9m				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	59	59	59	59	N/A
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	41	8	489	86	N/A
Mean value of results:	9	1	110	11	N/A
Standard Deviation of results:	9	2	110	21	N/A
Degree of Freedom [2]:	1.672	1.672	1.672	1.672	N/A
μ_α value:	10	1	133	16	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

[1] as interpolated from NUREG/CR-5849 Table B-2

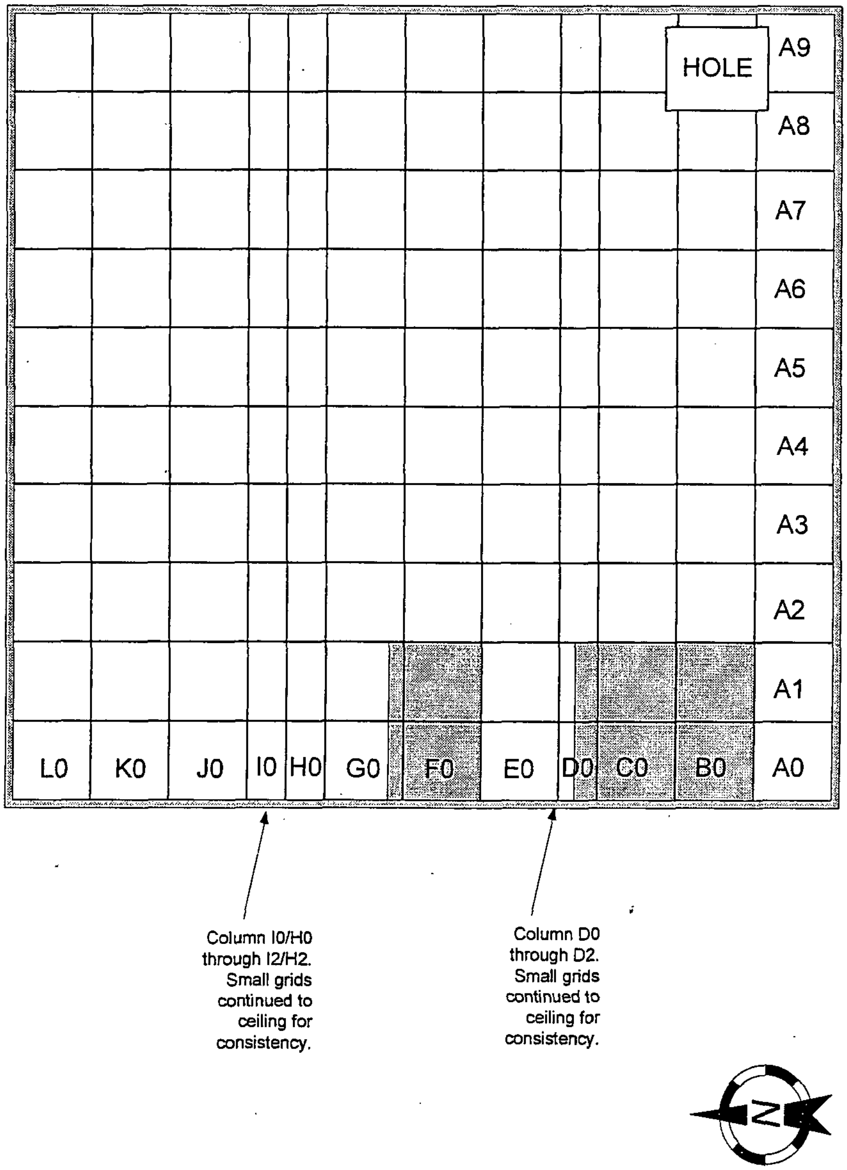
[2] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-16 (Reactor room east wall 5 to 9m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
094	09/20/06	AA	1	E Wall	A	5	3	0	1	0	40	240	4	0		
094	09/20/06	AA	1	E Wall	A	6	0	0	1	0	40	240	0	0		
094	09/20/06	AA	1	E Wall	A	7	3	0	1	137	40	320	0	0		
094	09/20/06	AA	1	E Wall	B	5	8	0	1	0	40	210	0	0		
094	09/20/06	AA	1	E Wall	B	6	3	0	1	0	40	210	0	0		
094	09/20/06	AA	1	E Wall	B	7	13	0	1	116	40	300	0	3		
094	09/20/06	AA	1	E Wall	C	5	34	0	3	0	40	240	4	0		
094	09/20/06	AA	1	E Wall	C	6	13	0	1	0	40	210	4	54		
094	09/20/06	AA	1	E Wall	C	7	3	0	1	489	40	460	4	3		
094	09/20/06	AA	1	E Wall	D	5	8	0	1	0	40	240	0	31		Partial grid, not full meter
094	09/20/06	AA	1	E Wall	D	6	13	0	1	408	40	450	8	68		Partial grid, not full meter
094	09/20/06	AA	1	E Wall	D	7	8	0	1	149	40	310	0	0		Partial grid, not full meter
094	09/20/06	AA	1	E Wall	E	5	0	0	0	0	40	200	0	0		
094	09/20/06	AA	1	E Wall	E	6	8	0	1	0	40	210	0	3		
094	09/20/06	AA	1	E Wall	E	7	3	0	1	40	40	300	0	0		
094	09/20/06	AA	1	E Wall	F	5	3	0	1	0	40	210	0	8		
094	09/20/06	AA	1	E Wall	F	6	13	0	2	73	40	300	0	0		
094	09/20/06	AA	1	E Wall	F	7	0	0	0	79	40	320	0	3		
094	09/20/06	AA	1	E Wall	G	5	3	0	1	193	40	380	0	0		
094	09/20/06	AA	1	E Wall	G	6	3	0	1	0	40	220	4	0		
094	09/20/06	AA	1	E Wall	G	7	8	0	1	106	40	310	0	0		
094	09/20/06	AA	1	E Wall	H	5	8	0	1	0	40	220	0	8		Partial grid, not full meter
094	09/20/06	AA	1	E Wall	H	6	8	0	1	0	40	220	0	0		Partial grid, not full meter
094	09/21/06	AA	1	E Wall	I	5	11	0	2	0	40	200	4	0		Partial grid, not full meter
094	09/21/06	AA	1	E Wall	I	6	6	0	1	0	40	200	0	71		Partial grid, not full meter
108	09/25/06	AA	1	E Wall	A	8	8	0	1	162	80	280	0	6		
108	09/25/06	AA	1	E Wall	A	9	3	0	1	119	80	300	0	1		
108	09/25/06	AA	1	E Wall	B	8	8	0	3	130	80	300	0	0		B-8 Surveyed to ceiling. No B-9 because of open hole in wall
115	09/28/06	AA	1	E Wall	C	8	0	0	1	225	80	280	0	0		
115	09/28/06	AA	1	E Wall	C	9	9	0	1	190	80	300	4	5		
115	09/28/06	AA	1	E Wall	D	8	41	0	3	283	80	300	0	10		
115	09/28/06	AA	1	E Wall	D	9	22	0	3	144	80	320	0	20		
115	09/28/06	AA	1	E Wall	E	8	0	0	2	194	80	320	0	71		
115	09/28/06	AA	1	E Wall	E	9	0	0	3	173	80	340	0	0		
115	09/28/06	AA	1	E Wall	F	8	9	0	3	205	80	320	0	0		
115	09/28/06	AA	1	E Wall	F	9	9	0	3	210	80	340	4	0		
115	09/28/06	AA	1	E Wall	G	8	15	0	3	153	80	340	4	15		
115	09/28/06	AA	1	E Wall	G	9	22	0	2	227	80	340	0	40		
115	09/28/06	AA	1	E Wall	H	8	9	0	2	177	80	320	0	45		
115	09/28/06	AA	1	E Wall	H	9	9	0	3	192	80	340	0	5		
115	09/28/06	AA	1	E Wall	I	8	15	0	3	236	80	320	0	0		
115	09/28/06	AA	1	E Wall	I	9	22	0	3	166	80	320	0	10		
115	09/28/06	AA	1	E Wall	J	8	22	0	1	220	80	340	0	30		
115	09/28/06	AA	1	E Wall	J	9	15	0	3	168	80	320	0	0		
115	09/28/06	AA	1	E Wall	K	8	9	0	3	216	80	340	0	0		
115	09/28/06	AA	1	E Wall	K	9	22	0	1	177	80	320	0	0		
115	09/28/06	AA	1	E Wall	L	8	22	0	1	218	80	340	0	0		
115	09/28/06	AA	1	E Wall	L	9	22	0	2	220	80	340	4	0		
116	09/28/06	AA	1	E Wall	I	7	0	0	1	0	80	240	0	0		
116	09/28/06	AA	1	E Wall	J	5	0	0	3	70	80	220	0	0		
116	09/28/06	AA	1	E Wall	J	6	0	0	2	16	80	200	0	5		
116	09/28/06	AA	1	E Wall	J	7	0	0	3	36	80	200	0	0		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-16 (Reactor room east wall 5 to 9m)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
116	09/28/06	AA	1	E Wall	K	5	0	0	3	0	80	220	0	0		
116	09/28/06	AA	1	E Wall	K	6	0	0	2	44	80	200	0	0		
116	09/28/06	AA	1	E Wall	K	7	0	0	2	27	80	240	4	0		
116	09/28/06	AA	1	E Wall	L	5	0	0	3	12	80	220	0	35		Includes Vent
116	09/28/06	AA	1	E Wall	L	6	0	0	1	27	80	220	0	0		Includes Vent
116	09/28/06	AA	1	E Wall	L	7	0	0	3	0	80	200	0	86		
142	10/02/06	AA	1	E Wall	H	7	6	0	2	39	100	240	4	25		East Wall Reactor Room



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM EAST WALL SURVEY UNIT 1-3		DRAWING 14

Attachment 18 - Sub-Unit 1-3-20 Bioshield North Wall Including Beam Ports

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-20

(Bioshield north wall and floor including beam ports)

Survey Unit Information					
Unit Designator:	1-3-20	Class:	AA	Certainty %:	95
Location Description:	Bioshield north wall and floor including beam ports				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	85	86	96	86	52
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	70	13	893	107	5
Mean value of results:	22	1	235	30	1
Standard Deviation of results:	21	3	174	30	2
Degree of Freedom [2]:	1.666	1.665	1.663	1.665	1.676
μ_α value:	26	2	265	35	2
Guideline level:	100	20	1700	340	5

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

(1) as interpolated from NUREG/CR-5849 Table B-2

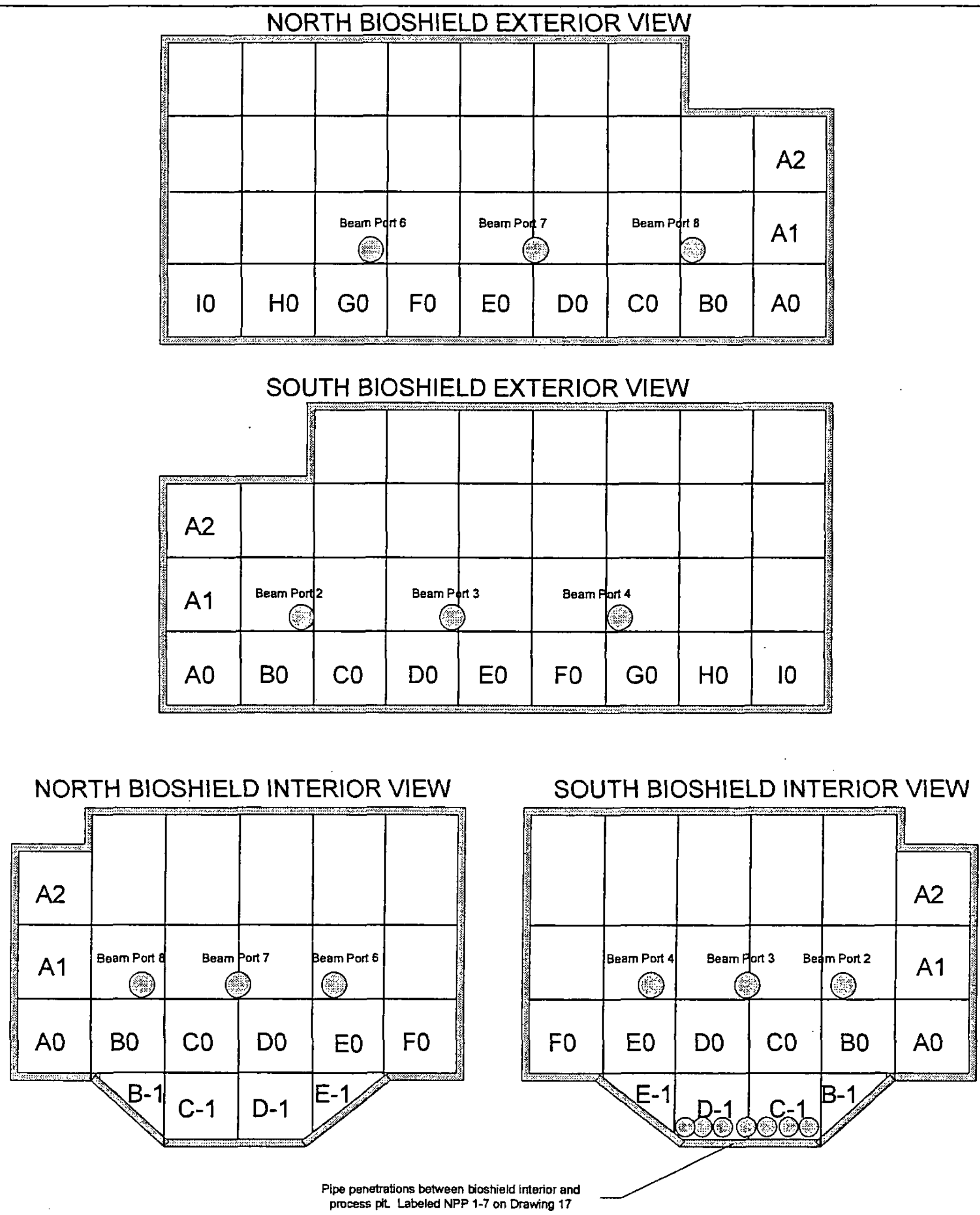
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-20 (Bioshield north wall and floor including beam ports)

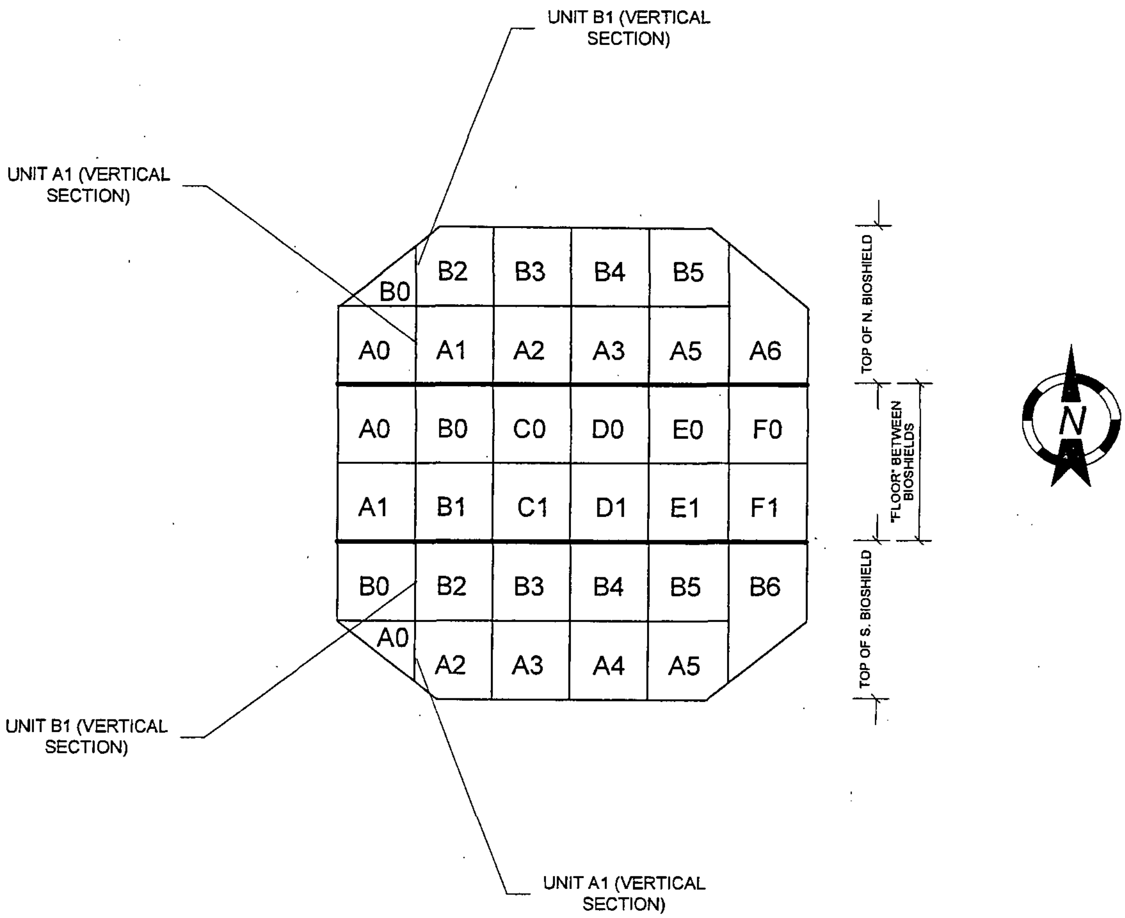
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
103	09/23/06	AA	1	Exterior N BioShield	A	0	49	0	1	0	40	200	0	3		Bioshield Northwall, Exterior - Pipes in wall/shield
103	09/23/06	AA	1	Exterior N BioShield	A	1	70	0	2	303	40	400	0	49		Bioshield Northwall, Exterior
103	09/23/06	AA	1	Exterior N BioShield	A	2	60	0	2	60	40	300	0	0		Bioshield Northwall, Exterior
103	09/23/06	AA	1	Exterior N BioShield	B	0	70	0	3	127	40	300	0	86		Bioshield Northwall, Exterior
103	09/23/06	AA	1	Exterior N BioShield	B	1	23	0	1	63	40	300	8	68		Bioshield Northwall, Exterior
103	09/23/06	AA	1	Exterior N BioShield	B	2	39	0	1	109	40	300	8	40		Bioshield Northwall, Exterior - Hole
103	09/23/06	AA	1	Exterior N BioShield	C	0	70	0	3	137	40	300	8	0		Bioshield Northwall, Exterior
103	09/23/06	AA	1	Exterior N BioShield	C	1	60	0	2	91	40	300	13	49		Bioshield Northwall, Exterior
103	09/23/06	AA	1	Exterior N BioShield	C	2	70	0	3	248	40	400	4	105		Bioshield Northwall, Exterior
103	09/23/06	AA	1	Exterior N BioShield	C	3	33	0	2	232	40	400	0	0		Bioshield Northwall, Exterior
103	09/23/06	AA	1	Exterior N BioShield	D	0	39	0	1	202	40	380	0	12		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	D	1	24	0	1	96	40	260	0	31		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	D	2	24	0	2	68	40	260	0	0		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	D	3	14	0	1	223	40	300	0	31		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	E	0	14	0	1	110	40	280	0	41		Bioshield Northwall, Exterior
104	09/25/06	AA	2500	Exterior N BioShield	E	1	19	0	1	156	40	300	0	36		Bioshield Northwall, Exterior - Hole
104	09/25/06	AA	1	Exterior N BioShield	E	2	70	0	3	177	40	300	3	0		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	E	3	0	0	1	204	40	300	0	0		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	F	1	9	0	1	198	40	300	3	11		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	F	2	0	0	0	225	40	310	0	0		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	F	3	34	0	2	209	40	300	0	62		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	G	1	4	0	1	142	40	300	0	26		Bioshield Northwall, Exterior - Hole
104	09/25/06	AA	1	Exterior N BioShield	G	2	70	0	4	209	40	300	0	36		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	G	3	14	0	1	246	40	300	3	36		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	H	0	65	0	3	227	40	300	0	36		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	H	1	29	0	2	259	40	310	3	97		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	H	2	4	0	1	225	40	300	0	107		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	H	3	70	0	3	297	40	350	0	1		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	I	0	14	0	1	238	40	310	0	21		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	I	1	9	0	1	179	40	300	0	87		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	I	2	9	0	1	184	40	300	0	102		Bioshield Northwall, Exterior
104	09/25/06	AA	1	Exterior N BioShield	I	3	14	0	1	269	40	300	3	46		Bioshield Northwall, Exterior
118	09/28/06	AA	1	Interior N BioShield	A	0	2	0	2	96	80	120	0	37	0	Interior
118	09/28/06	AA	1	Interior N BioShield	A	1	31	0	4	174	100	160	0	63	0	Interior
118	09/28/06	AA	1	Interior N BioShield	B	0	0	0	2	280	120	180	0	0	0	Interior
118	09/28/06	AA	1	Interior N BioShield	B	1	0	0	2	187	80	140	0	17	0	Interior
118	09/28/06	AA	1	Interior N BioShield	B	-1	16	0	4	266	100	160	0	17	0	Interior
118	09/28/06	AA	1	Interior N BioShield	C	-1	0	0	2	439	200	300	0	22	2	Interior
118	09/28/06	AA	1	Interior N BioShield	C	0	35	0	4	677	200	320	0	37	4	Interior
118	09/28/06	AA	1	Interior N BioShield	D	0	45	0	6	893	300	400	4	0	4	Interior
118	09/28/06	AA	1	Interior N BioShield	D	-1	2	0	2	275	100	220	4	0	4	Interior
118	09/28/06	AA	1	Interior N BioShield	E	0	35	0	4	158	100	140	0	22	1	Interior
118	09/28/06	AA	1	Interior N BioShield	E	-1	2	0	2	167	100	150	0	17	1	Interior
118	09/28/06	AA	1	Interior N BioShield	F	0	16	0	2	253	100	140	0	17	0	Interior
118	09/28/06	AA	1	Interior N BioShield	F	1	2	0	2	143	100	160	4	0	0	Interior
119	09/29/06	AA	1	Interior N BioShield	B	2	7	0	2	250	80	140	0	2	1	Interior
119	09/29/06	AA	1	Interior N BioShield	C	1	1	0	2	467	160	240	0	7	5	Interior
119	09/29/06	AA	1	Interior N BioShield	C	2	23	0	2	319	100	180	0	68	1	Interior
119	09/29/06	AA	1	Interior N BioShield	D	1									3	Interior
119	09/29/06	AA	1	Interior N BioShield	D	2	12	0	2	569	100	220	0	47	1	Interior
119	09/29/06	AA	1	Interior N BioShield	E	1	7	0	2	339	100	140	0	12	3	Interior
119	09/29/06	AA	1	Interior N BioShield	E	2	7	0	2	170	80	140	0	0	1	Interior

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-20 (Bioshield north wall and floor including beam ports)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
119	09/29/06	AA	1	Interior N BioShield	F	2	7	0	2	149	80	140	0	22	0	Interior
119	09/29/06	AA	1	Interior N BioShield	A	2	1	0	2	166	80	140	0	0	0	Interior
120	09/29/06	AA	1	Interior BioShield Floor	A	0	35	0	2	333	100	180	0	0	1	North Bioshield Interior
120	09/29/06	AA	1	Interior BioShield Floor	A	1	0	0	2	410	100	200	0	0	1	North Bioshield Interior
120	09/29/06	AA	1	Interior BioShield Floor	B	0	7	0	2	427	100	300	4	0	3	North Bioshield Interior
120	09/29/06	AA	1	Interior BioShield Floor	D	0	12	0	2	440	100	200	8	7	4	North Bioshield Interior
120	09/29/06	AA	1	Interior BioShield Floor	D	1	18	0	4	736	100	260	4	12	3	North Bioshield Interior
120	09/29/06	AA	1	Interior BioShield Floor	E	0	0	0	2	392	80	220	0	22	3	North Bioshield Interior
120	09/29/06	AA	1	Interior BioShield Floor	E	1	18	0	2	264	70	200	0	22	2	North Bioshield Interior
120	09/29/06	AA	1	Interior BioShield Floor	B	1									2	
120	09/29/06	AA	1	Interior BioShield Floor	C	0									5	
120	09/29/06	AA	1	Interior BioShield Floor	C	1									3	
120	09/29/06	AA	1	Interior BioShield Floor	F	0									1	
120	09/29/06	AA	1	Interior BioShield Floor	F	1									1	
122	09/29/06	AA	1	N BioShield Top	B	0	31	0	2	376	120	220	0	0	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	A	0	10	0	2	246	140	220	0	42	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	B	1	0	0	2	269	120	200	0	22	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	A	1	16	0	2	231	100	200	0	42	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	B	2	0	0	2	182	100	200	0	47	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	A	2	5	0	2	320	100	200	0	68	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	B	3	0	0	2	295	100	200	4	12	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	A	3	5	0	2	189	80	220	0	17	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	B	4	5	0	2	301	100	200	4	27	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	A	4	0	0	2	263	100	220	0	0	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	B	5	5	0	2	233	80	180	4	0	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	A	5	5	0	2	199	100	240	0	12	0	Top North Bioshield
122	09/29/06	AA	1	N BioShield Top	A	6	0	0	2	291	140	240	0	68	0	Top North Bioshield
145	09/30/06	GA	1	Beam port 8	N	8				0	100	300	0	70	1	Bioshield exterior
145	09/30/06	GA	1	Beam port 8	N	8				0	100	300				Midpoint
145	09/30/06	GA	1	Beam port 8	N	8				0	100	300				Midpoint
145	09/30/06	GA	1	Beam port 7	N	7				0	100	300	0	0	1	Bioshield exterior
145	09/30/06	GA	1	Beam port 7	N	7				0	100	300				Midpoint
145	09/30/06	GA	1	Beam port 7	N	7				0	100	300				Midpoint
145	09/30/06	GA	1	Beam port 7	N	7				0	100	300	0	5	3	Bioshield interior
145	09/30/06	GA	1	Beam port 6	N	6				592	100	300	0	0	0	Bioshield exterior
145	09/30/06	GA	1	Beam port 6	N	6				0	100	300				Midpoint
145	09/30/06	GA	1	Beam port 6	N	6				0	100	300				Midpoint
145	09/30/06	GA	1	Beam port 6	N	6				415	100	300	0	0	3	Bioshield interior
150	11/08/06	AA	1	Interior BioShield Floor	B	1	45	ND	ND	413	100	200	0	42		Resurvey of FSS-120
150	11/08/06	AA	1	Interior BioShield Floor	C	0	39	ND	ND	221	100	180	0	53		Resurvey of FSS-120
150	11/08/06	AA	1	Interior BioShield Floor	C	1	28	ND	ND	50	100	160	0	22		Resurvey of FSS-120
150	11/08/06	AA	1	Interior BioShield Floor	F	0	22	ND	ND	435	100	220	4	63		Resurvey of FSS-120
150	11/08/06	AA	1	Interior BioShield Floor	F	1	33	ND	ND	629	100	260	0	99		Resurvey of FSS-120
151	11/08/06	AA	1	Exterior N BioShield	F	0	22	ND	ND	170	100	160	4	63		Bioshield Northwall, Exterior
151	11/08/06	AA	1	Exterior N BioShield	G	0	39	ND	ND	110	100	160	0	53		Bioshield Northwall, Exterior
152	11/08/06	AA	1	Interior N BioShield	D	1	51	ND	ND	384	100	200	4	63		Resurvey of FSS-119
153	11/08/06	GA	1	Beam Port 8	N	8	22	ND	ND	0	100	140				Resurvey of FSS-145 Midpoint
153	11/08/06	GA	1	Beam Port 8	N	8	33	ND	ND	588	100	220				Resurvey of FSS-145 Interior
153	11/08/06	GA	1	Beam Port 7	N	7	28	ND	ND	0	100	140				Resurvey of FSS-145 Midpoint
153	11/08/06	GA	1	Beam Port 6	N	6	33	ND	ND	2	100	140				Resurvey of FSS-145 Midpoint



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	BIOSHIELD WALLS SURVEY UNIT 1-3		DRAWING 15



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	BIOSHIELD TOP VIEW SURVEY UNIT 1-3		DRAWING 16

Bioshield Liquid Scintillation Results

Location	Date	Background DPM	Gross DPM	Net DPM
South BioShield Interior - Beam Port 6	9/28/2006	59	71	12
South BioShield Interior - Beam Port 8	9/28/2006	59	42	0
South BioShield Interior - B0	9/28/2006	59	43	0
South BioShield Interior - C0	9/28/2006	59	33	0
South BioShield Interior - C -1	9/28/2006	59	51	0
South BioShield Interior - D 0	9/28/2006	59	50	0
South BioShield Interior - D-1	9/28/2006	59	39	0
North BioShield Interior - Beam Port 2	9/28/2006	59	55	0
North BioShield Interior - Beam Port 3	9/28/2006	59	31	0
North BioShield Interior - B0	9/28/2006	59	35	0
North BioShield Interior - C0	9/28/2006	59	54	0
North BioShield Interior - C -1	9/28/2006	59	57	0
North BioShield Interior - D 0	9/28/2006	59	57	0
North BioShield Interior - D-1	9/28/2006	59	51	0
South BioShield Pipe - NPP 1	9/28/2006	59	58	0
South BioShield Pipe - NPP 2	9/28/2006	59	42	0
South BioShield Pipe - NPP 3	9/28/2006	59	59	0
South BioShield Pipe - NPP 4	9/28/2006	59	166	107
South BioShield Pipe - NPP 5	9/28/2006	59	47	0
South BioShield Pipe - NPP 6	9/28/2006	59	49	0
BioShield Floor - C0	9/28/2006	59	61	2
BioShield Floor - C1	9/28/2006	59	42	0
BioShield Floor - D0	9/28/2006	59	52	0
BioShield Floor - D1	9/28/2006	59	51	0

Attachment 19 - Sub-Unit 1-3-21 Bioshield South Wall Including Beam Ports

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-21

(Bioshield south wall including beam ports)

Survey Unit Information					
Unit Designator:	1-3-21	Class:	AA	Certainty %:	95
Location Description:	Bioshield south wall including beam ports				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	69	73	83	73	40
Number of measurements needed [(1)]:	9	9	9	9	N/A
Maximum value of results:	68	8	769	97	4
Mean value of results:	17	1	161	14	1
Standard Deviation of results:	16	2	131	26	1
Degree of Freedom [(2)]:	1.669	1.668	1.666	1.668	1.684
μ_α value:	20	1	185	19	1
Guideline level:	100	20	1700	340	5

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

[(1)] as interpolated from NUREG/CR-5849 Table B-2

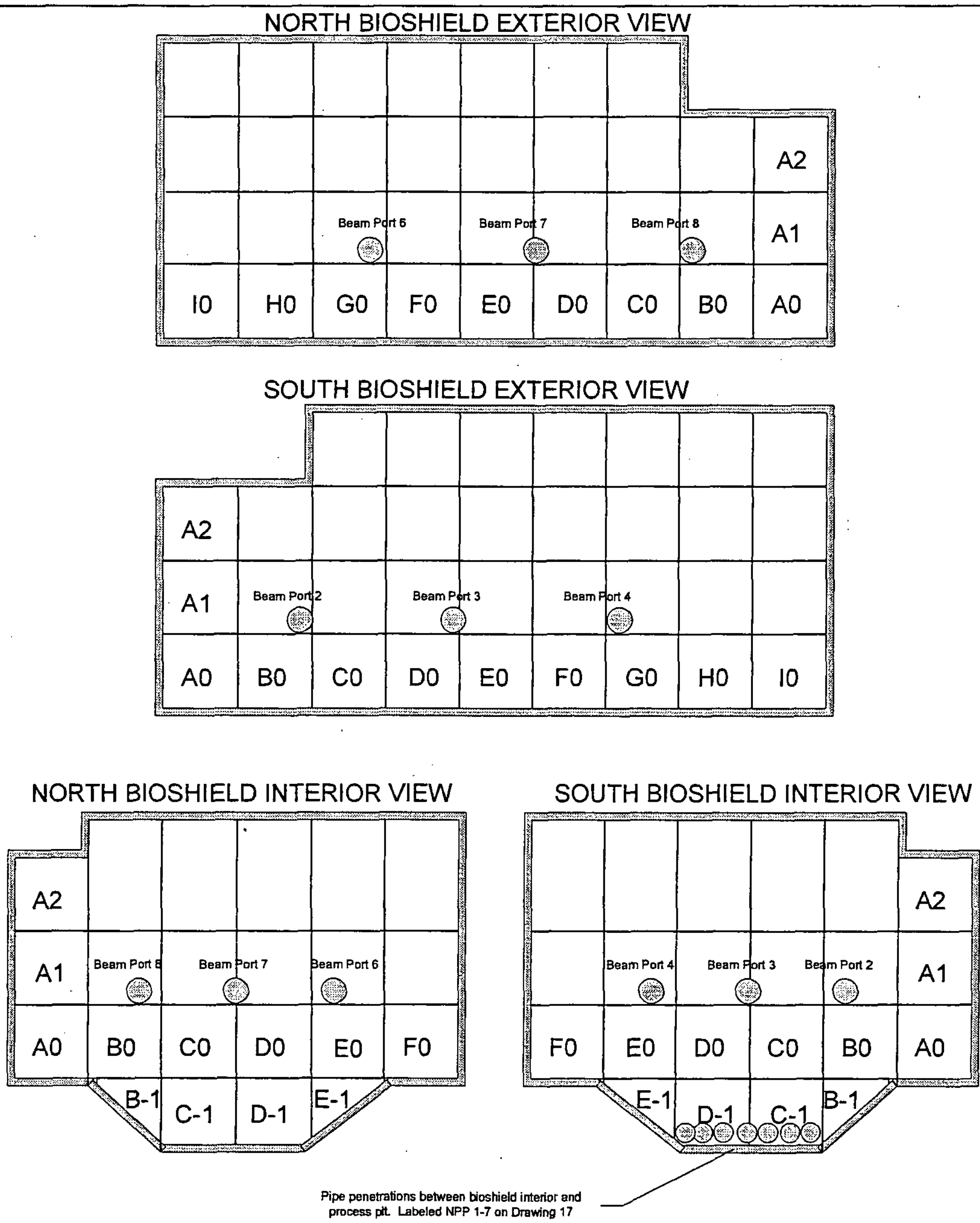
[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-21 (Bioshield south wall including beam ports)

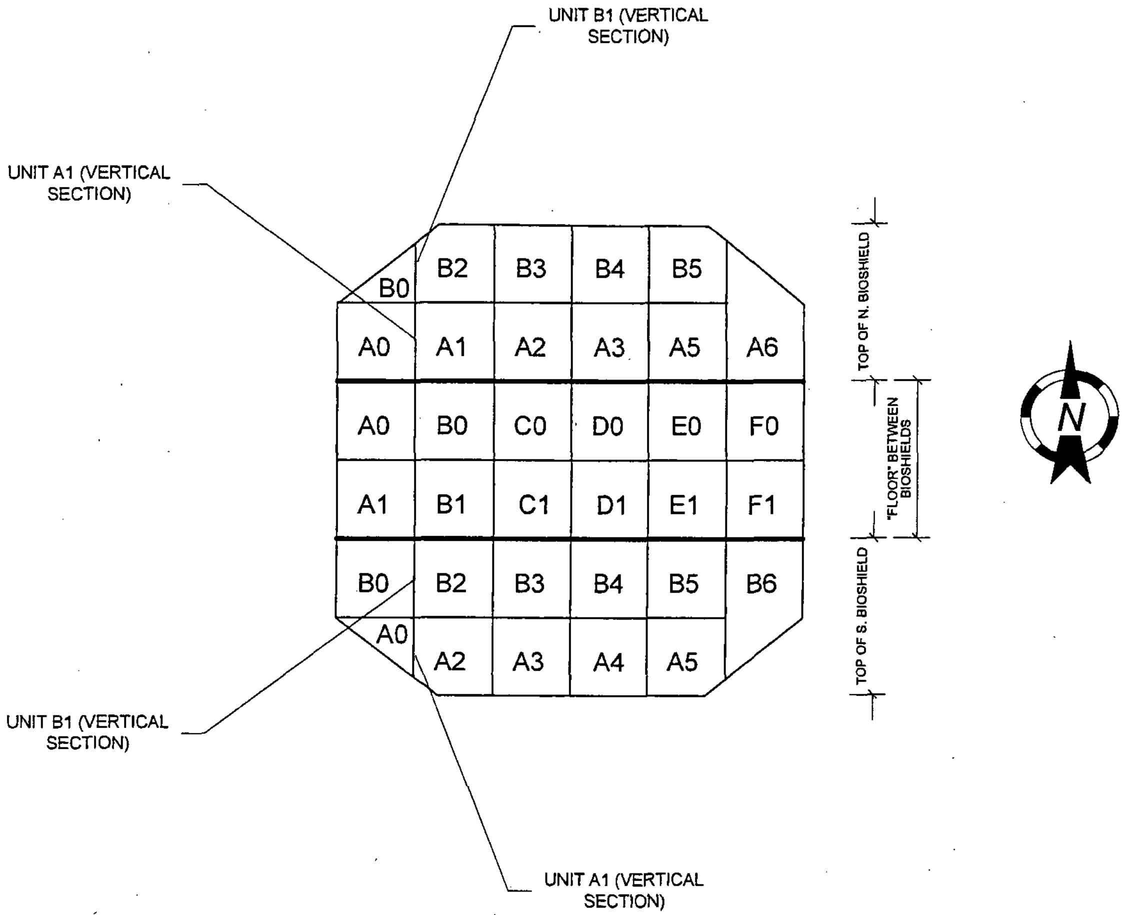
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
110	09/27/06	AA	1	Exterior S BioShield	A	0	29	0	2	96	40	200	4	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	A	1	0	0	1	89	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	A	2	6	0	1	128	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	B	0	48	0	3	32	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	B	1	20	0	1	67	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	B	2	11	0	1	60	40	200	0	45		Exterior
110	09/27/06	AA	1	Exterior S BioShield	C	0	16	0	1	55	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	C	1	0	0	1	92	40	200	0	5		Exterior
110	09/27/06	AA	1	Exterior S BioShield	C	2	16	0	1	158	40	300	0	10		Exterior
110	09/27/06	AA	1	Exterior S BioShield	D	0	6	0	1	69	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	D	1	16	0	1	28	40	200	0	15		Exterior
110	09/27/06	AA	1	Exterior S BioShield	D	2	38	0	2	105	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	D	3	38	0	2	228	40	300	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	E	0	0	0	1	99	40	200	0	40		Exterior
110	09/27/06	AA	1	Exterior S BioShield	E	1	2	0	1	78	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	E	2	2	0	1	185	40	300	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	E	3	61	0	4	107	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	F	0	20	0	2	149	40	300	0	40		Exterior
110	09/27/06	AA	1	Exterior S BioShield	F	1	11	0	1	67	40	200	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	F	2	16	0	1	187	40	300	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	F	3	61	0	4	180	40	300	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	G	0	20	0	1	124	40	240	0	10		Exterior
110	09/27/06	AA	1	Exterior S BioShield	G	1	0	0	0	115	40	240	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	G	2	43	0	2	131	40	240	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	G	3	16	0	1	153	40	300	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	H	0	52	0	1	108	40	240	8	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	H	1	2	0	1	128	40	250	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	H	2	38	0	2	121	40	250	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	H	3	11	0	1	110	40	240	0	45		Exterior
110	09/27/06	AA	1	Exterior S BioShield	I	0	11	0	1	117	40	240	0	35		Exterior
110	09/27/06	AA	1	Exterior S BioShield	I	1	20	0	2	126	40	240	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	I	2	16	0	1	90	40	210	0	0		Exterior
110	09/27/06	AA	1	Exterior S BioShield	I	3	20	0	2	85	40	210	0	0		Exterior
123	09/29/06	AA	1	S BioShield Top	A	0	10	0	2	210	80	220	0	0	0	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	B	0	16	0	2	325	100	200	0	7	0	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	A	1	10	0	2	121	80	180	0	0	1	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	B	1	5	0	2	110	80	160	0	22	0	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	A	2	0	0	2	291	140	220	0	0	0	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	B	2	10	0	2	265	100	220	4	58	1	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	A	3	0	0	2	299	140	300	0	12	0	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	B	3	5	0	2	212	160	320	0	12	0	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	A	4	10	0	2	231	100	240	0	32	1	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	B	4	21	0	2	320	140	300	0	0	0	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	A	5	5	0	2	346	140	240	0	88	0	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	B	5	47	0	2	312	140	280	0	0	0	Top South Bioshield
123	09/29/06	AA	1	S BioShield Top	B	6	5	0	2	323	180	300	0	58	1	Top South Bioshield
124	09/29/06	AA	1	Interior S BioShield	A	0	68	0	2	146	80	200	0	0	1	Interior
124	09/29/06	AA	1	Interior S BioShield	B	0	10	0	2	204	100	220	0	1	1	Interior
124	09/29/06	AA	1	Interior S BioShield	B	1	16	0	4	202	80	200	0	0	1	Interior
124	09/29/06	AA	1	Interior S BioShield	B	-1	21	0	2	174	120	160	0	0	1	Interior
124	09/29/06	AA	1	Interior S BioShield	C	-1	5	0	4	267	120	220	0	0	2	Interior
124	09/29/06	AA	1	Interior S BioShield	C	0	16	0	4	316	100	220	4	0	3	Interior

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-21 (Bioshield south wall including beam ports)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
124	09/29/06	AA	1	Interior S BioShield	D	0	**16**	0	4	**316**	100	220	**0**	**26**	**3**	Interior
124	09/29/06	AA	1	Interior S BioShield	D	-1	**5**	0	2	**363**	120	240	**0**	**62**	**3**	Interior
124	09/29/06	AA	1	Interior S BioShield	E	0	**5**	0	2	**180**	100	220	**4**	**0**	**2**	Interior
124	09/29/06	AA	1	Interior S BioShield	E	-1									**1**	Interior
124	09/29/06	AA	1	Interior S BioShield	F	0	**0**	0	2	**170**	100	220	**0**	**0**	**1**	Interior
124	09/29/06	AA	1	Interior S BioShield	F	1	**10**	0	2	**140**	80	200	**4**	**0**	**0**	Interior
124	09/29/06	AA	1	Interior S BioShield	A	1	**5**	0	2	**115**	80	160	**0**	**0**	**0**	Interior - post deon A.1
124	09/29/06	AA	1	Interior S BioShield	B	2	**5**	0	2	**136**	80	180	**0**	**0**	**1**	Interior
124	09/29/06	AA	1	Interior S BioShield	C	1	**5**	0	2	**104**	100	180	**0**	**0**	**0**	Interior
124	09/29/06	AA	1	Interior S BioShield	D	1	**21**	0	2	**202**	100	260	**4**	**87**	**1**	Interior
124	09/29/06	AA	1	Interior S BioShield	D	2	**26**	0	2	**110**	120	200	**0**	**67**	**0**	Interior
124	09/29/06	AA	1	Interior S BioShield	E	1	**10**	0	2	**127**	100	220	**8**	**97**	**0**	Interior
124	09/29/06	AA	1	Interior S BioShield	E	2	**10**	0	2	**123**	100	220	**0**	**11**	**1**	Interior
124	09/29/06	AA	1	Interior S BioShield	F	2	**16**	0	2	**195**	100	200	**0**	**0**	**1**	Interior
124	09/29/06	AA	1	Interior S BioShield	A	2	**5**	0	2	**153**	100	200	**0**	**0**	**0**	Interior
124	09/29/06	AA	1	Interior S BioShield	C	2	**5**	0	2	**199**	100	200	**4**	**92**	**0**	Interior - post decon C.2
130	09/30/06	GA	1	Beam port 2	S	2				**415**	100	300	**4**	**0**	**0**	Bioshield exterior
130	09/30/06	GA	1	Beam port 2	S	2				**0**	100	300				Midpoint
130	09/30/06	GA	1	Beam port 2	S	2				**0**	100	300				Midpoint
130	09/30/06	GA	1	Beam port 2	S	2				**0**	100	300				Midpoint
130	09/30/06	GA	1	Beam port 2	S	2				**0**	100	300	**0**	**5**	**3**	Bioshield interior
130	09/30/06	GA	1	Beam port 3	S	3				**0**	100					Midpoint
130	09/30/06	GA	1	Beam port 3	S	3				**327**	100					Midpoint
130	09/30/06	GA	1	Beam port 3	S	3				**0**	100					Midpoint
130	09/30/06	GA	1	Beam port 3	S	3				**0**	100	300	**4**	**0**	**4**	Bioshield interior
130	09/30/06	GA	1	Beam port 4	S	4				**0**	100	300	**0**	**0**	**0**	Bioshield exterior
130	09/30/06	GA	1	Beam port 4	S	4				**0**	100					Midpoint
130	09/30/06	GA	1	Beam port 4	S	4				**0**	100					Midpoint
130	09/30/06	GA	1	Beam port 4	S	4				**150**	100					Midpoint
130	09/30/06	GA	1	Beam port 4	S	4				**769**	100	300	**0**	**25**	**3**	Bioshield interior
154	11/08/06	GA	1	Beam Port 3	S	3	**28**	ND	ND	**81**	100	160				Resurvey of FSS-130 Exterior
155	11/08/06	AA	1	Interior S BioShield	E	-1	**39**	ND	ND	**617**	100	260	**4**	**42**		Resurvey of FSS-124



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	BIOSHIELD WALLS SURVEY UNIT 1-3		DRAWING 15



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	BIOSHIELD TOP VIEW SURVEY UNIT 1-3		DRAWING 16

Bioshield Liquid Scintillation Results

Location	Date	Background DPM	Gross DPM	Net DPM
South BioShield Interior - Beam Port 6	9/28/2006	59	71	12
South BioShield Interior - Beam Port 8	9/28/2006	59	42	0
South BioShield Interior - B0	9/28/2006	59	43	0
South BioShield Interior - C0	9/28/2006	59	33	0
South BioShield Interior - C -1	9/28/2006	59	51	0
South BioShield Interior - D 0	9/28/2006	59	50	0
South BioShield Interior - D-1	9/28/2006	59	39	0
North BioShield Interior - Beam Port 2	9/28/2006	59	55	0
North BioShield Interior - Beam Port 3	9/28/2006	59	31	0
North BioShield Interior - B0	9/28/2006	59	35	0
North BioShield Interior - C0	9/28/2006	59	54	0
North BioShield Interior - C -1	9/28/2006	59	57	0
North BioShield Interior - D 0	9/28/2006	59	57	0
North BioShield Interior - D-1	9/28/2006	59	51	0
South BioShield Pipe - NPP 1	9/28/2006	59	58	0
South BioShield Pipe - NPP 2	9/28/2006	59	42	0
South BioShield Pipe - NPP 3	9/28/2006	59	59	0
South BioShield Pipe - NPP 4	9/28/2006	59	166	107
South BioShield Pipe - NPP 5	9/28/2006	59	47	0
South BioShield Pipe - NPP 6	9/28/2006	59	49	0
BioShield Floor - C0	9/28/2006	59	61	2
BioShield Floor - C1	9/28/2006	59	42	0
BioShield Floor - D0	9/28/2006	59	52	0
BioShield Floor - D1	9/28/2006	59	51	0

Attachment 20 - Sub-Unit 1-3-30 Process Pit

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-30

(Process pit)

Survey Unit Information					
Unit Designator:	1-3-30	Class:	AA	Certainty %:	95
Location Description:	Process pit				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	38	51	51	51	14
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	40	17	1667	76	1
Mean value of results:	12	1	117	7	0
Standard Deviation of results:	10	3	271	16	1
Degree of Freedom (2):	1.687	1.677	1.677	1.677	1.771
μ_α value:	15	2	181	11	1
Guideline level:	100	20	5000	1000	5

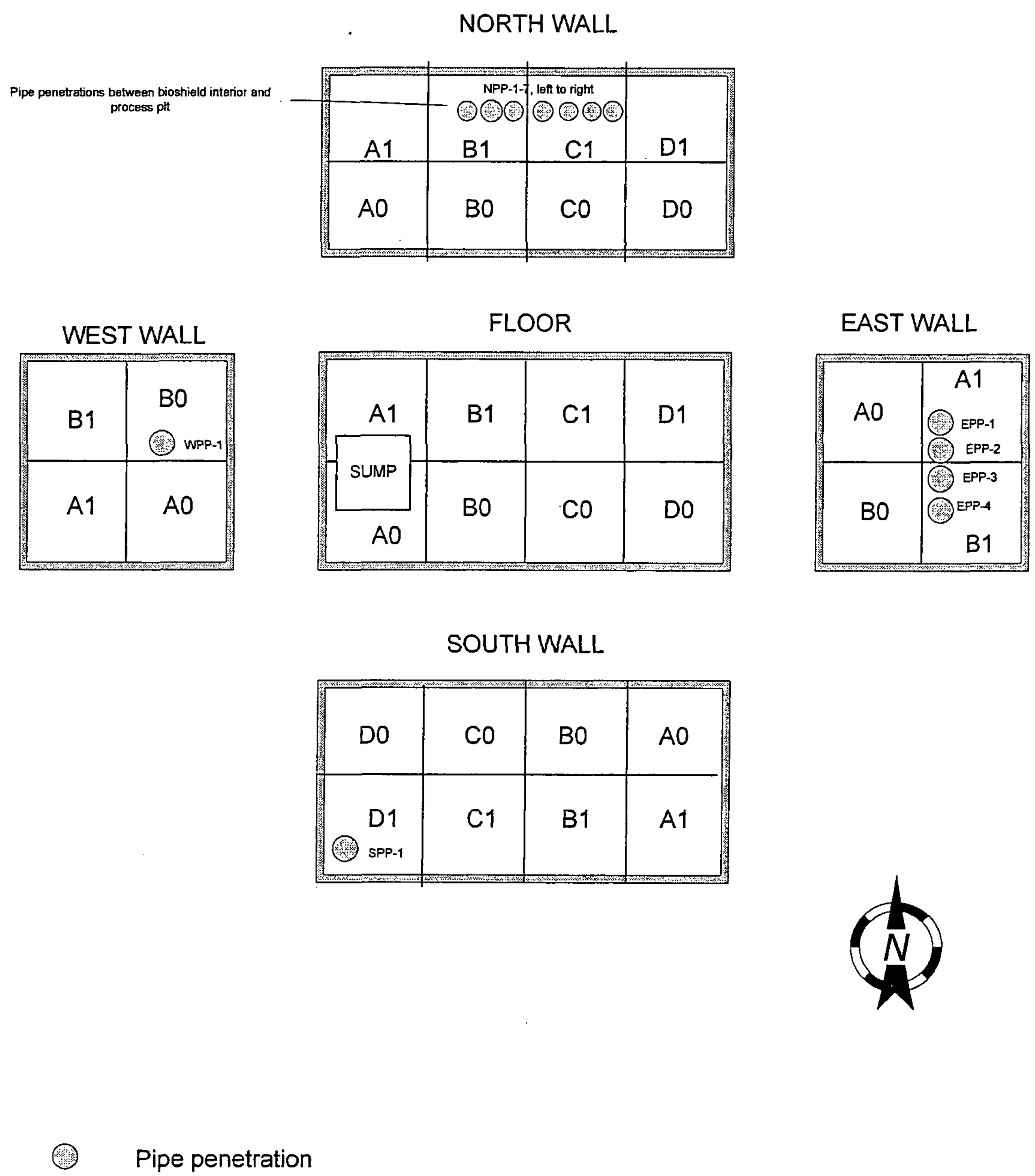
Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	Yes	Yes	Yes	Yes	Yes
Does survey unit pass?	Yes	Yes	Yes	Yes	Yes

(1) as interpolated from NUREG/CR-5849 Table B-2

(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-30 (Process pit)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
037	09/01/06	AA	1	Pipe	NPP	1				0	50	50	0	0		Penetration internals to stop
037	09/01/06	AA	1	Pipe	NPP	2				0	50	50	0	0		Penetration internals to stop
037	09/01/06	AA	1	Pipe	NPP	3				0	50	50	17	0		Penetration internals to stop
037	09/01/06	AA	1	Pipe	NPP	4				0	50	50	8	48		Penetration internals to stop
037	09/01/06	AA	1	Pipe	NPP	5							0	76		Penetration internals to stop
037	09/01/06	AA	1	Pipe	NPP	6				0	50	50	0	0		Penetration internals to stop
037	09/01/06	AA	1	Pipe	NPP	7				0	50	50	0	20		Penetration internals to stop
037	09/01/06	AA	1	Pipe	EPP	1				0	50	50	0	0		Penetration internals to stop
037	09/01/06	AA	1	Pipe	EPP	2				0	50	50	0	0		Penetration internals to stop
037	09/01/06	AA	1	Pipe	EPP	3				0	50	50	0	0		Penetration internals to stop
037	09/01/06	AA	1	Pipe	EPP	6				0	50	50	0	0		Penetration internals to stop
037	09/01/06	AA	1	Pipe	SPP	1				0	50	50	0	6		Penetration internals to stop
037	09/01/06	AA	1	Pipe	WPP	1				0	50	50	0	0		Penetration internals to stop
038	09/01/06	AA	1	E Wall	A	0	26	ND	ND	122	0	300	4	30		1 m^2 E wall - Process Pit
038	09/01/06	AA	1	E Wall	A	1	12	ND	ND	114	0	280	0	0		1 m^2 E wall - Process Pit
038	09/01/06	AA	1	E Wall	B	0	35	ND	ND	74	0	280	0	0		1 m^2 E wall - Process Pit
038	09/01/06	AA	1	E Wall	B	1	12	ND	ND	17	0	400	0	34		1 m^2 E wall - Process Pit
038	09/01/06	AA	1	Floor	A	0	7	ND	ND	0	0	360	0	0	0	1 m^2 floor - Process pit
038	09/01/06	AA	1	Floor	A	1	3	ND	ND	124	0	320	4	0	0	1 m^2 floor - Process pit
038	09/01/06	AA	1	Floor	B	0	21	ND	ND	188	0	320	0	0	0	1 m^2 floor - Process pit
038	09/01/06	AA	1	Floor	B	1	17	ND	ND	137	0	340	0	0	0	1 m^2 floor - Process pit
038	09/01/06	AA	1	Floor	C	0	12	ND	ND	207	0	600	0	2	0	1 m^2 floor - Process pit
038	09/01/06	AA	1	Floor	C	1	3	ND	ND	99	0	380	0	0	0	1 m^2 floor - Process pit
038	09/01/06	AA	1	Floor	D	0	17	ND	ND	156	0	800	0	0	0	1 m^2 floor - Process pit
038	09/01/06	AA	1	Floor	D	1	12	ND	ND	194	0	300	0	0	0	1 m^2 floor - Process pit
039	09/01/06	AA	1	N Wall	A	0	0	ND	ND	29	0	300	4	0		1 m^2 N Wall - Process pit
039	09/01/06	AA	1	N Wall	A	1	17	ND	ND	135	0	340	0	11		1 m^2 N Wall - Process pit
039	09/01/06	AA	1	N Wall	B	0	3	ND	ND	0	0	280	0	0		1 m^2 N Wall - Process pit
039	09/01/06	AA	1	N Wall	B	1	12	ND	ND	17	0	360	0	44		1 m^2 N Wall - Process pit
039	09/01/06	AA	1	N Wall	C	0	17	ND	ND	124	0	300	0	0		1 m^2 N Wall - Process pit
039	09/01/06	AA	1	N Wall	C	1	7	ND	ND	63	0	600	0	0		1 m^2 N Wall - Process pit
039	09/01/06	AA	1	N Wall	D	0	3	ND	ND	21	0	300	0	0		1 m^2 N Wall - Process pit
039	09/01/06	AA	1	N Wall	D	1	12	ND	ND	36	0	280	0	0		1 m^2 N Wall - Process pit
039	09/01/06	AA	1	W Wall	A	0	0	ND	ND	0	0	320	0	0		1 m^2 W Wall - Process pit
039	09/01/06	AA	1	W Wall	A	1	0	ND	ND	97	0	260	0	0		1 m^2 W Wall - Process pit
039	09/01/06	AA	1	W Wall	B	0	12	ND	ND	31	0	300	4	0		1 m^2 W Wall - Process pit
039	09/01/06	AA	1	W Wall	B	1	12	ND	ND	135	0	260	0	30		1 m^2 W Wall - Process pit
039	09/01/06	AA	1	S Wall	A	0	7	ND	ND	99	0	260	0	6		1 m^2 S Wall - Process pit
039	09/01/06	AA	1	S Wall	A	1	0	ND	ND	116	0	260	0	0		1 m^2 S Wall - Process pit
039	09/01/06	AA	1	S Wall	B	0	3	ND	ND	78	0	300	0	0		1 m^2 S Wall - Process pit
039	09/01/06	AA	1	S Wall	B	1	12	ND	ND	0	0	240	0	0		1 m^2 S Wall - Process pit
039	09/01/06	AA	1	S Wall	C	0	40	ND	ND	324	0	300	0	0		1 m^2 S Wall - Process pit
039	09/01/06	AA	1	S Wall	C	1	26	ND	ND	61	0	240	0	0		1 m^2 S Wall - Process pit
039	09/01/06	AA	1	S Wall	D	0	30	ND	ND	0	0	300	0	0		1 m^2 S Wall - Process pit
039	09/01/06	AA	1	S Wall	D	1	12	ND	ND	101	0	300	0	0		1 m^2 S Wall - Process pit
051	09/06/06	AA	1	Pipe	NPP	5				1667	40	80				Penetration internals - Post decon
070	09/09/06	AA	1	Sump	A	0	0	0	1	60	60	310	0	43	1	West Side -After decon/paint removal
070	09/09/06	AA	1	Sump	A	0	4	0	2	77	60	310	3	0	1	North Side -After decon/paint removal
070	09/09/06	AA	1	Sump	A	0	30	0	5	1059	60	625	0	0	1	East Side -After decon/paint removal
070	09/09/06	AA	1	Sump	A	0	13	0	3	119	60	320	0	18	1	South Side -After decon/paint removal
070	09/09/06	AA	1	Sump	A	0	0	0	1	91	60	280	0	0	1	Floor -After decon/paint removal
070	09/09/06	AA	1	Sump	A	0	0	0	1	0	60	260	3	0	1	Lid -After decon/paint removal



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM PROCESS PIT SURVEY UNIT 1-3		Drawing 17

Attachment 21 - Sub-Unit 1-3-40 Reactor Room Floor West Grids A-G

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-40

(Reactor room floor west grids A-G)

Survey Unit Information					
Unit Designator:	1-3-40	Class:	AA	Certainty %:	95
Location Description:	Reactor room floor west grids A-G				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	65	65	65	65	4
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	34	7	1087	85	0
Mean value of results:	13	1	152	14	0
Standard Deviation of results:	9	2	203	20	0
Degree of Freedom (2):	1.670	1.670	1.670	1.670	2.353
μ_α value:	14	1	194	18	0
Guideline level:	100	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

(1) as interpolated from NUREG/CR-5849 Table B-2

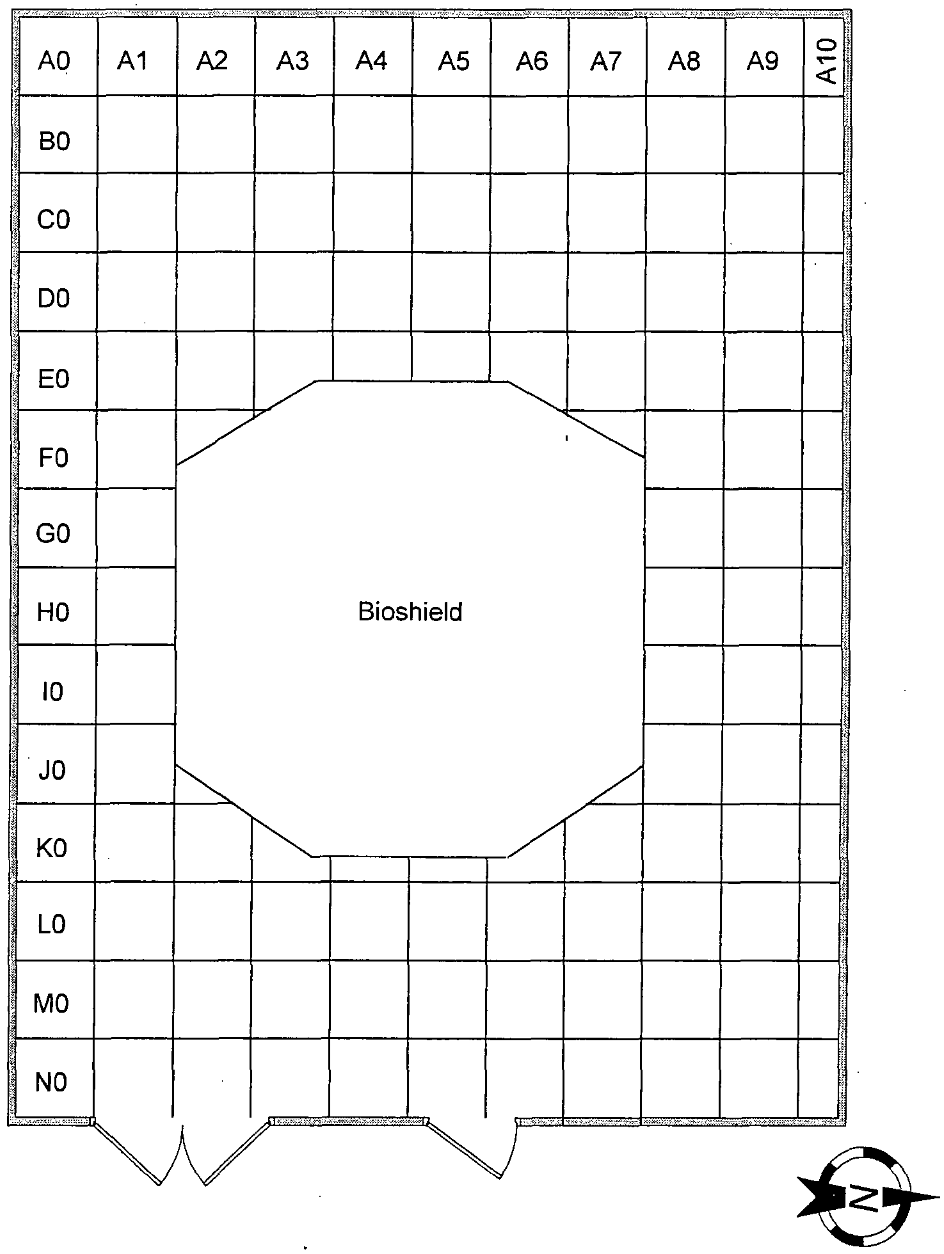
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-40 (Reactor room floor west grids A-G)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
105	09/25/06	AA	1	Floor	A	0	34	0	2	445	40	320	0	0	0	FSS Done Prior To Removing
105	09/25/06	AA	1	Floor	A	1	9	0	1	238	40	300	0	0		
105	09/25/06	AA	1	Floor	A	2	19	0	1	280	40	380	3	52	0	Dirt Floor
105	09/25/06	AA	1	Floor	A	3	34	0	2	257	40	380	3	1	0	Concrete Floor
105	09/25/06	AA	1	Floor	A	4	19	0	2	282	40	380	0	62	0	Concrete Floor
105	09/25/06	AA	1	Floor	A	5	19	0	1	341	40	400	0	6		
105	09/25/06	AA	1	Floor	B	0	24	0	1	514	40	460	0	6		
105	09/25/06	AA	1	Floor	B	1	4	0	1	630	40	500	0	36		
105	09/25/06	AA	1	Floor	B	2	14	0	1	263	40	360	3	0		
105	09/25/06	AA	1	Floor	B	3	9	0	1	345	40	400	0	52		
105	09/25/06	AA	1	Floor	C	0	0	0	0	301	40	310	0	0		
105	09/25/06	AA	1	Floor	C	1	4	0	1	339	40	380	3	0		
105	09/25/06	AA	1	Floor	C	2	4	0	1	292	40	310	0	41		
105	09/25/06	AA	1	Floor	C	3	14	0	1	253	40	310	0	26		
105	09/25/06	AA	1	Floor	C	4	0	0	1	246	40	310	3	57		
105	09/25/06	AA	1	Floor	D	0	19	0	1	311	40	380	0	6		
105	09/25/06	AA	1	Floor	D	1	14	0	1	282	40	380	0	1		
109	09/26/06	AA	1	Floor	A	6	27	0	3	107	40	300	0	0		
109	09/26/06	AA	1	Floor	A	7	22	0	2	78	40	300	0	20		
109	09/26/06	AA	1	Floor	A	8	0	0	1	842	40	600	3	11		
109	09/26/06	AA	1	Floor	A	9	22	0	1	23	40	280	0	0		
109	09/26/06	AA	1	Floor	A	10	13	0	1	0	40	260	0	0		
109	09/26/06	AA	1	Floor	B	4	18	0	1	74	40	300	0	0		
109	09/26/06	AA	1	Floor	B	5	4	0	1	153	40	300	3	39		
109	09/26/06	AA	1	Floor	B	6	13	0	1	94	40	300	0	62		
109	09/26/06	AA	1	Floor	B	7	13	0	1	1087	40	450	0	11		
109	09/26/06	AA	1	Floor	B	8	18	0	1	56	40	300	0	25		
109	09/26/06	AA	1	Floor	B	9	9	0	1	34	40	300	0	39		
109	09/26/06	AA	1	Floor	B	10	13	0	1	44	40	280	0	0		
109	09/26/06	AA	1	Floor	C	5	9	0	1	28	40	260	0	30		
109	09/26/06	AA	1	Floor	C	6	22	0	2	1	40	260	0	0		
109	09/26/06	AA	1	Floor	C	7	22	0	1	34	40	260	3	0		
109	09/26/06	AA	1	Floor	C	8	18	0	1	113	40	300	3	34		
109	09/26/06	AA	1	Floor	C	9	31	0	2	96	40	300	0	0		
109	09/26/06	AA	1	Floor	C	10	0	0	1	7	40	260	3	39		
109	09/26/06	AA	1	Floor	D	2	13	0	1	34	40	280	0	0		
109	09/26/06	AA	1	Floor	D	3	18	0	1	30	40	280	0	20		
109	09/26/06	AA	1	Floor	D	4	0	0	1	30	40	280	0	0		
109	09/26/06	AA	1	Floor	D	5	18	0	2	56	40	300	0	30		
109	09/26/06	AA	1	Floor	D	6	9	0	1	11	40	260	0	0		
109	09/26/06	AA	1	Floor	D	7	9	0	1	28	40	280	3	0		
109	09/26/06	AA	1	Floor	D	8	13	0	1	9	40	260	0	0		
109	09/26/06	AA	1	Floor	D	9	18	0	2	117	40	310	3	39		
109	09/26/06	AA	1	Floor	D	10	0	0	1	0	40	260	3	0		
109	09/26/06	AA	1	Floor	E	0	9	0	1	19	40	20	0	0		
109	09/26/06	AA	1	Floor	E	1	13	0	1	0	40	260	0	0		
109	09/26/06	AA	1	Floor	E	2	13	0	1	175	40	300	0	0		
109	09/26/06	AA	1	Floor	E	3	0	0	1	0	40	260	0	0		
109	09/26/06	AA	1	Floor	E	4	18	0	1	58	40	280	0	0		
109	09/26/06	AA	1	Floor	E	5	18	0	1	133	40	300	0	6		
109	09/26/06	AA	1	Floor	E	6	0	0	0	5	40	260	3	85		
109	09/26/06	AA	1	Floor	E	7	9	0	1	42	40	300	0	16		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-40 (Reactor room floor west grids A-G)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
109	09/26/06	AA	1	Floor	E	8	**22**	0	2	**56**	40	300	**3**	**0**		
109	09/26/06	AA	1	Floor	E	9	**13**	0	1	**80**	40	300	**3**	**0**		
109	09/26/06	AA	1	Floor	E	10	**0**	0	1	**115**	40	300	**7**	**0**		
109	09/26/06	AA	1	Floor	F	8	**0**	0	1	**17**	40	280	**0**	**20**		
109	09/26/06	AA	1	Floor	F	9	**18**	0	1	**68**	40	300	**0**	**0**		
109	09/26/06	AA	1	Floor	F	10	**0**	0	1	**113**	40	310	**0**	**2**		
109	09/26/06	AA	1	Floor	G	8	**9**	0	1	**0**	40	240	**0**	**0**		
109	09/26/06	AA	1	Floor	G	9	**18**	0	1	**26**	40	280	**0**	**0**		
109	09/26/06	AA	1	Floor	G	10	**18**	0	1	**100**	40	300	**0**	**0**		
109	09/26/06	AA	1	Floor	F	0	**4**	0	1	**52**	40	280	**3**	**0**		
109	09/26/06	AA	1	Floor	F	1	**0**	0	1	**15**	40	280	**3**	**0**		
109	09/26/06	AA	1	Floor	G	0	**22**	0	3	**0**	40	240	**3**	**16**		
109	09/26/06	AA	1	Floor	G	1	**0**	0	1	**0**	40	240	**0**	**0**		
121	09/29/06	AA	1	Floor	A	0										
121	09/29/06	AA	1	Floor	A	1										
121	09/29/06	AA	1	Floor	A	2										
121	09/29/06	AA	1	Floor	A	3										
121	09/29/06	AA	1	Floor	A	4										
121	09/29/06	AA	1	Floor	A	5										
121	09/29/06	AA	1	Floor	B	0										
121	09/29/06	AA	1	Floor	B	1										
121	09/29/06	AA	1	Floor	B	2										
121	09/29/06	AA	1	Floor	B	3										
121	09/29/06	AA	1	Floor	C	0										
121	09/29/06	AA	1	Floor	C	1										
121	09/29/06	AA	1	Floor	C	2										
121	09/29/06	AA	1	Floor	C	3										
121	09/29/06	AA	1	Floor	C	4										
121	09/29/06	AA	1	Floor	D	0										
121	09/29/06	AA	1	Floor	D	1										



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM FLOOR SURVEY UNIT 1-3		DRAWING 18

Attachment 22 - Sub-Unit 1-3-41 Reactor Room Floor East Grids H-N

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-3-41

(Reactor room floor east grids H-N)

Survey Unit Information					
Unit Designator:	1-3-41	Class:	AA	Certainty %:	95
Location Description:	Reactor room floor east grids H-N				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	57	57	57	57	57
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	29	4	347	71	1
Mean value of results:	5	0	182	9	1
Standard Deviation of results:	7	1	73	18	0
Degree of Freedom (2):	1.673	1.673	1.673	1.673	1.673
μ_α value:	7	0	198	13	1
Guideline level:	100	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

(1) as interpolated from NUREG/CR-5849 Table B-2

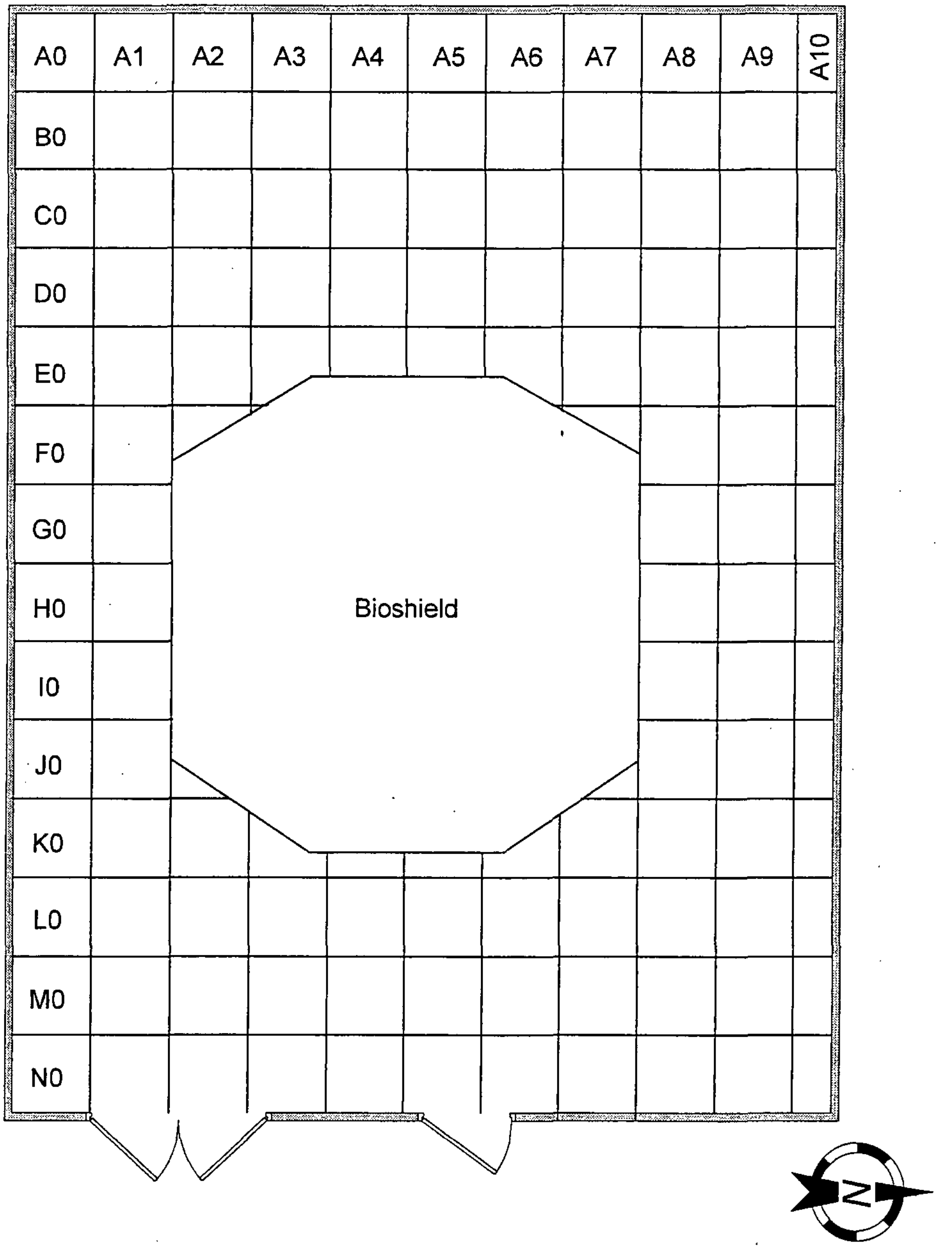
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-41 (Reactor room floor east grids H-N)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
109	09/26/06	AA	1	Floor	H	8	0	0	1	34	40	300	3	0	0	Pipe
109	09/26/06	AA	1	Floor	H	9	9	0	1	26	40	280	0	0	0	
109	09/26/06	AA	1	Floor	H	10	0	0	1	15	40	260	0	0	0	
109	09/26/06	AA	1	Floor	I	8	0	0	1	34	40	300	0	2	0	
109	09/26/06	AA	1	Floor	I	9	9	0	1	88	40	300	3	0	0	
109	09/26/06	AA	1	Floor	I	10	4	0	1	155	40	310	3	2	0	
113	09/28/06	AA	1	Floor	H	0	0	0	1	243	40	300	0	35	1	
113	09/28/06	AA	1	Floor	H	1	0	0	1	126	40	240	0	5	1	
113	09/28/06	AA	1	Floor	I	0	0	0	1	171	40	280	0	0	1	
113	09/28/06	AA	1	Floor	I	1	0	0	1	137	40	210	0	45	1	
113	09/28/06	AA	1	Floor	J	0	3	0	1	156	40	220	0	0	1	
113	09/28/06	AA	1	Floor	J	1	7	0	2	173	40	280	0	0	1	
113	09/28/06	AA	1	Floor	J	2	0	0	1	200	40	300	0	0	1	
113	09/28/06	AA	1	Floor	K	0	3	0	2	184	40	300	4	0	1	
113	09/28/06	AA	1	Floor	K	1	3	0	2	234	40	240	0	0	1	
113	09/28/06	AA	1	Floor	K	2	20	0	3	151	40	200	0	0	1	
113	09/28/06	AA	1	Floor	K	3	3	0	1	93	40	240	0	15	1	
113	09/28/06	AA	1	Floor	L	0	7	0	1	144	40	280	0	0	1	
113	09/28/06	AA	1	Floor	L	1	3	0	1	171	40	280	0	0	1	
113	09/28/06	AA	1	Floor	L	2	0	0	1	182	40	200	0	0	1	
113	09/28/06	AA	1	Floor	L	3	0	0	1	131	40	280	0	0	1	
113	09/28/06	AA	1	Floor	M	0	3	0	1	175	40	240	0	0	1	
113	09/28/06	AA	1	Floor	M	1	3	0	1	151	40	300	0	0	1	
113	09/28/06	AA	1	Floor	M	2	3	0	1	189	40	300	0	5	1	
113	09/28/06	AA	1	Floor	M	3	24	0	2	216	40	300	0	35	1	
113	09/28/06	AA	1	Floor	N	0	0	0	1	173	40	300	0	10	1	
113	09/28/06	AA	1	Floor	J	8	0	0	1	158	40	240	0	0	1	
113	09/28/06	AA	1	Floor	J	9	7	0	1	131	40	240	0	0	1	
113	09/28/06	AA	1	Floor	J	10	7	0	1	193	40	280	0	40	1	
113	09/28/06	AA	1	Floor	K	7	0	0	1	184	40	280	0	71	1	
113	09/28/06	AA	1	Floor	K	8	0	0	1	182	40	280	0	0	1	
113	09/28/06	AA	1	Floor	K	9	0	0	1	173	40	260	0	71	1	
113	09/28/06	AA	1	Floor	K	10	3	0	1	234	40	300	0	0	1	
113	09/28/06	AA	1	Floor	L	9	3	0	1	247	40	310	0	0	1	
113	09/28/06	AA	1	Floor	L	10	3	0	1	211	40	300	0	0	1	
113	09/28/06	AA	1	Floor	M	8	20	0	2	281	40	320	0	0	1	
113	09/28/06	AA	1	Floor	M	9	29	0	3	153	40	240	0	0	1	
113	09/28/06	AA	1	Floor	M	10	3	0	1	241	40	300	0	0	1	
113	09/28/06	AA	1	Floor	N	8	3	0	1	180	40	300	0	5	1	
113	09/28/06	AA	1	Floor	N	9	3	0	1	198	40	300	0	0	1	
113	09/28/06	AA	1	Floor	N	10	0	0	1	162	40	260	0	51	1	
113	09/28/06	AA	1	Floor	N	1	7	0	1	229	40	300	0	0	1	
113	09/28/06	AA	1	Floor	N	2	3	0	1	234	40	300	0	0	1	
113	09/28/06	AA	1	Floor	N	3	0	0	1	126	40	210	0	35	1	
113	09/28/06	AA	1	Floor	N	4	0	0	1	104	40	200	0	0	1	
113	09/28/06	AA	1	Floor	N	5	0	0	1	54	40	200	0	0	1	
125	09/29/06	AA	1	Floor	L	4	8	0	2	267	100	300	0	30	1	
125	09/29/06	AA	1	Floor	L	5	3	0	2	261	100	320	0	0	1	
125	09/29/06	AA	1	Floor	L	6	12	0	2	201	100	320	0	0	1	
125	09/29/06	AA	1	Floor	L	7	12	0	1	229	100	300	0	0	1	
125	09/29/06	AA	1	Floor	L	8	3	0	2	301	100	300	0	0	1	
125	09/29/06	AA	1	Floor	M	4	8	0	2	257	100	320	0	0	1	

University of Washington More Hall Annex Final Status Survey Results - Unit 1-3-41 (Reactor room floor east grids H-N)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
125	09/29/06	AA	1	Floor	M	5	20	0	3	293	100	320	0	0	1	
125	09/29/06	AA	1	Floor	M	6	20	0	2	347	100	300	0	0	1	
125	09/29/06	AA	1	Floor	M	7	0	0	3	203	100	300	0	0	1	
125	09/29/06	AA	1	Floor	N	6	8	0	2	237	100	320	4	35	1	
125	09/29/06	AA	1	Floor	N	7	20	0	2	347	100	320	0	0	1	



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	REACTOR ROOM FLOOR SURVEY UNIT 1-3		DRAWING 18

Attachment 23 - Sub-Unit 1-4-1 Crystal Spectroscopy Room Ceiling, East, North, and West #2 Walls

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-4-1

(Crystal spectroscopy room ceiling, east, north, and west #2 walls)

Survey Unit Information					
Unit Designator:	1-4-1	Class:	AA	Certainty %:	95
Location Description:	Crystal spectroscopy room ceiling, east, north, and west #2 walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	87	87	87	87	N/A
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	36	4	262	88	N/A
Mean value of results:	9	0	144	15	N/A
Standard Deviation of results:	9	1	53	21	N/A
Degree of Freedom [2]:	1.665	1.665	1.665	1.665	N/A
μ_α value:	10	1	153	19	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

(1) as interpolated from NUREG/CR-5849 Table B-2

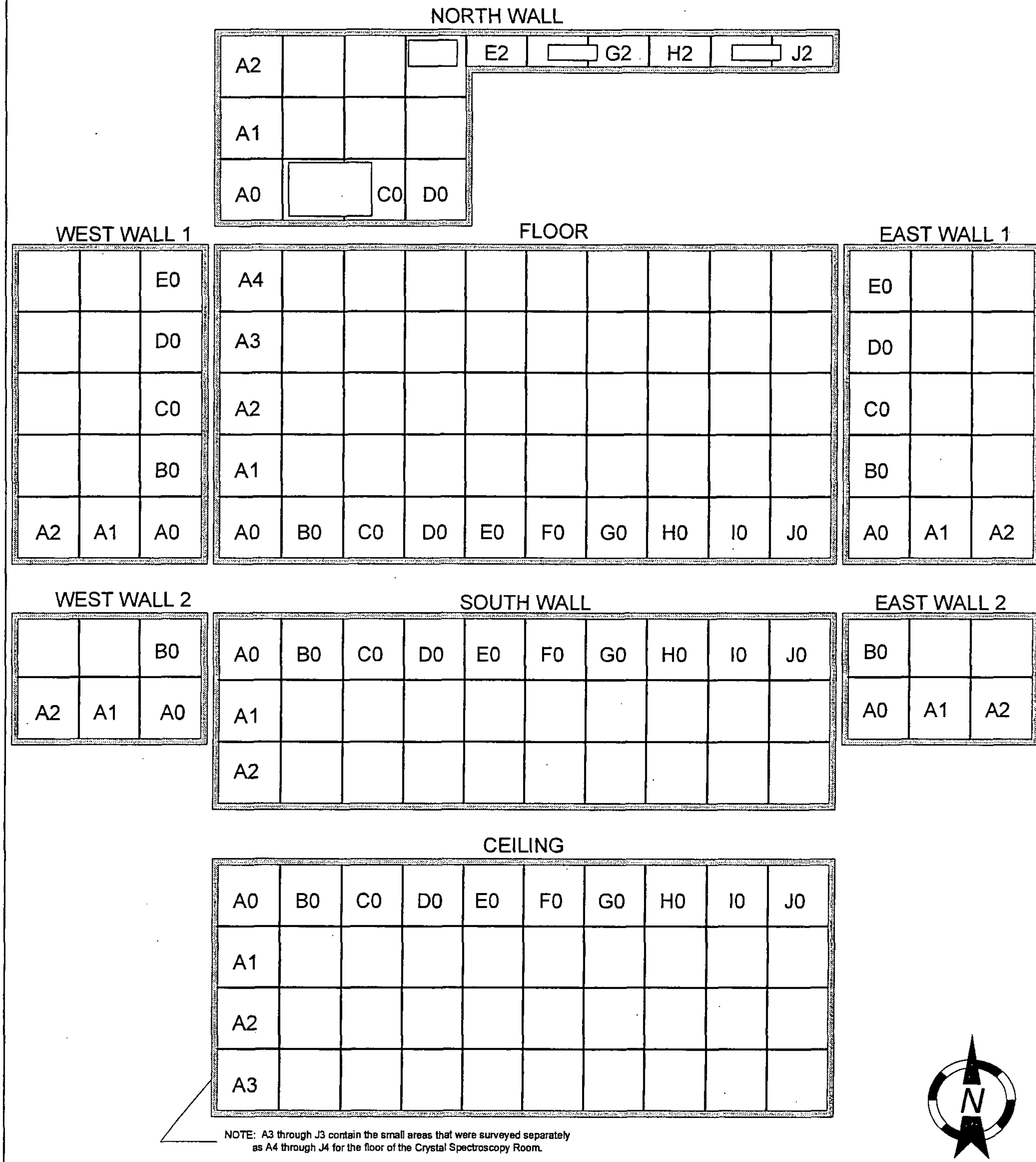
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-4-1 (Crystal spectroscopy room ceiling, east, north, and west #2 walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
074	09/12/06	AA	1	Ceiling	A	0	0	0	1	99	40	200	4	16		Ceiling tiles
074	09/12/06	AA	1	Ceiling	A	1	8	0	2	134	40	260	0	0		Ceiling tiles
074	09/12/06	AA	1	Ceiling	A	2	4	0	1	89	40	240	0	0		Ceiling tiles
074	09/12/06	AA	1	Ceiling	A	3	26	0	4	160	40	280	0	25		Ceiling tiles
074	09/12/06	AA	1	Ceiling	B	0	12	0	2	180	40	300	0	25		Ceiling tiles
074	09/12/06	AA	1	Ceiling	B	1	26	0	4	119	40	260	0	7		Ceiling tiles
074	09/12/06	AA	1	Ceiling	B	2	8	0	1	193	40	300	0	7		Ceiling tiles
074	09/12/06	AA	1	Ceiling	B	3	0	0	1	106	40	240	0	39		Ceiling tiles
074	09/12/06	AA	1	Ceiling	C	0	0	0	1	84	40	210	0	21		Ceiling tiles
074	09/12/06	AA	1	Ceiling	C	1	0	0	1	193	40	300	0	7		Ceiling tiles
074	09/12/06	AA	1	Ceiling	C	2	8	0	2	163	40	300	0	49		Ceiling tiles
074	09/12/06	AA	1	Ceiling	C	3	0	0	1	174	40	300	0	76		Ceiling tiles
075	09/12/06	AA	1	E Wall	A	0	8	1	2	141	100	200	0	44		
075	09/12/06	AA	1	E Wall	A	1	3	0	1	121	100	200	0	49		
075	09/12/06	AA	1	E Wall	A	2	3	0	1	117	100	200	0	63		
075	09/12/06	AA	1	E Wall	B	0	3	0	1	108	100	200	0	21		
075	09/12/06	AA	1	E Wall	B	1	13	1	3	143	100	200	0	0		
075	09/12/06	AA	1	E Wall	B	2	3	0	1	132	100	200	0	7		1/10 grid obstructed
075	09/12/06	AA	1	E Wall	C	0	13	1	3	121	100	200	0	0		3/4 grid obstructed (obstruction surveyed)
075	09/12/06	AA	1	E Wall	C	1	17	2	4	148	100	200	4	0		3/4 grid obstructed (obstruction surveyed)
075	09/12/06	AA	1	E Wall	C	2	3	1	1	132	100	200	4	35		
075	09/12/06	AA	1	E Wall	D	0	8	1	2	104	100	200	0	35		
075	09/12/06	AA	1	E Wall	D	1	8	1	2	88	100	200	0	2		
075	09/12/06	AA	1	E Wall	D	2	3	0	1	137	100	200	0	39		
075	09/12/06	AA	1	E Wall	E	0	13	1	3	148	100	200	0	2		
075	09/12/06	AA	1	E Wall	E	1	3	0	1	117	100	180	0	7		
075	09/12/06	AA	1	E Wall	E	2	8	1	2	106	100	200	0	86		
078	09/13/06	AA	1	Ceiling	D	0	7	0	2	60	40	280	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	D	1	0	0	1	196	40	320	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	D	2	3	0	1	76	40	280	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	D	3	12	0	2	119	40	300	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	E	0	0	0	1	0	40	200	0	38		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	E	1	0	0	1	13	40	210	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	E	2	0	0	1	19	40	260	0	3		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	E	3	3	0	1	156	40	30	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	F	0	12	0	2	221	46	320	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	F	1	7	0	2	188	40	310	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	F	2	0	0	1	176	40	310	0	88		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	F	3	21	0	3	162	40	340	0	18		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	G	0	3	0	1	213	40	340	0	53		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	G	1	0	0	1	243	40	340	0	8		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	G	2	0	0	0	211	40	340	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	G	3	12	0	3	239	40	350	0	53		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	H	0	21	0	4	186	40	340	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	H	1	21	0	3	262	40	350	0	3		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	H	2	17	0	2	192	40	340	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	H	3	12	0	2	231	40	350	0	8		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	I	0	26	0	4	231	40	320	0	33		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	I	1	0	0	1	215	40	300	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	I	2	12	0	2	211	40	300	4	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	I	3	17	0	3	192	40	300	0	0		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	J	0	0	0	1	217	40	300	0	0		Ceiling tiles all accessible surfaces on ceiling

University of Washington More Hall Annex Final Status Survey Results - Unit 1-4-1 (Crystal spectroscopy room ceiling, east, north, and west #2 walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
078	09/13/06	AA	1	Ceiling	J	1	0	0	1	233	40	300	0	8		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	J	2	0	0	1	58	40	300	0	43		Ceiling tiles all accessible surfaces on ceiling
078	09/13/06	AA	1	Ceiling	J	3	0	0	1	186	40	310	0	0		Ceiling tiles all accessible surfaces on ceiling
084	09/15/06	AA	1	N Wall	A	0	4	2	3	211	100	220	0	0		
084	09/15/06	AA	1	N Wall	A	1	10	2	4	158	100	200	0	31		
084	09/15/06	AA	1	N Wall	A	2	0	2	4	199	100	200	0	0		
084	09/15/06	AA	1	N Wall	B	0	0	1	3	152	100	200	0	7		Penetration Surveyed
084	09/15/06	AA	1	N Wall	B	1	0	1	3	147	100	200	0	0		
084	09/15/06	AA	1	N Wall	B	2	29	4	5	120	100	200	0	0		
084	09/15/06	AA	1	N Wall	C	0	10	2	4	207	100	220	0	17		
084	09/15/06	AA	1	N Wall	C	1	16	3	4	99	100	180	0	0		
084	09/15/06	AA	1	N Wall	C	2	16	3	4	130	100	200	0	26		
084	09/15/06	AA	1	N Wall	D	0	23	4	5	133	100	200	4	17		
084	09/15/06	AA	1	N Wall	D	1	4	2	3	148	100	200	0	0		
084	09/15/06	AA	1	N Wall	D	2	4	2	3	126	100	200	0	21		
084	09/15/06	AA	1	N Wall	E	0	23	3	5	165	100	200	0	21		
084	09/15/06	AA	1	N Wall	E	1	36	4	6	124	100	200	4	0		
084	09/15/06	AA	1	N Wall	E	2	23	4	5	150	100	200	0	0		
084	09/15/06	AA	1	N Wall	F	2	10	2	4	158	100	200	0	0		Penetration Surveyed
084	09/15/06	AA	1	N Wall	G	2	4	2	3	160	100	200	4	58		Penetration Surveyed
084	09/15/06	AA	1	N Wall	H	2	0	2	3	66	100	180	0	12		
084	09/15/06	AA	1	N Wall	I	2	0	1	3	115	100	200	0	0		Penetration Surveyed
084	09/15/06	AA	1	N Wall	J	2	4	2	3	128	100	200	0	0		Penetration Surveyed
087	09/15/06	AA	1	E Wall 2	A	0	0	1	3	60	100	180	0	0		2-m wide partition attached to north wall of crystal spec room
087	09/15/06	AA	1	E Wall 2	A	1	10	2	4	124	100	200	0	5		2-m wide partition attached to north wall of crystal spec room
087	09/15/06	AA	1	E Wall 2	A	2	4	2	3	105	100	200	0	0		2-m wide partition attached to north wall of crystal spec room
087	09/15/06	AA	1	E Wall 2	B	0	16	3	4	101	100	180	0	10		2-m wide partition attached to north wall of crystal spec room
087	09/15/06	AA	1	E Wall 2	B	1	4	2	3	105	100	200	0	0		2-m wide partition attached to north wall of crystal spec room
087	09/15/06	AA	1	E Wall 2	B	2	0	1	3	96	100	200	0	0		2-m wide partition attached to north wall of crystal spec room
088	09/15/06	AA	1	W Wall 2	A	0	23	3	5	137	100	200	0	30		2-m wide partition attached to north wall of crystal spec room
088	09/15/06	AA	1	W Wall 2	A	1	23	3	5	130	100	200	0	5		2-m wide partition attached to north wall of crystal spec room
088	09/15/06	AA	1	W Wall 2	A	2	10	2	4	113	100	200	0	0		2-m wide partition attached to north wall of crystal spec room
088	09/15/06	AA	1	W Wall 2	B	0	23	4	5	122	100	200	0	0		2-m wide partition attached to north wall of crystal spec room
088	09/15/06	AA	1	W Wall 2	B	1	0	1	3	105	100	200	4	10		2-m wide partition attached to north wall of crystal spec room
088	09/15/06	AA	1	W Wall 2	B	2	23	4	5	154	100	200	0	0		2-m wide partition attached to north wall of crystal spec room



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	CRYSTAL SPECTROSCOPY ROOM SURVEY UNIT 1-4		DRAWING 19

Attachment 24 - Sub-Unit 1-4-2 Crystal Spectroscopy Room Floor, West and South Walls

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-4-2

(Crystal spectroscopy room floor, west and south walls)

Survey Unit Information					
Unit Designator:	1-4-2	Class:	AA	Certainty %:	95
Location Description:	Crystal spectroscopy room floor, west and south walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	96	96	96	96	51
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	68	9	279	94	0
Mean value of results:	11	1	145	15	0
Standard Deviation of results:	12	2	41	21	0
Degree of Freedom (2):	1.663	1.663	1.663	1.663	1.677
μ_α value:	13	1	152	18	0
Guideline level:	100	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

(1) as interpolated from NUREG/CR-5849 Table B-2

(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-4-2 (Crystal spectroscopy room floor, west and south walls)

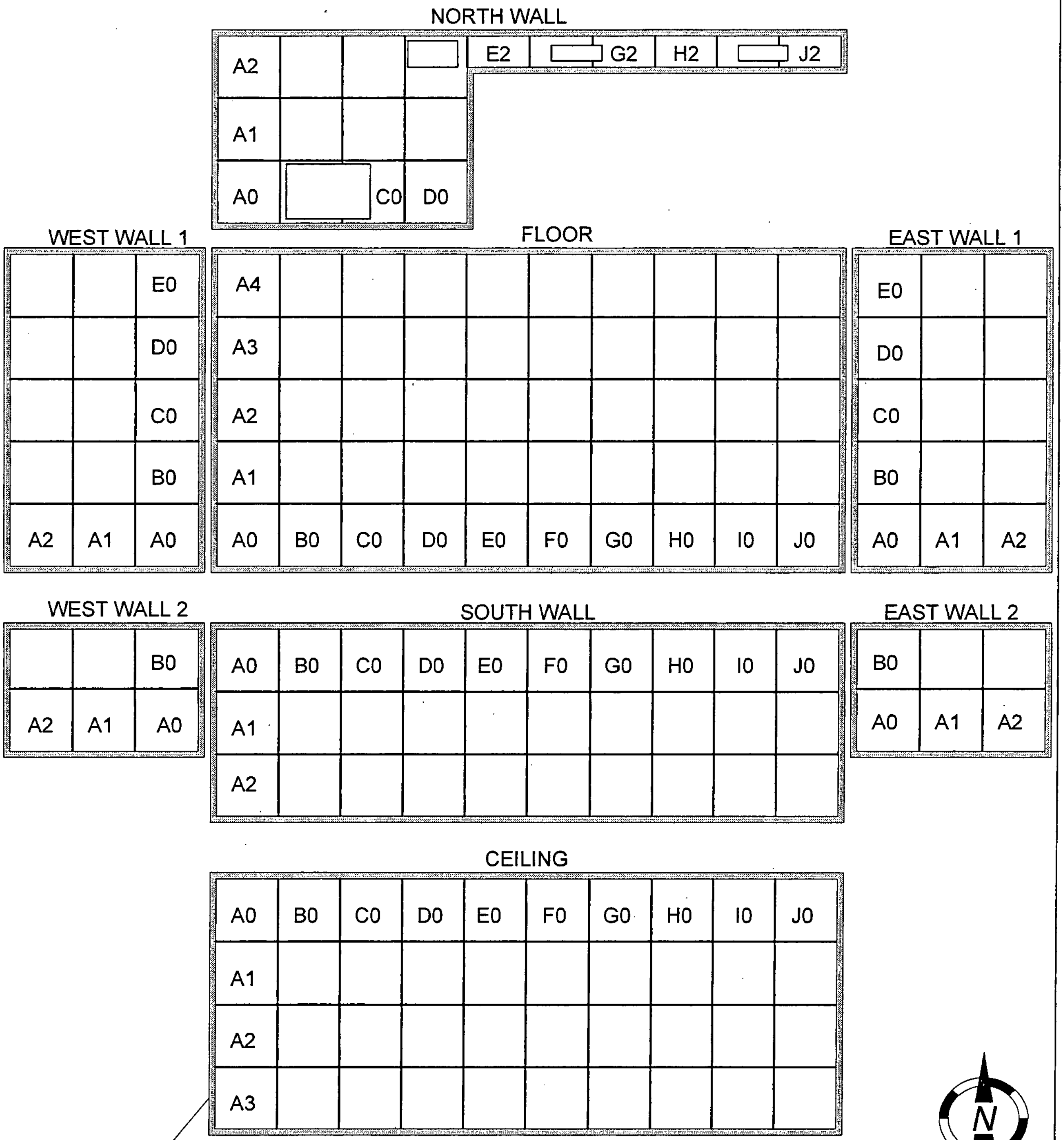
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
073	09/12/06	AA	1	W Wall	A	0	0	ND	ND	101	100	200	0	0		
073	09/12/06	AA	1	W Wall	A	1	8	0	2	148	100	200	0	0		
073	09/12/06	AA	1	W Wall	A	2	22	2	4	143	100	200	4	39		
073	09/12/06	AA	1	W Wall	B	0	0	ND	ND	132	100	200	0	12		
073	09/12/06	AA	1	W Wall	B	1	0	ND	ND	139	100	200	0	35		
073	09/12/06	AA	1	W Wall	B	2	8	0	2	143	100	200	0	53		
073	09/12/06	AA	1	W Wall	C	0	0	ND	ND	110	100	200	0	44		
073	09/12/06	AA	1	W Wall	C	1	0	ND	ND	112	100	200	0	67		
073	09/12/06	AA	1	W Wall	C	2	3	0	1	135	100	200	0	0		
073	09/12/06	AA	1	W Wall	D	0	27	3	5	205	100	220	0	30		
073	09/12/06	AA	1	W Wall	D	1	8	0	2	88	100	180	0	0		
073	09/12/06	AA	1	W Wall	E	0	13	1	3	119	100	200	4	0		
073	09/12/06	AA	1	W Wall	E	1	3	0	1	128	100	200	0	0		
073	09/12/06	AA	1	W Wall	E	2	3	0	1	159	100	200	0	90		
073	09/12/06	AA	1	W Wall	D	2	13	1	3	166	100	200	4	7		
076	09/13/06	AA	1	S Wall	A	0	0	0	1	131	100	200	0	0		
076	09/13/06	AA	1	S Wall	A	1	10	1	3	123	100	200	0	34		
076	09/13/06	AA	1	S Wall	A	2	10	1	3	167	100	200	4	0		
076	09/13/06	AA	1	S Wall	B	0	5	1	2	142	100	200	0	94		
076	09/13/06	AA	1	S Wall	B	1	34	4	6	155	100	200	0	0		
076	09/13/06	AA	1	S Wall	B	2	10	2	3	138	100	200	0	15		
076	09/13/06	AA	1	S Wall	C	0	5	1	2	156	100	200	0	0		
076	09/13/06	AA	1	S Wall	C	1	5	1	2	116	100	200	0	0		
076	09/13/06	AA	1	S Wall	C	2	0	ND	ND	145	100	200	0	0		
076	09/13/06	AA	1	S Wall	D	0	5	1	2	131	100	200	0	0		
076	09/13/06	AA	1	S Wall	D	1	0	ND	ND	129	100	200	0	29		
076	09/13/06	AA	1	S Wall	D	2	5	1	2	129	100	200	4	0		
076	09/13/06	AA	1	S Wall	E	0	5	1	2	167	100	200	0	20		
076	09/13/06	AA	1	S Wall	E	1	10	1	3	144	100	180	0	0		
076	09/13/06	AA	1	S Wall	E	2	0	ND	ND	144	100	200	0	1		
076	09/13/06	AA	1	S Wall	F	0	5	1	2	136	100	200	0	38		
076	09/13/06	AA	1	S Wall	F	1	15	2	3	199	100	200	0	6		
076	09/13/06	AA	1	S Wall	F	2	5	1	2	127	100	200	0	25		
076	09/13/06	AA	1	S Wall	G	0	0	ND	ND	140	100	200	0	0		
076	09/13/06	AA	1	S Wall	G	1	15	2	3	125	100	180	0	38		
076	09/13/06	AA	1	S Wall	G	2	15	2	3	109	100	200	0	11		
076	09/13/06	AA	1	S Wall	H	0	5	1	2	107	100	200	0	11		
076	09/13/06	AA	1	S Wall	H	1	5	1	2	129	100	200	4	11		
076	09/13/06	AA	1	S Wall	H	2	5	1	2	98	100	200	0	0		
076	09/13/06	AA	1	S Wall	I	0	10	1	3	225	100	220	0	43		
076	09/13/06	AA	1	S Wall	I	1	5	1	2	142	100	200	0	0		
076	09/13/06	AA	1	S Wall	I	2	0	0	1	127	100	200	4	0		
076	09/13/06	AA	1	S Wall	J	0	10	1	3	156	100	200	0	66		
076	09/13/06	AA	1	S Wall	J	1	0	ND	ND	109	100	200	0	11		
076	09/13/06	AA	1	S Wall	J	2	0	0	1	0	100	160	0	20		Metal door
079	09/14/06	AA	1	Floor	A	0	15	1	3	93	100	200	0	11	0	
079	09/14/06	AA	1	Floor	A	1	1	0	1	123	100	200	0	0	0	
079	09/14/06	AA	1	Floor	A	2	29	3	5	131	100	200	0	11	0	
079	09/14/06	AA	1	Floor	A	3	39	4	6	231	100	220	0	29	0	
079	09/14/06	AA	1	Floor	A	4	20	2	4	171	100	200	0	0	0	
079	09/14/06	AA	1	Floor	B	0	39	3	6	183	100	220	0	20	0	
079	09/14/06	AA	1	Floor	B	1	25	3	5	192	100	200	0	0	0	

University of Washington More Hall Annex Final Status Survey Results - Unit 1-4-2 (Crystal spectroscopy room floor, west and south walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
079	09/14/06	AA	1	Floor	B	2	6	0	2	148	100	200	4	20	0	
079	09/14/06	AA	1	Floor	B	3	6	0	2	171	100	200	0	0	0	
079	09/14/06	AA	1	Floor	B	4	15	2	4	102	100	200	9	0	0	
079	09/14/06	AA	1	Floor	C	0	10	1	3	160	100	200	0	0	0	
079	09/14/06	AA	1	Floor	C	1	39	4	6	206	100	200	0	0	0	
079	09/14/06	AA	1	Floor	C	2	25	2	4	131	100	180	0	0	0	
079	09/14/06	AA	1	Floor	C	3	6	0	2	223	100	220	0	15	0	
079	09/14/06	AA	1	Floor	C	4	15	1	3	171	100	200	0	6	0	
079	09/14/06	AA	1	Floor	D	0	39	4	6	142	100	200	0	29	0	
079	09/14/06	AA	1	Floor	D	4	10	1	3	194	100	200	0	11	0	
080	09/13/06	AA	1	Floor	J	0	0	0	ND	47	140	180	0	0		
080	09/13/06	AA	1	Floor	J	1	8	0	ND	113	140	180	0	38		
080	09/13/06	AA	1	Floor	J	2	8	0	ND	121	140	200	4	0		
080	09/13/06	AA	1	Floor	J	3	16	0	ND	121	140	180	0	1		Trench thru it 12" wide
080	09/13/06	AA	1	Floor	J	4	0	0	ND	77	140	160	0	0		
080	09/13/06	AA	1	Floor	I	4	0	0	ND	139	120	180	4	0		
080	09/13/06	AA	1	Floor	I	3	12	0	ND	157	120	180	0	15		Trench thru it 12" wide
080	09/13/06	AA	1	Floor	I	2	12	0	ND	223	140	220	0	0		
080	09/13/06	AA	1	Floor	I	1	21	0	ND	191	160	200	0	0		
080	09/13/06	AA	1	Floor	I	0	0	0	ND	236	140	180	0	0		
080	09/13/06	AA	1	Floor	H	0	8	0	ND	90	140	180	0	25		
080	09/13/06	AA	1	Floor	H	1	38	0	ND	135	160	200	0	34		
080	09/13/06	AA	1	Floor	H	2	29	0	ND	160	160	240	0	0		
080	09/13/06	AA	1	Floor	H	3	0	0	ND	119	180	220	0	66		Trench thru it 12" wide
080	09/13/06	AA	1	Floor	H	4	8	0	ND	173	140	180	0	15		
080	09/13/06	AA	1	Floor	G	4	0	0	ND	187	160	200	0	52		
080	09/13/06	AA	1	Floor	G	3	3	0	ND	117	140	200	0	0		Trench thru it 12" wide
080	09/13/06	AA	1	Floor	G	2	3	0	ND	137	120	180	0	11		
080	09/13/06	AA	1	Floor	G	1	0	0	ND	204	160	200	0	0		
080	09/13/06	AA	1	Floor	G	0	8	0	ND	139	180	200	0	0		
080	09/13/06	AA	1	Floor	F	0	0	0	ND	106	160	200	0	0		
080	09/13/06	AA	1	Floor	F	1	16	0	ND	130	160	200	0	0		
080	09/13/06	AA	1	Floor	F	2	16	0	ND	158	180	200	0	0		
080	09/13/06	AA	1	Floor	F	3	8	0	ND	171	100	160	4	52		Trench thru it 12" wide
080	09/13/06	AA	1	Floor	F	4	3	0	ND	178	120	180	0	0		Trench thru it 12" wide
080	09/13/06	AA	1	Floor	E	4	38	0	ND	121	160	220	4	0		
080	09/13/06	AA	1	Floor	E	3	38	0	ND	115	180	200	0	11		B Static 277 counts
080	09/13/06	AA	1	Floor	E	2	12	0	ND	185	160	200	0	0		
080	09/13/06	AA	1	Floor	E	1	21	0	ND	184	120	240	4	0		
080	09/13/06	AA	1	Floor	E	0	8	0	ND	279	120	240	0	25		
080	09/13/06	AA	1	Floor	D	0	68	0	ND	122	120	240	0	29		Remediated See FSS-079
080	09/13/06	AA	1	Floor	D	1	0	0	ND	84	120	200	0	34		
080	09/13/06	AA	1	Floor	D	2	0	0	ND	167	140	200	0	0		
080	09/13/06	AA	1	Floor	D	3	12	0	ND	191	120	200	0	0		
149	10/03/06	AA	1	Floor	J	0									0	
149	10/03/06	AA	1	Floor	J	1									0	
149	10/03/06	AA	1	Floor	J	2									0	
149	10/03/06	AA	1	Floor	J	3									0	
149	10/03/06	AA	1	Floor	J	4									0	
149	10/03/06	AA	1	Floor	I	4									0	
149	10/03/06	AA	1	Floor	I	3									0	
149	10/03/06	AA	1	Floor	I	2									0	

University of Washington More Hall Annex Final Status Survey Results - Unit 1-4-2 (Crystal spectroscopy room floor, west and south walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
149	10/03/06	AA	1	Floor	I	1									0	
149	10/03/06	AA	1	Floor	I	0									0	
149	10/03/06	AA	1	Floor	H	0									0	
149	10/03/06	AA	1	Floor	H	1									0	
149	10/03/06	AA	1	Floor	H	2									0	
149	10/03/06	AA	1	Floor	H	3									0	
149	10/03/06	AA	1	Floor	H	4									0	
149	10/03/06	AA	1	Floor	G	4									0	
149	10/03/06	AA	1	Floor	G	3									0	
149	10/03/06	AA	1	Floor	G	2									0	
149	10/03/06	AA	1	Floor	G	1									0	
149	10/03/06	AA	1	Floor	G	0									0	
149	10/03/06	AA	1	Floor	F	0									0	
149	10/03/06	AA	1	Floor	F	1									0	
149	10/03/06	AA	1	Floor	F	2									0	
149	10/03/06	AA	1	Floor	F	3									0	
149	10/03/06	AA	1	Floor	F	4									0	
149	10/03/06	AA	1	Floor	E	4									0	
149	10/03/06	AA	1	Floor	E	3									0	
149	10/03/06	AA	1	Floor	E	2									0	
149	10/03/06	AA	1	Floor	E	1									0	
149	10/03/06	AA	1	Floor	E	0									0	
149	10/03/06	AA	1	Floor	D	0									0	
149	10/03/06	AA	1	Floor	D	1									0	
149	10/03/06	AA	1	Floor	D	2									0	
149	10/03/06	AA	1	Floor	D	3									0	



NOTE: A3 through J3 contain the small areas that were surveyed separately as A4 through J4 for the floor of the Crystal Spectroscopy Room.

PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	CRYSTAL SPECTROSCOPY ROOM SURVEY UNIT 1-4		DRAWING 19

Attachment 25 - Sub-Unit 1-4-3 Crystal Spectroscopy Overhead Piping

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-4-3

(Crystal spectroscopy overhead piping)

Survey Unit Information					
Unit Designator:	1-4-3	Class:	AA	Certainty %:	95
Location Description:	Crystal spectroscopy overhead piping				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	32	32	32	32	N/A
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	74	8	253	61	N/A
Mean value of results:	23	0	113	12	N/A
Standard Deviation of results:	21	2	74	17	N/A
Degree of Freedom (2):	1.696	1.696	1.696	1.696	N/A
μ_α value:	29	1	135	17	N/A
Guideline level:	100	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	Yes	Yes	Yes	Yes	N/A
Is the max value < guideline level?	Yes	Yes	Yes	Yes	N/A
Is μ_α < guideline?	Yes	Yes	Yes	Yes	N/A
Does survey unit pass?	Yes	Yes	Yes	Yes	N/A

(1) as interpolated from NUREG/CR-5849 Table B-2

(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-4-3 (Crystal spectroscopy overhead piping)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
092	09/19/06	AA	1	Ipe	A	3	59	0	3	24	40	180	0	15		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	B	0	6	0	1	11	40	180	0	45		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	B	1	0	0	0	79	40	200	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	B	2	6	0	1	173	40	220	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	B	3	14	0	2	249	40	300	0	61		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	C	0	6	0	1	253	40	300	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	C	1	14	0	1	37	40	200	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	C	2	0	0	1	188	40	280	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	C	3	21	0	3	75	40	200	0	40		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	D	0	29	0	3	173	40	260	0	15		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	D	1	51	0	4	49	40	200	0	25		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	D	2	21	0	3	117	40	200	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	D	3	29	0	4	73	40	200	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	E	0	0	0	1	132	40	210	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	E	1	0	0	1	45	40	200	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	E	2	44	0	4	19	40	200	0	25		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	E	3	14	0	2	200	40	280	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	F	0	29	0	1	215	40	300	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	F	1	44	0	3	83	40	260	0	10		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	F	2	21	0	2	111	40	280	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	G	0	66	0	4	111	40	280	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	G	1	44	0	3	124	40	280	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	G	2	29	0	3	51	40	240	0	5		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	H	0	0	0	1	188	40	280	0	30		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	H	1	74	0	4	205	40	280	0	20		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	H	2	0	0	1	0	40	160	0	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	I	0	0	0	1	132	40	260	0	15		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	I	1	21	0	2	100	40	220	0	40		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	I	2	21	0	2	28	40	200	4	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	J	0	14	0	1	139	40	260	8	0		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	J	1	36	0	3	202	40	280	0	5		Ipes and insulation exteriors, scanned all accessible areas.
092	09/19/06	AA	1	Ipe	J	2	14	0	2	43	40	200	0	25		Ipes and insulation exteriors, scanned all accessible areas.

PIPE LAYOUT ON CEILING

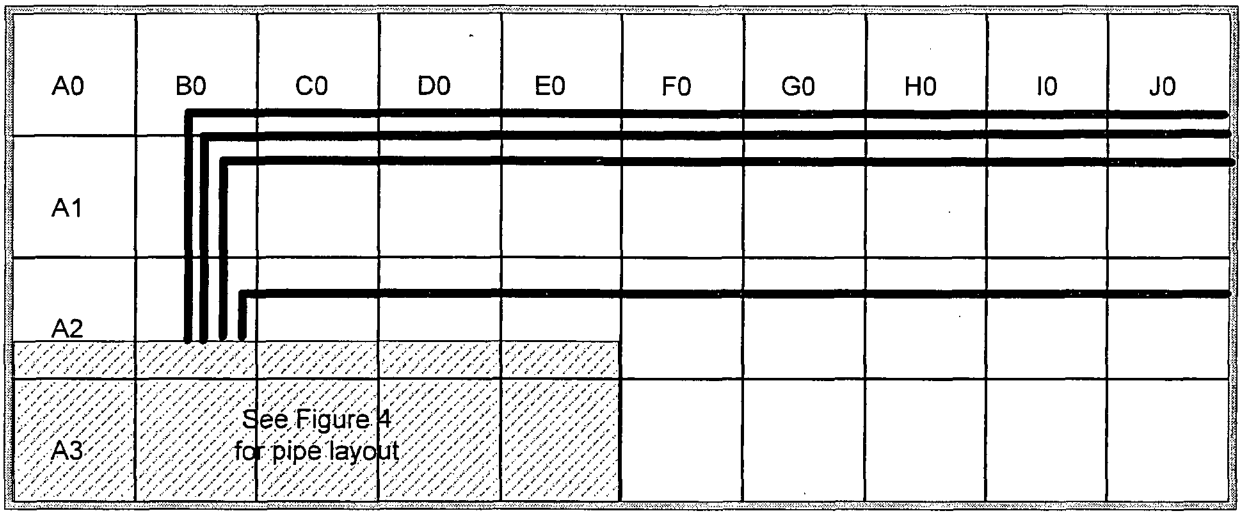
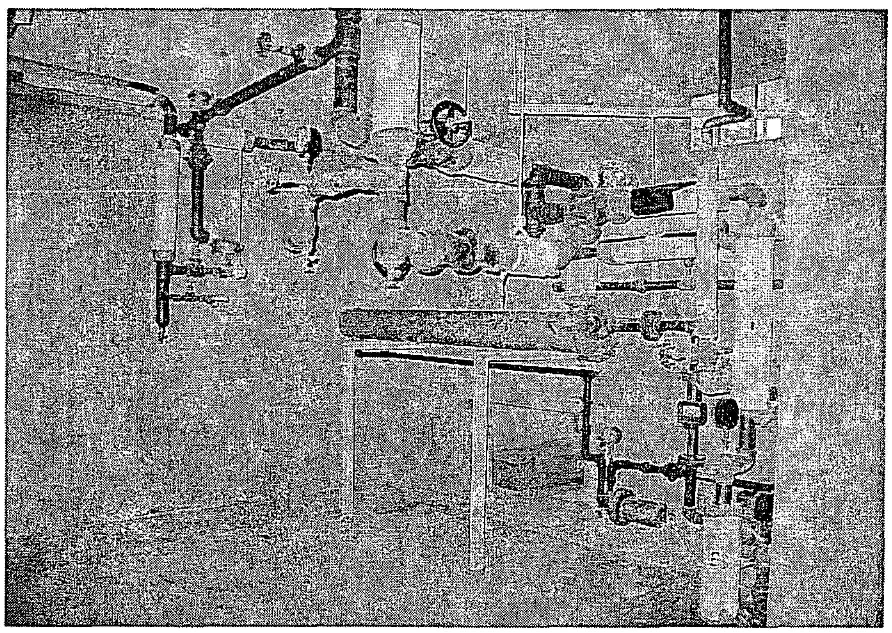


Figure 4



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	CRYSTAL SPECTROSCOPY ROOM PIPES SURVEY UNIT 1-4		DRAWING 20

Attachment 26 - Unit 1-5 Radiochemistry Lab

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-5

(Radiochemistry lab)

Survey Unit Information					
Unit Designator:	1-5	Class:	AA	Certainty %:	95
Location Description:	Radiochemistry lab				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	87	87	87	87	18
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	45	4	285	54	0
Mean value of results:	9	0	149	7	0
Standard Deviation of results:	11	1	52	14	0
Degree of Freedom [2]:	1.665	1.665	1.665	1.665	1.740
μ_α value:	11	1	158	9	0
Guideline level:	100	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

(1) as interpolated from NUREG/CR-5849 Table B-2

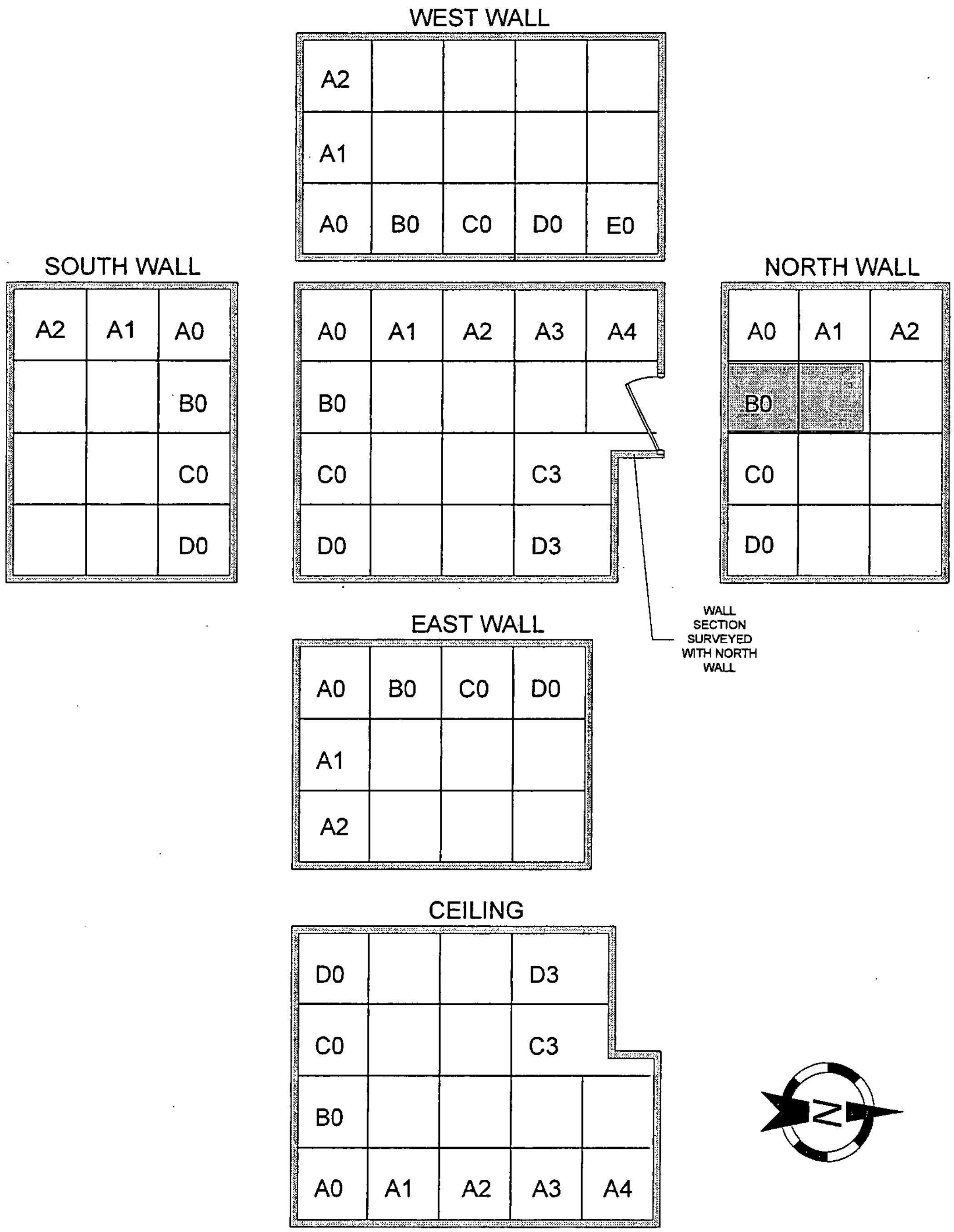
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-5 (Radiochemistry lab)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
053	09/07/06	AA	1	Ceiling	A	0	45	4	7	272	100	200	0	0		Static on insulation
053	09/07/06	AA	1	Ceiling	A	1	0	0	1	49	100	200	0	0		Prtially inaccessible (pipes)
053	09/07/06	AA	1	Ceiling	A	2	2	0	3	103	100	200	0	54		
053	09/07/06	AA	1	Ceiling	A	3	0	ND	ND	103	100	200	0	54		
053	09/07/06	AA	1	Ceiling	A	4	0	ND	ND	164	100	220	0	12		
053	09/07/06	AA	1	Ceiling	B	0	0	0	1	64	100	200	0	0		
053	09/07/06	AA	1	Ceiling	B	1	31	3	7	59	100	200	0	0		Static on insulation partially inaccessible (pipes)
053	09/07/06	AA	1	Ceiling	B	2	0	0	2	114	100	200	0	0		
053	09/07/06	AA	1	Ceiling	B	3	0	0	2	112	100	200	0	0		
053	09/07/06	AA	1	Ceiling	B	4	0	0	1	157	100	180	0	0		
053	09/07/06	AA	1	Ceiling	C	0	31	4	5	59	100	200	0	7		Static on insulation
053	09/07/06	AA	1	Ceiling	C	1	16	3	4	79	100	200	0	0		Prtially inaccessible (pipes)
053	09/07/06	AA	1	Ceiling	C	2	7	2	4	137	100	200	0	0		
053	09/07/06	AA	1	Ceiling	C	3	2	0	3	112	100	200	0	0		
053	09/07/06	AA	1	Ceiling	D	0	0	0	1	144	100	180	0	0		
053	09/07/06	AA	1	Ceiling	D	1	0	0	1	153	100	200	0	3		
053	09/07/06	AA	1	Ceiling	D	2	45	4	7	176	100	200	0	0		
053	09/07/06	AA	1	Ceiling	D	3	7	1	4	90	100	200	0	0		
057	09/07/06	AA	1	N Wall	A	0	2	1	3	129	100	200	0	12		
057	09/07/06	AA	1	N Wall	A	1	0	1	2	146	100	200	4	49		
057	09/07/06	AA	1	N Wall	A	2	0	0	1	185	100	200	0	0		
057	09/07/06	AA	1	N Wall	B	0	0	0	2	224	100	200	0	40		Removed door most of grid
057	09/07/06	AA	1	N Wall	B	1	16	1	5	278	100	200	0	0		Removed door most of grid
057	09/07/06	AA	1	N Wall	B	2	0	ND	ND	192	100	200	0	7		
057	09/07/06	AA	1	N Wall	C	0	0	0	1	200	100	220	0	0		
057	09/07/06	AA	1	N Wall	C	1	0	0	2	202	100	220	0	0		
057	09/07/06	AA	1	N Wall	C	2	0	0	1	214	100	200	0	12		Includes penetration
057	09/07/06	AA	1	N Wall	D	0	0	0	2	137	80	220	0	21		
057	09/07/06	AA	1	N Wall	D	1	0	0	1	183	100	220	0	0		
057	09/07/06	AA	1	N Wall	D	2	0	0	2	203	100	200	0	0		
060	09/08/06	AA	1	W Wall	A	0	0	ND	ND	148	100	200	0	9		Some pipes (surveyed)
060	09/08/06	AA	1	W Wall	A	1	1	0	1	174	100	200	0	51		Some pipes (surveyed)
060	09/08/06	AA	1	W Wall	A	2	0	0	1	216	100	220	3	0		Some pipes (surveyed)
060	09/08/06	AA	1	W Wall	B	0	6	1	2	148	100	180	0	0		
060	09/08/06	AA	1	W Wall	B	1	20	2	3	135	100	180	0	9		
060	09/08/06	AA	1	W Wall	B	2	16	2	3	285	100	200	0	0		Penetration blocked by pipes
060	09/08/06	AA	1	W Wall	C	0	6	1	2	111	100	180	0	0		
060	09/08/06	AA	1	W Wall	C	1	25	2	5	148	100	200	0	9		
060	09/08/06	AA	1	W Wall	C	2	1	0	1	107	100	200	0	0		
060	09/08/06	AA	1	W Wall	D	0	20	2	3	156	100	200	0	0		
060	09/08/06	AA	1	W Wall	D	1	6	1	2	163	100	200	3	0		
060	09/08/06	AA	1	W Wall	D	2	1	0	1	103	100	220	0	0		
060	09/08/06	AA	1	W Wall	E	0	1	0	1	208	100	200	0	51		
060	09/08/06	AA	1	W Wall	E	1	1	0	1	172	100	200	0	32		
060	09/08/06	AA	1	W Wall	E	2	20	2	4	156	100	180	0	14		
064	09/08/06	AA	1	S Wall	A	0	6	1	2	163	100	200	0	0		
064	09/08/06	AA	1	S Wall	A	1	6	1	2	208	100	240	0	9		
064	09/08/06	AA	1	S Wall	A	2	11	1	3	206	100	220	0	23		
064	09/08/06	AA	1	S Wall	B	0	16	1	3	201	100	200	0	9		
064	09/08/06	AA	1	S Wall	B	1	1	0	1	189	100	220	0	0		
064	09/08/06	AA	1	S Wall	B	2	11	1	3	199	100	200	3	0		
064	09/08/06	AA	1	S Wall	C	0	11	1	3	201	100	200	0	0		

University of Washington More Hall Annex Final Status Survey Results - Unit 1-5 (Radiochemistry lab)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
064	09/08/06	AA	1	S Wall	C	1	1	0	1	172	100	200	0	23		
064	09/08/06	AA	1	S Wall	C	2	20	2	3	206	100	220	3	0		
064	09/08/06	AA	1	S Wall	D	0	1	0	1	204	100	200	3	9		
064	09/08/06	AA	1	S Wall	D	1	1	0	1	118	100	180	0	14		
064	09/08/06	AA	1	S Wall	D	2	6	1	2	154	100	200	0	23		
065	09/08/06	AA	1	E Wall	A	0	4	1	2	132	40	300	0	0		Concrete Wall, Pipes
065	09/08/06	AA	1	E Wall	A	1	0	1	2	111	40	290	3	0		Concrete Wall, Pipes
065	09/08/06	AA	1	E Wall	A	2	4	1	4	159	40	360	0	0		Concrete Wall, Pipes
065	09/08/06	AA	1	E Wall	B	0	14	1	3	132	40	300	0	0		Concrete Wall, Pipes
065	09/08/06	AA	1	E Wall	B	1	4	1	2	165	40	340	0	0		Concrete Wall, Pipes
065	09/08/06	AA	1	E Wall	B	2	14	1	4	196	40	390	0	0		Concrete Wall, Pipes
065	09/08/06	AA	1	E Wall	C	0	39	1	5	59	40	310	0	0		Concrete Wall
065	09/08/06	AA	1	E Wall	C	1	9	1	5	142	40	320	0	3		Pipes, Concrete
065	09/08/06	AA	1	E Wall	C	2	29	1	5	188	40	310	0	0		Concrete
065	09/08/06	AA	1	E Wall	D	0	9	1	4	201	40	380	0	0		Wood, Concrete
065	09/08/06	AA	1	E Wall	D	1	9	1	3	190	40	300	3	0		Wood, Concrete
065	09/08/06	AA	1	E Wall	D	2	0	1	1	148	40	280	0	0		Concrete
066	09/09/06	AA	1	Floor	A	0	10	1	3	90	100	220	0	0	0	
066	09/09/06	AA	1	Floor	A	1	19	2	4	130	100	200	0	0	0	
066	09/09/06	AA	1	Floor	A	2	0	0	1	166	100	220	4	0	0	
066	09/09/06	AA	1	Floor	A	3	29	3	5	122	100	200	0	0	0	Partial trench
066	09/09/06	AA	1	Floor	A	4	10	1	3	115	100	200	4	0	0	
066	09/09/06	AA	1	Floor	B	1	5	0	2	113	100	200	0	0	0	Partial trench
066	09/09/06	AA	1	Floor	B	2	0	ND	ND	128	100	200	0	0	0	Partial trench
066	09/09/06	AA	1	Floor	B	3	5	0	2	109	100	200	0	0	0	Partial trench
066	09/09/06	AA	1	Floor	B	4	5	0	2	54	100	180	0	0	0	Partial trench
066	09/09/06	AA	1	Floor	C	1	14	1	3	101	100	200	0	0	0	
066	09/09/06	AA	1	Floor	C	2	29	4	5	79	100	200	0	12	0	
066	09/09/06	AA	1	Floor	C	3	24	3	5	164	100	200	0	25	0	
066	09/09/06	AA	1	Floor	B	0	10	1	3	96	100	200	0	0	0	
066	09/09/06	AA	1	Floor	C	0	14	1	4	217	100	220	0	0	0	Partial trench
066	09/09/06	AA	1	Floor	D	0	10	1	3	77	100	200	0	0	0	Partial trench
066	09/09/06	AA	1	Floor	D	1	0	0	1	56	100	180	0	0	0	
066	09/09/06	AA	1	Floor	D	2	19	2	4	103	100	200	0	0	0	
066	09/09/06	AA	1	Floor	D	3	24	3	5	152	100	200	0	0	0	



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	RADIOCHEMISTRY LABORATORY SURVEY UNIT 1-5		DRAWING 21

Attachment 27 - Sub-Unit 1-6-1 Robotics Lab Floor

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-6-1

(Robotics lab floor)

Survey Unit Information					
Unit Designator:	1-6-1	Class:	GA	Certainty %:	95
Location Description:	Robotics lab floor				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	N/A	20	20	20	20
Number of measurements needed [(1)]:	N/A	9	9	9	N/A
Maximum value of results:	N/A	4	251	38	0
Mean value of results:	N/A	1	171	14	0
Standard Deviation of results:	N/A	1	44	14	0
Degree of Freedom [(2)]:	N/A	1.729	1.729	1.729	1.729
μ_α value:	N/A	1	188	20	0
Guideline level:	N/A	20	5000	1000	5

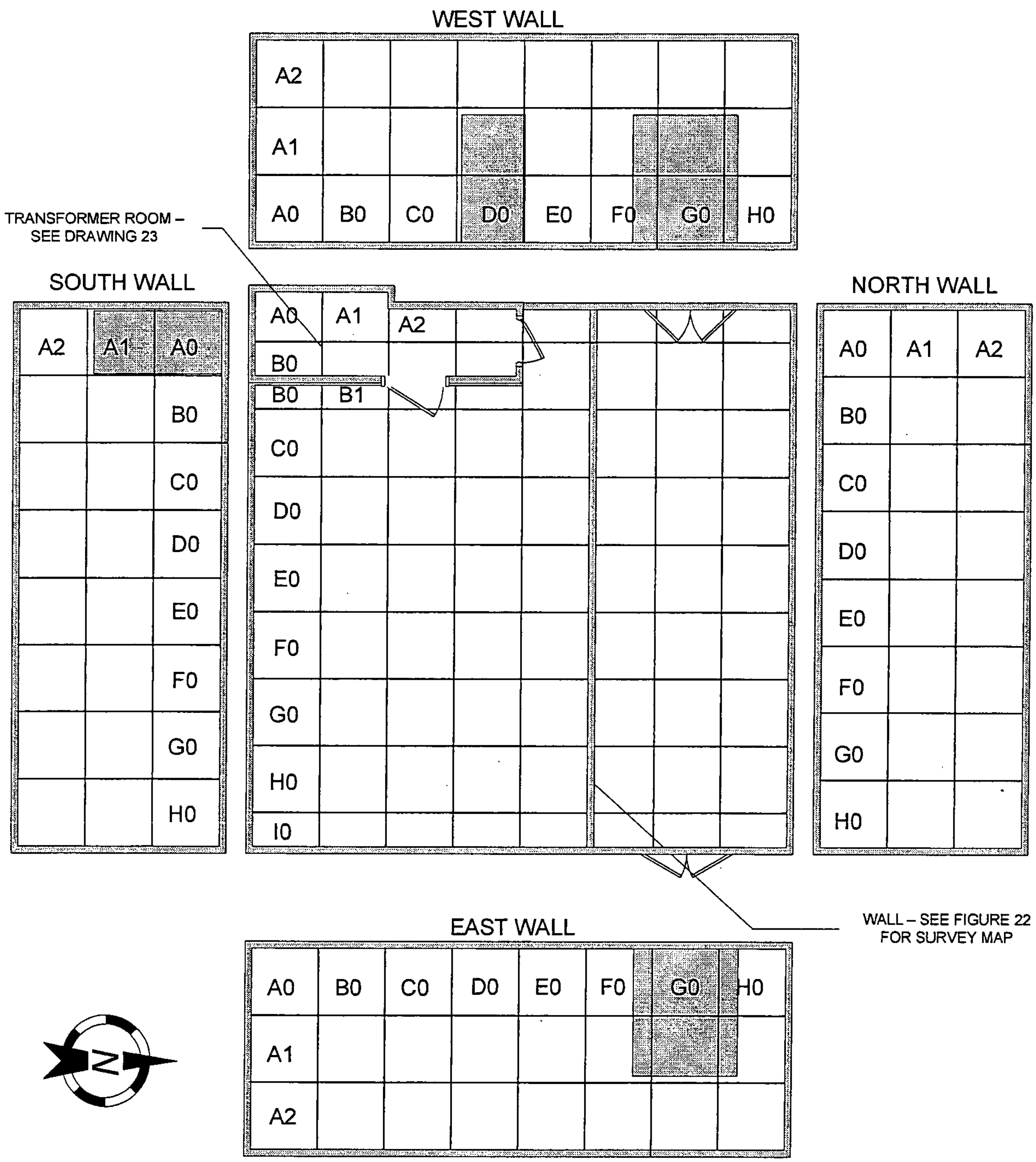
Decision Summary					
Are there sufficient measurements?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**

[(1)] as interpolated from NUREG/CR-5849 Table B-2

[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-6-1 (Robotics lab floor)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
134	10/01/06	GA	1	Floor	A	0				198	100	220		0	0	Transformer Room
134	10/01/06	GA	1	Floor	C	0				148	100	220		0	0	
134	10/01/06	GA	1	Floor	E	0				125	80	220		33	0	
134	10/01/06	GA	1	Floor	G	0				182	80	200		0	0	
134	10/01/06	GA	1	Floor	I	0				142	100	180		23	0	
134	10/01/06	GA	1	Floor	A	2				82	100	180		13	0	Transformer Room
134	10/01/06	GA	1	Floor	C	2				142	100	220		13	0	
134	10/01/06	GA	1	Floor	E	2				180	100	200		38	0	
134	10/01/06	GA	1	Floor	G	2				251	120	240		23	0	
134	10/01/06	GA	1	Floor	I	2				152	100	200		0	0	
134	10/01/06	GA	1	Floor	A	4				148	100	220		8	0	
134	10/01/06	GA	1	Floor	C	4				202	80	220		33	0	
134	10/01/06	GA	1	Floor	E	4				232	100	200		38	0	
134	10/01/06	GA	1	Floor	G	4				215	100	220		3	0	
134	10/01/06	GA	1	Floor	I	4				92	60	180		18	0	
134	10/01/06	GA	1	Floor	A	6				170	100	200		28	0	
134	10/01/06	GA	1	Floor	C	6				208	100	200		0	0	
134	10/01/06	GA	1	Floor	E	6				215	120	200		0	0	
134	10/01/06	GA	1	Floor	G	6				185	100	200		0	0	
134	10/01/06	GA	1	Floor	I	6				150	80	200		13	0	
160	11/08/06	GA	1	Floor	A	0							0			
160	11/08/06	GA	1	Floor	C	0							0			
160	11/08/06	GA	1	Floor	E	0							4			
160	11/08/06	GA	1	Floor	G	0							0			
160	11/08/06	GA	1	Floor	I	0							0			
160	11/08/06	GA	1	Floor	A	2							0			
160	11/08/06	GA	1	Floor	C	2							0			
160	11/08/06	GA	1	Floor	E	2							0			
160	11/08/06	GA	1	Floor	G	2							0			
160	11/08/06	GA	1	Floor	I	2							4			
160	11/08/06	GA	1	Floor	A	4							4			
160	11/08/06	GA	1	Floor	C	4							0			
160	11/08/06	GA	1	Floor	E	4							0			
160	11/08/06	GA	1	Floor	G	4							0			
160	11/08/06	GA	1	Floor	I	4							0			
160	11/08/06	GA	1	Floor	A	6							0			
160	11/08/06	GA	1	Floor	C	6							0			
160	11/08/06	GA	1	Floor	E	6							0			
160	11/08/06	GA	1	Floor	G	6							0			
160	11/08/06	GA	1	Floor	I	6							0			



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	ROBOTICS LABORATORY SURVEY UNIT 1-6		DRAWING 22

Attachment 28 - Sub-Unit 1-6-2 Robotics Lab West and South Walls Including Transformer Room South Wall

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-6-2

(Robotics lab west and south walls)

Survey Unit Information					
Unit Designator:	1-6-2	Class:	GA	Certainty %:	95
Location Description:	Robotics lab west and south walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	N/A	25	21	21	18
Number of measurements needed [1]:	N/A	9	9	9	N/A
Maximum value of results:	N/A	4	419	59	0
Mean value of results:	N/A	0	121	8	0
Standard Deviation of results:	N/A	1	122	15	0
Degree of Freedom [2]:	N/A	1.711	1.725	1.725	1.740
μ_α value:	N/A	1	167	14	0
Guideline level:	N/A	20	5000	1000	5

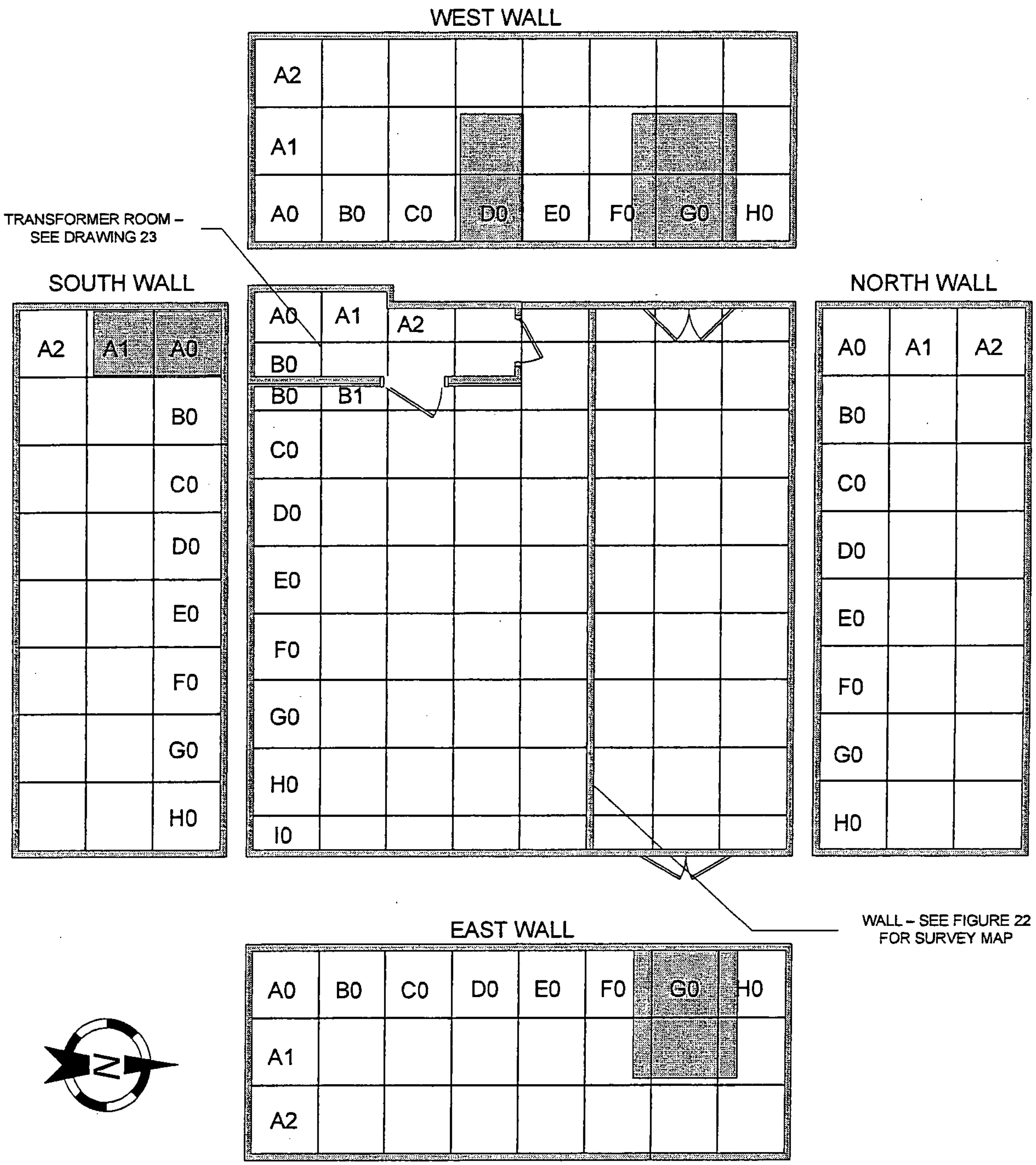
Decision Summary					
Are there sufficient measurements?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**

[1] as interpolated from NUREG/CR-5849 Table B-2

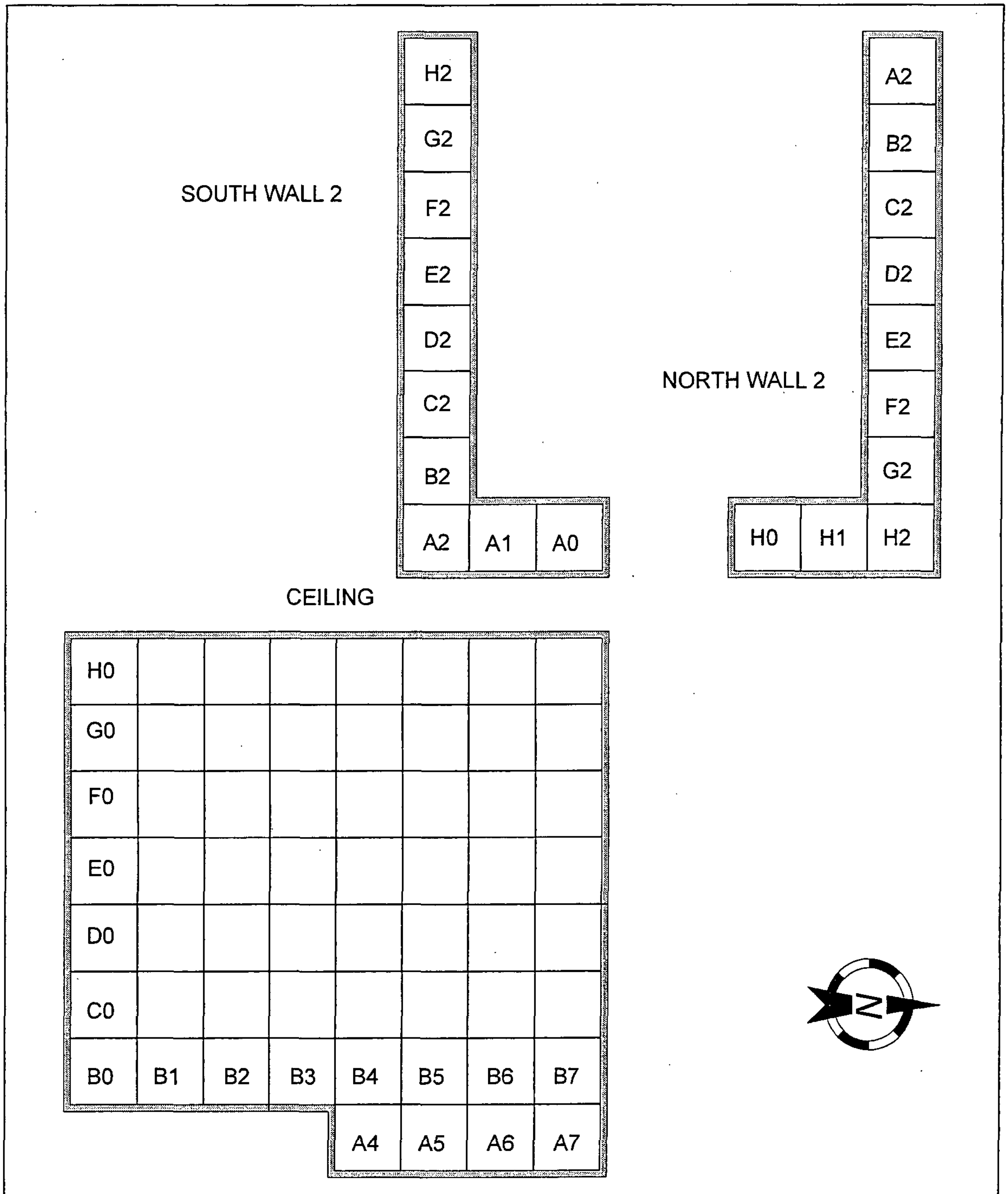
[2] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-6-2 (Robotics lab west and south walls)

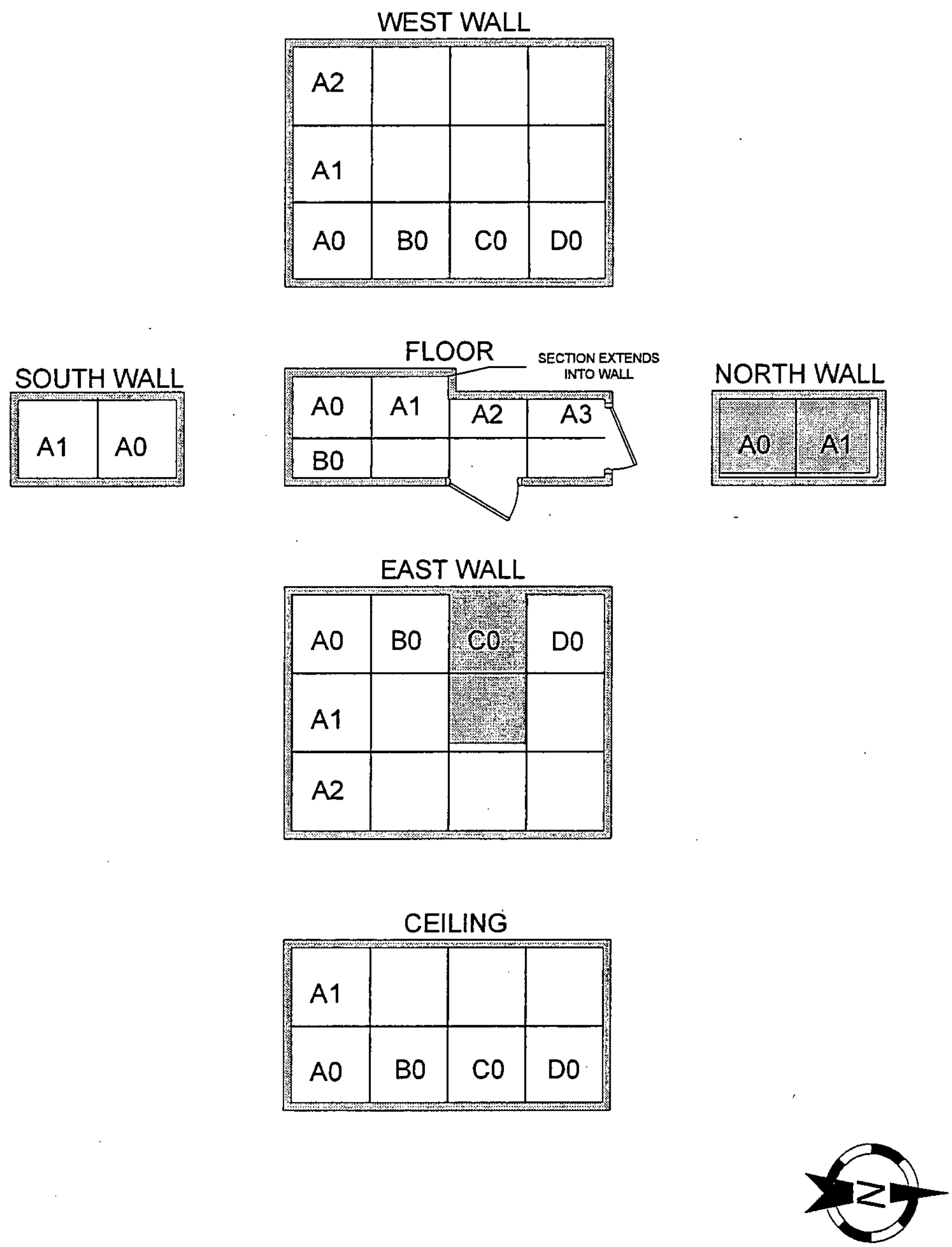
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
129	09/29/06	GA	1	S Wall	A	0				119	60	160	0	0	0	
129	09/29/06	GA	1	S Wall	C	0				42	80	200	0	0	0	
129	09/29/06	GA	1	S Wall	E	0				0	80	180	0	8	0	
129	09/29/06	GA	1	S Wall	G	0				55	60	160	0	33	0	
129	09/29/06	GA	1	S Wall	H	0				223	80	200	0	23	0	
129	09/29/06	GA	1	S Wall	A	2				102	60	180	0	59	0	
129	09/29/06	GA	1	S Wall	C	2				0	60	160	0	0	0	
129	09/29/06	GA	1	S Wall	E	2				64	80	180	0	0	0	
129	09/29/06	GA	1	S Wall	G	2				0	60	180	0	0	0	
129	09/29/06	GA	1	S Wall	H	2				272	80	220	0	0	0	
131	09/30/06	GA	1	W Wall	A	0				419	100	280		0	0	
131	09/30/06	GA	1	W Wall	C	0				0	100	260		0	0	
131	09/30/06	GA	1	W Wall	E	0				158	100	200		0	0	
131	09/30/06	GA	1	W Wall	G	0				43	60	180		3	0	
131	09/30/06	GA	1	W Wall	A	2				296	80	220		8	0	
131	09/30/06	GA	1	W Wall	C	2				346	100	220		23	0	
131	09/30/06	GA	1	W Wall	E	2				123	80	200		0	0	
131	09/30/06	GA	1	W Wall	G	2				110	80	200		0	0	
135	10/01/06	GA	1	Ipe	-	-		-	-	37	80	180	0	18		pipe in trans room west wall
136	10/01/06	GA	1	S Wall	A	0				30	100	180		0		Transformer room - South wall, wire mesh
136	10/01/06	GA	1	S Wall	A	2				105	100	200		0		Transformer room - South wall, wire mesh
156	11/08/06	GA	1	W Wall	A	0							0			
156	11/08/06	GA	1	W Wall	C	0							4			
156	11/08/06	GA	1	W Wall	E	0							0			
156	11/08/06	GA	1	W Wall	G	0							0			
156	11/08/06	GA	1	W Wall	A	2							0			
156	11/08/06	GA	1	W Wall	C	2							0			
156	11/08/06	GA	1	W Wall	E	2							0			
156	11/08/06	GA	1	W Wall	G	2							0			
162	11/08/06	GA	1	S Wall	A	0							0			S Wall
162	11/08/06	GA	1	S Wall	A	2							0			S Wall
162	11/08/06	GA	1	W Wall	A	0							4			W Wall
162	11/08/06	GA	1	W Wall	C	0							4			W Wall
162	11/08/06	GA	1	W Wall	A	2							0			W Wall
162	11/08/06	GA	1	W Wall	C	2							0			W Wall



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	ROBOTICS LABORATORY SURVEY UNIT 1-6		DRAWING 22



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	ROBOTICS LABORATORY SURVEY UNIT 1-6		DRAWING 23



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	TRANSFORMER ROOM SURVEY UNIT 1-6		DRAWING 24

Attachment 29 - Sub-Unit 1-6-3 Robotics Lab East and North Walls Including Transformer Room East, West, and North Walls

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-6-3

(Robotics lab east and north walls)

Survey Unit Information					
Unit Designator:	1-6-3	Class:	GA	Certainty %:	95
Location Description:	Robotics lab east and north walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	N/A	22	26	26	16
Number of measurements needed [1]:	N/A	9	9	9	N/A
Maximum value of results:	N/A	4	354	59	0
Mean value of results:	N/A	0	145	13	0
Standard Deviation of results:	N/A	1	115	16	0
Degree of Freedom [2]:	N/A	1.721	1.708	1.708	1.753
μ_α value:	N/A	1	183	19	0
Guideline level:	N/A	20	5000	1000	5

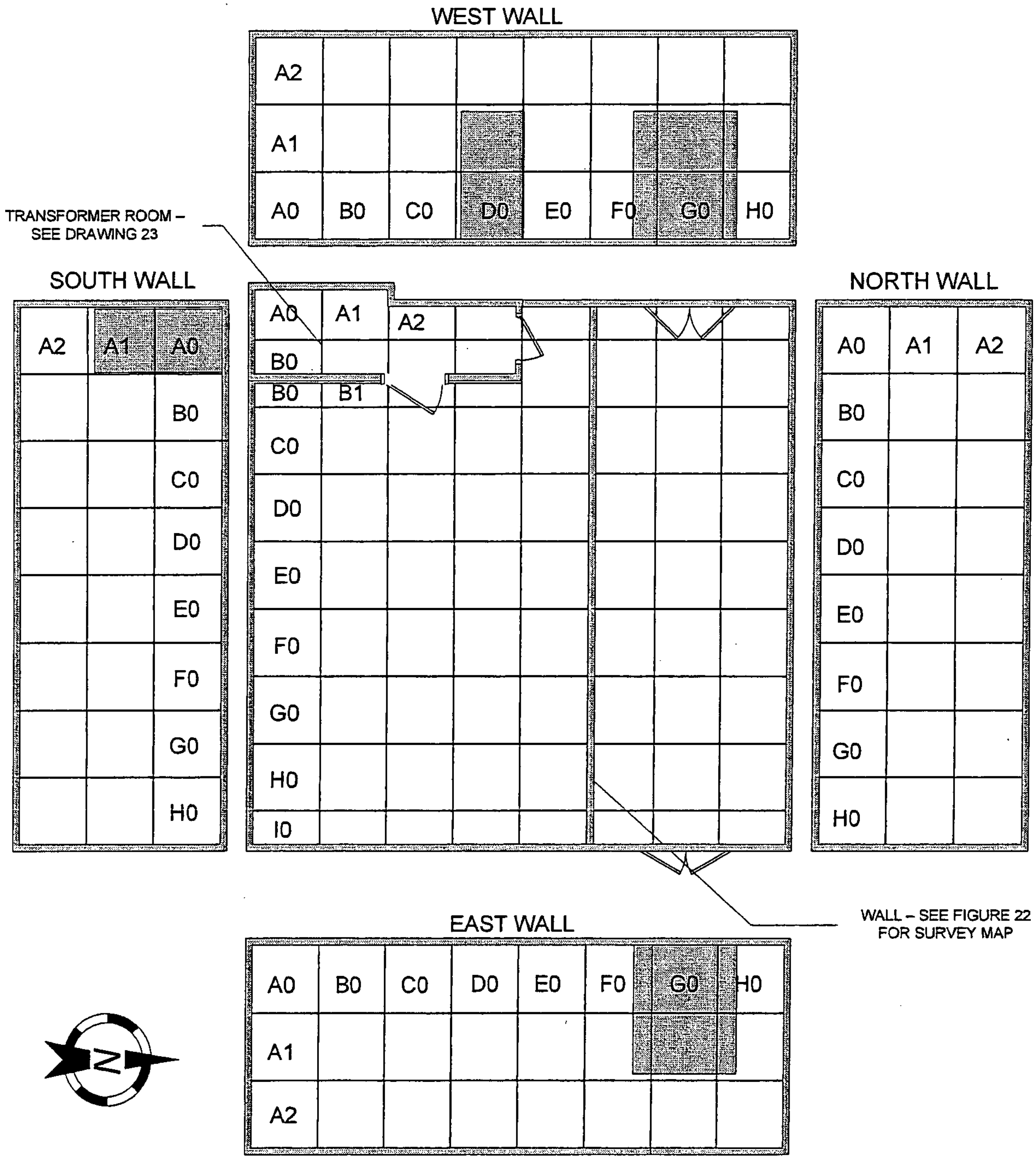
Decision Summary					
Are there sufficient measurements?	N/A	Yes	Yes	Yes	Yes
Is the max value < guideline level?	N/A	Yes	Yes	Yes	Yes
Is μ_α < guideline?	N/A	Yes	Yes	Yes	Yes
Does survey unit pass?	N/A	Yes	Yes	Yes	Yes

(1) as interpolated from NUREG/CR-5849 Table B-2

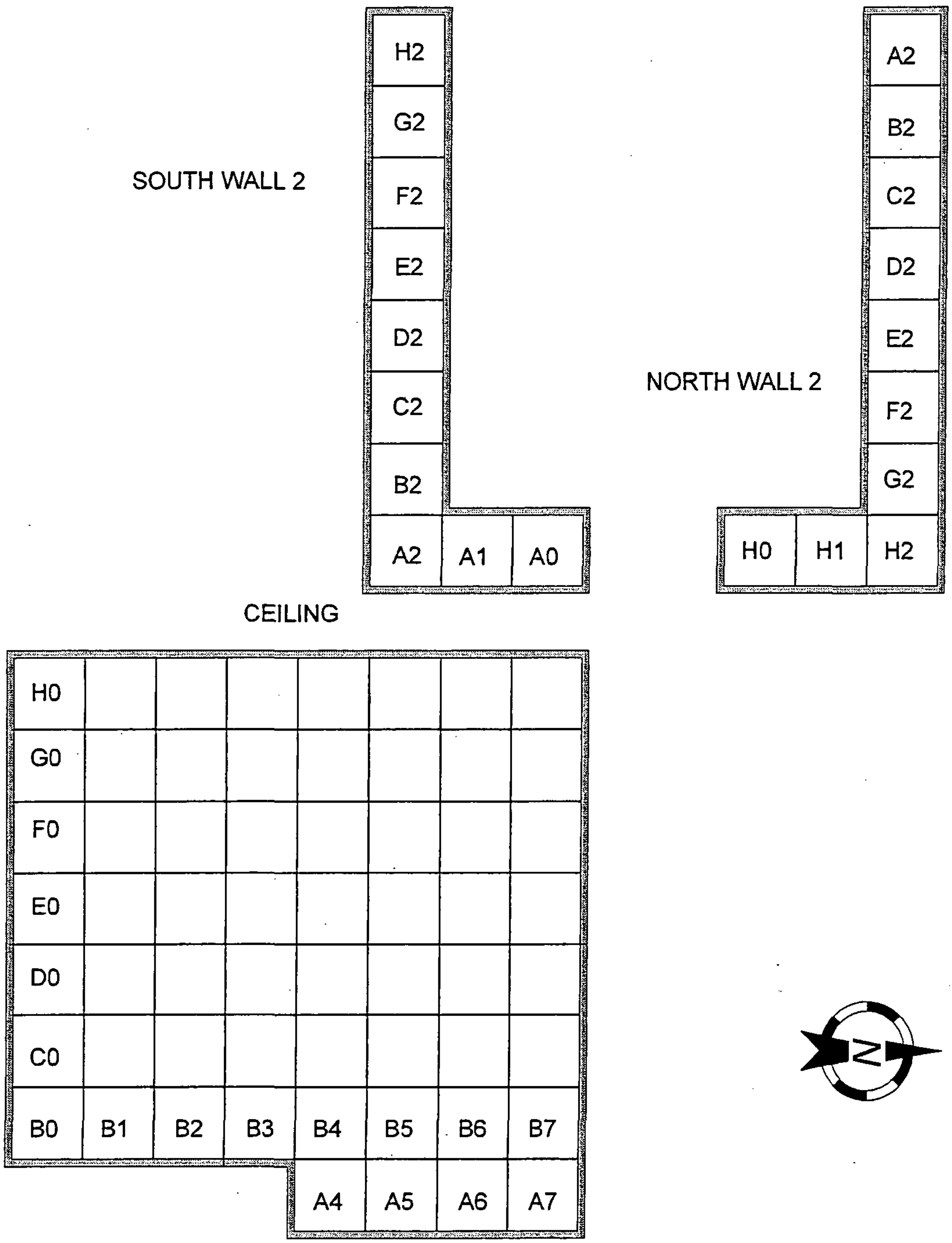
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-6-3 (Robotics lab east and north walls)

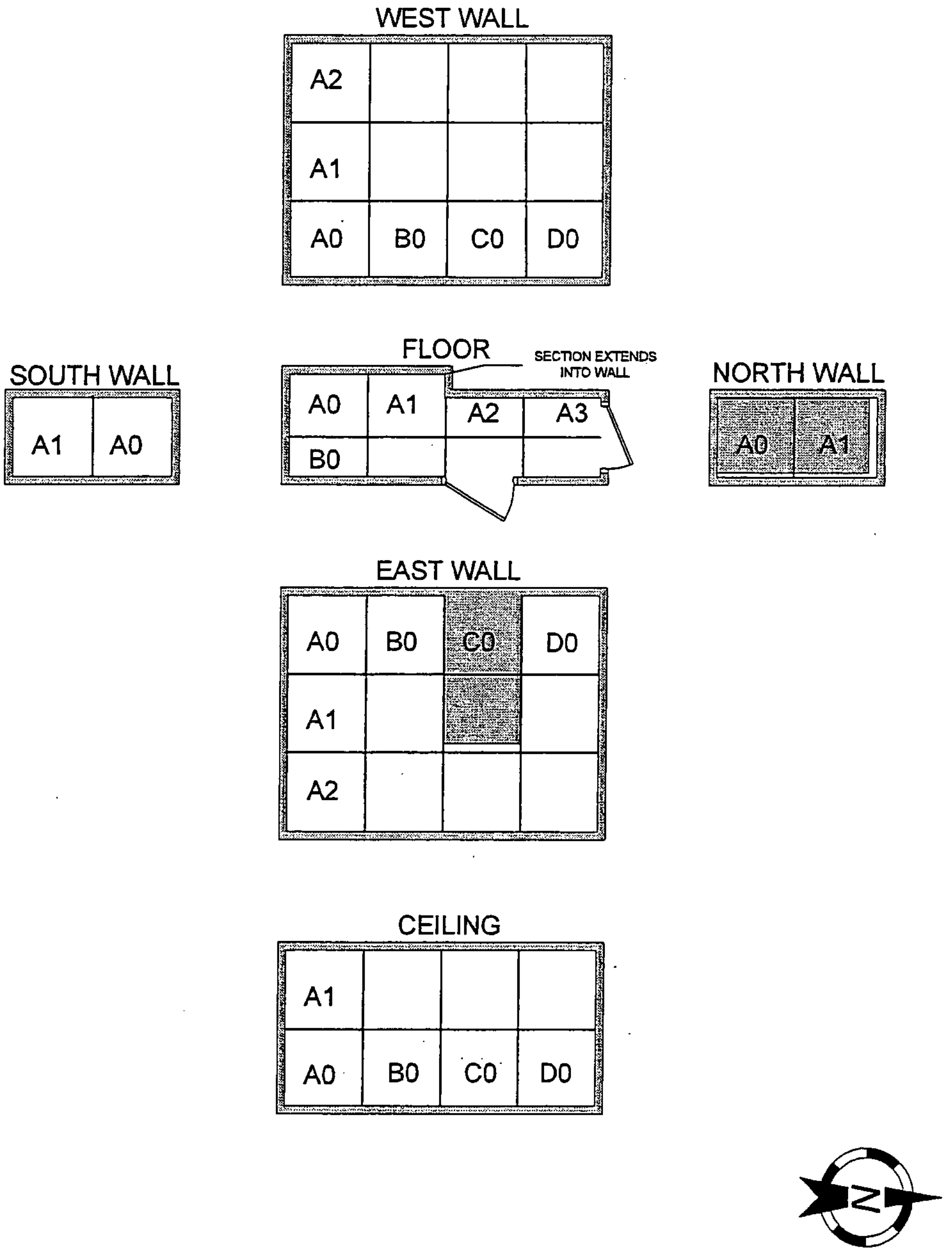
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
132	09/30/06	GA	1	E Wall	A	0				120	80	200		0	0	
132	09/30/06	GA	1	E Wall	C	0				160	100	240		0	0	
132	09/30/06	GA	1	E Wall	E	0				100	80	220		0	0	
132	09/30/06	GA	1	E Wall	G	0				0	80	200		3	0	
132	09/30/06	GA	1	E Wall	A	2				0	80	180		0	0	
132	09/30/06	GA	1	E Wall	C	2				87	80	200		3	0	
132	09/30/06	GA	1	E Wall	E	2				35	80	180		28	0	
132	09/30/06	GA	1	E Wall	G	2				1	60	180		13	0	
133	09/30/06	GA	1	N Wall	A	0				24	100	220		33	0	
133	09/30/06	GA	1	N Wall	C	0				275	120	260		8	0	
133	09/30/06	GA	1	N Wall	E	0				308	120	240		38	0	
133	09/30/06	GA	1	N Wall	G	0				286	100	240		0	0	
133	09/30/06	GA	1	N Wall	A	2				309	120	260		0	0	
133	09/30/06	GA	1	N Wall	C	2				242	100	220		13	0	
133	09/30/06	GA	1	N Wall	E	2				338	80	240		0	0	
133	09/30/06	GA	1	N Wall	G	2				354	120	260		0	0	
136	10/01/06	GA	1	W Wall	A	0				195	120	200		0		Transformer room - West wall
136	10/01/06	GA	1	W Wall	C	0				165	100	200		3		Transformer room - West wall
136	10/01/06	GA	1	W Wall	A	2				112	120	220		0		Transformer room - West wall
136	10/01/06	GA	1	W Wall	C	2				75	100	180		13		Transformer room - West wall
136	10/01/06	GA	1	N Wall	A	0				0	100	100		23		Transformer room - North wall, door
136	10/01/06	GA	1	N Wall	A	2				60	80	180		33		Transformer room - North wall
136	10/01/06	GA	1	E Wall	A	0				178	100	200		59		Transformer room - East wall
136	10/01/06	GA	1	E Wall	C	0				191	80	200		18		Transformer room - East wall
136	10/01/06	GA	1	E Wall	A	2				97	100	200		38		Transformer room - East wall
136	10/01/06	GA	1	E Wall	C	2				45	100	220		13		Transformer room - East wall
158	11/08/06	GA	1	E Wall	A	0							0			
158	11/08/06	GA	1	E Wall	C	0							0			
158	11/08/06	GA	1	E Wall	E	0							0			
158	11/08/06	GA	1	E Wall	G	0							0			
158	11/08/06	GA	1	E Wall	A	2							0			
158	11/08/06	GA	1	E Wall	C	2							0			
158	11/08/06	GA	1	E Wall	E	2							0			
158	11/08/06	GA	1	E Wall	G	2							0			
159	11/08/06	GA	1	N Wall	A	0							4			
159	11/08/06	GA	1	N Wall	C	0							0			
159	11/08/06	GA	1	N Wall	E	0							0			
159	11/08/06	GA	1	N Wall	G	0							0			
159	11/08/06	GA	1	N Wall	A	2							0			
159	11/08/06	GA	1	N Wall	C	2							0			
159	11/08/06	GA	1	N Wall	E	2							0			
159	11/08/06	GA	1	N Wall	G	2							0			
162	11/08/06	GA	1	N Wall	A	0							0			N Wall
162	11/08/06	GA	1	N Wall	A	2							0			N Wall
162	11/08/06	GA	1	E Wall	A	0							0			E Wall
162	11/08/06	GA	1	E Wall	C	0							4			E Wall
162	11/08/06	GA	1	E Wall	A	2							0			E Wall
162	11/08/06	GA	1	E Wall	C	2							0			E Wall



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	ROBOTICS LABORATORY SURVEY UNIT 1-6		DRAWING 22



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	ROBOTICS LABORATORY SURVEY UNIT 1-6		DRAWING 23



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	TRANSFORMER ROOM SURVEY UNIT 1-6		DRAWING 24

Attachment 30 - Sub-Unit 1-6-4 Robotics Lab Ceiling

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-6-4

(Robotics lab ceiling)

Survey Unit Information					
Unit Designator:	1-6-4	Class:	GA	Certainty %:	95
Location Description:	Robotics lab ceiling				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	N/A	29	29	29	N/A
Number of measurements needed (1):	N/A	9	9	9	N/A
Maximum value of results:	N/A	4	496	54	N/A
Mean value of results:	N/A	1	108	6	N/A
Standard Deviation of results:	N/A	1	86	13	N/A
Degree of Freedom (2):	N/A	1.701	1.701	1.701	N/A
μ_α value:	N/A	1	135	10	N/A
Guideline level:	N/A	20	5000	1000	N/A

Decision Summary					
Are there sufficient measurements?	**N/A**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**N/A**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**N/A**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**N/A**	**Yes**	**Yes**	**Yes**	**N/A**

(1) as interpolated from NUREG/CR-5849 Table B-2

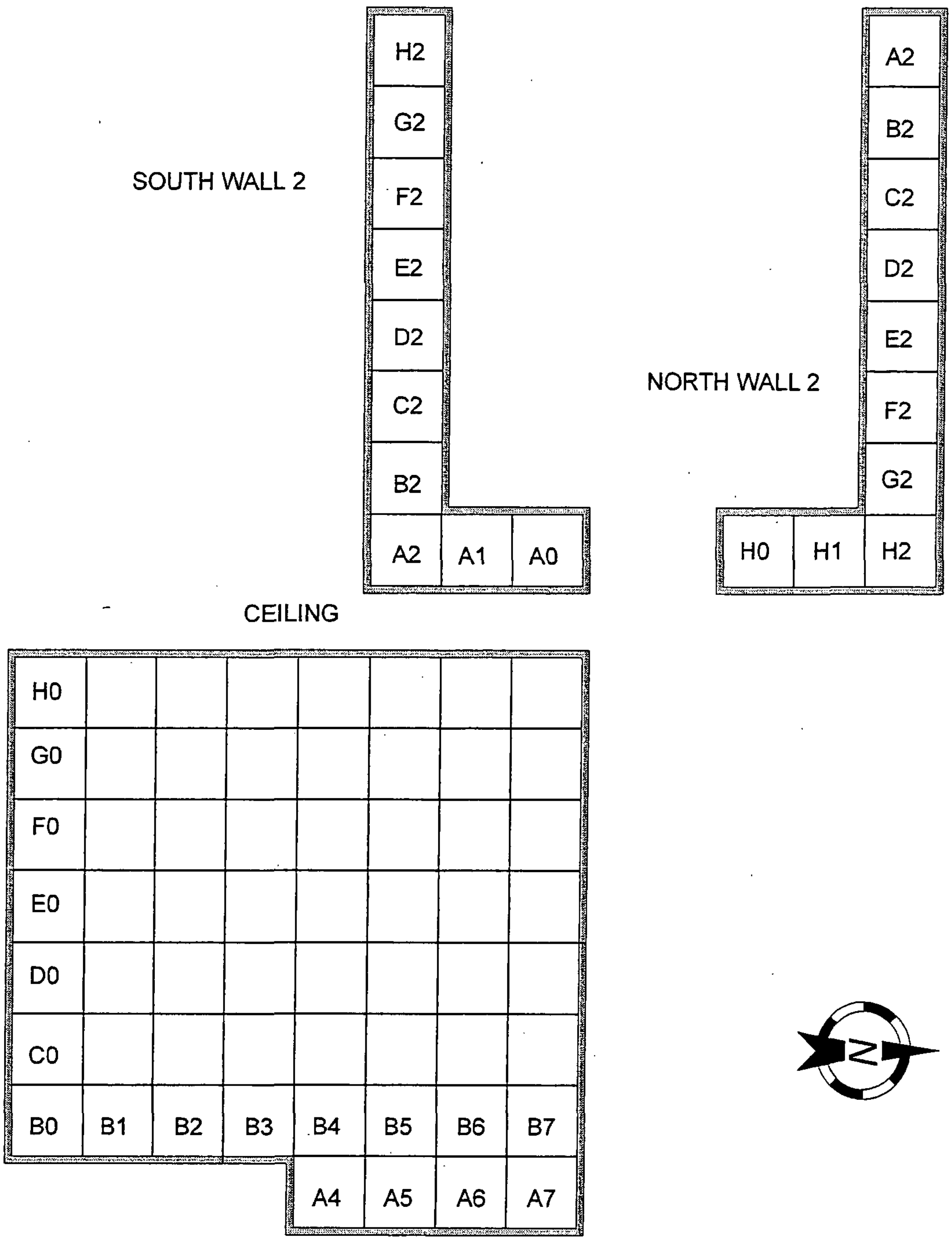
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-6-4 (Robotics lab ceiling)

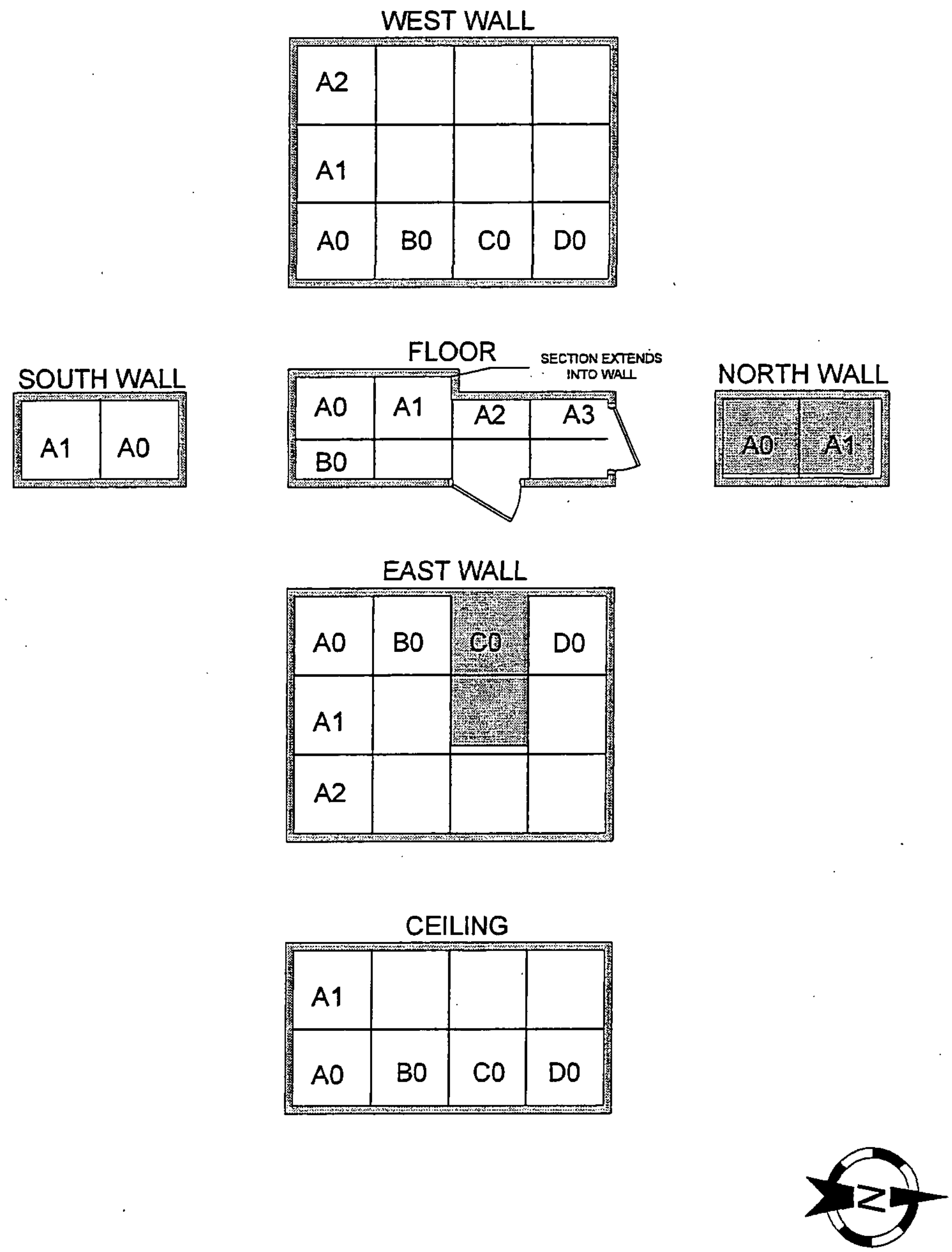
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
135	10/01/06	GA	1	Ceiling	A	0				54	100	180		0		Transformer Room
135	10/01/06	GA	1	Ceiling	C	0				129	100	200		0		
135	10/01/06	GA	1	Ceiling	E	0				187	80	220		0		
135	10/01/06	GA	1	Ceiling	G	0				105	80	200		0		
135	10/01/06	GA	1	Ceiling	I	0				155	100	200		0		
135	10/01/06	GA	1	Ceiling	A	2				58	100	180		8		Transformer Room
135	10/01/06	GA	1	Ceiling	C	2				77	80	200		0		
135	10/01/06	GA	1	Ceiling	E	2				15	100	180		0		
135	10/01/06	GA	1	Ceiling	G	2				45	100	200		13		
135	10/01/06	GA	1	Ceiling	I	2				71	80	180		0		
135	10/01/06	GA	1	Ceiling	A	4				94	100	200		0		
135	10/01/06	GA	1	Ceiling	C	4				41	100	160		18		
135	10/01/06	GA	1	Ceiling	E	4				92	80	200		0		
135	10/01/06	GA	1	Ceiling	G	4				142	100	220		0		
135	10/01/06	GA	1	Ceiling	I	4				79	80	220		13		
135	10/01/06	GA	1	Ceiling	A	6				139	100	220		3		
135	10/01/06	GA	1	Ceiling	C	6				127	80	200		0		
135	10/01/06	GA	1	Ceiling	E	6				496	100	200		0		
135	10/01/06	GA	1	Ceiling	G	6				75	80	200		43		
135	10/01/06	GA	1	Ceiling	I	6				94	100	220		18		
137	10/01/06	GA	1	Ceiling	A	0				64	100	200		0		North side of beam
137	10/01/06	GA	1	Ceiling	A	2				75	80	220		0		North side of beam
137	10/01/06	GA	1	Ceiling	C	2				51	100	200		0		North side of beam
137	10/01/06	GA	1	Ceiling	E	2				86	80	220		0		North side of beam
137	10/01/06	GA	1	Ceiling	G	2				45	100	200		8		North side of beam
137	10/01/06	GA	1	Ceiling	A	2				73	100	200		0		South side of beam
137	10/01/06	GA	1	Ceiling	C	2				161	120	220		54		South side of beam
137	10/01/06	GA	1	Ceiling	E	2				170	100	200		0		South side of beam
137	10/01/06	GA	1	Ceiling	G	2				137	100	180		0		South side of beam
161	11/08/06	GA	1	Ceiling	A	0							0			
161	11/08/06	GA	1	Ceiling	C	0							0			
161	11/08/06	GA	1	Ceiling	E	0							0			
161	11/08/06	GA	1	Ceiling	G	0							0			
161	11/08/06	GA	1	Ceiling	I	0							0			
161	11/08/06	GA	1	Ceiling	A	2							0			
161	11/08/06	GA	1	Ceiling	C	2							4			
161	11/08/06	GA	1	Ceiling	E	2							0			
161	11/08/06	GA	1	Ceiling	G	2							0			
161	11/08/06	GA	1	Ceiling	I	2							0			
161	11/08/06	GA	1	Ceiling	A	4							0			
161	11/08/06	GA	1	Ceiling	C	4							4			
161	11/08/06	GA	1	Ceiling	E	4							0			
161	11/08/06	GA	1	Ceiling	G	4							0			
161	11/08/06	GA	1	Ceiling	I	4							0			
161	11/08/06	GA	1	Ceiling	A	6							0			
161	11/08/06	GA	1	Ceiling	C	6							0			
161	11/08/06	GA	1	Ceiling	E	6							0			
161	11/08/06	GA	1	Ceiling	G	6							4			
161	11/08/06	GA	1	Ceiling	I	6							0			
163	11/08/06	GA	1	Ceiling	A	0							0			N side of beam
163	11/08/06	GA	1	Ceiling	A	2							0			N side of beam
163	11/08/06	GA	1	Ceiling	C	2							0			N side of beam

University of Washington More Hall Annex Final Status Survey Results - Unit 1-6-4 (Robotics lab ceiling)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
163	11/08/06	GA	1	Ceiling	E	2							0			N side of beam
163	11/08/06	GA	1	Ceiling	G	2							0			N side of beam
163	11/08/06	GA	1	Ceiling	A	2							4			S side of beam
163	11/08/06	GA	1	Ceiling	C	2							0			S side of beam
163	11/08/06	GA	1	Ceiling	E	2							0			S side of beam
163	11/08/06	GA	1	Ceiling	G	2							0			S side of beam



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	ROBOTICS LABORATORY SURVEY UNIT 1-6		DRAWING 23



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	TRANSFORMER ROOM SURVEY UNIT 1-6		DRAWING 24

Attachment 31 - Unit 1-7 Offices, Restrooms, and Hallway

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 1-7

(Offices, restrooms, and hallway)

Survey Unit Information					
Unit Designator:	1-7	Class:	UN	Certainty %:	95
Location Description:	Offices, restrooms, and hallway				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	N/A	30	30	30	30
Number of measurements needed [(1)]:	N/A	9	9	9	N/A
Maximum value of results:	N/A	4	417	38	0
Mean value of results:	N/A	1	188	8	0
Standard Deviation of results:	N/A	2	105	12	0
Degree of Freedom [(2)]:	N/A	1.699	1.699	1.699	1.699
μ_α value:	N/A	1	220	11	0
Guideline level:	N/A	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**

[(1)] as interpolated from NUREG/CR-5849 Table B-2

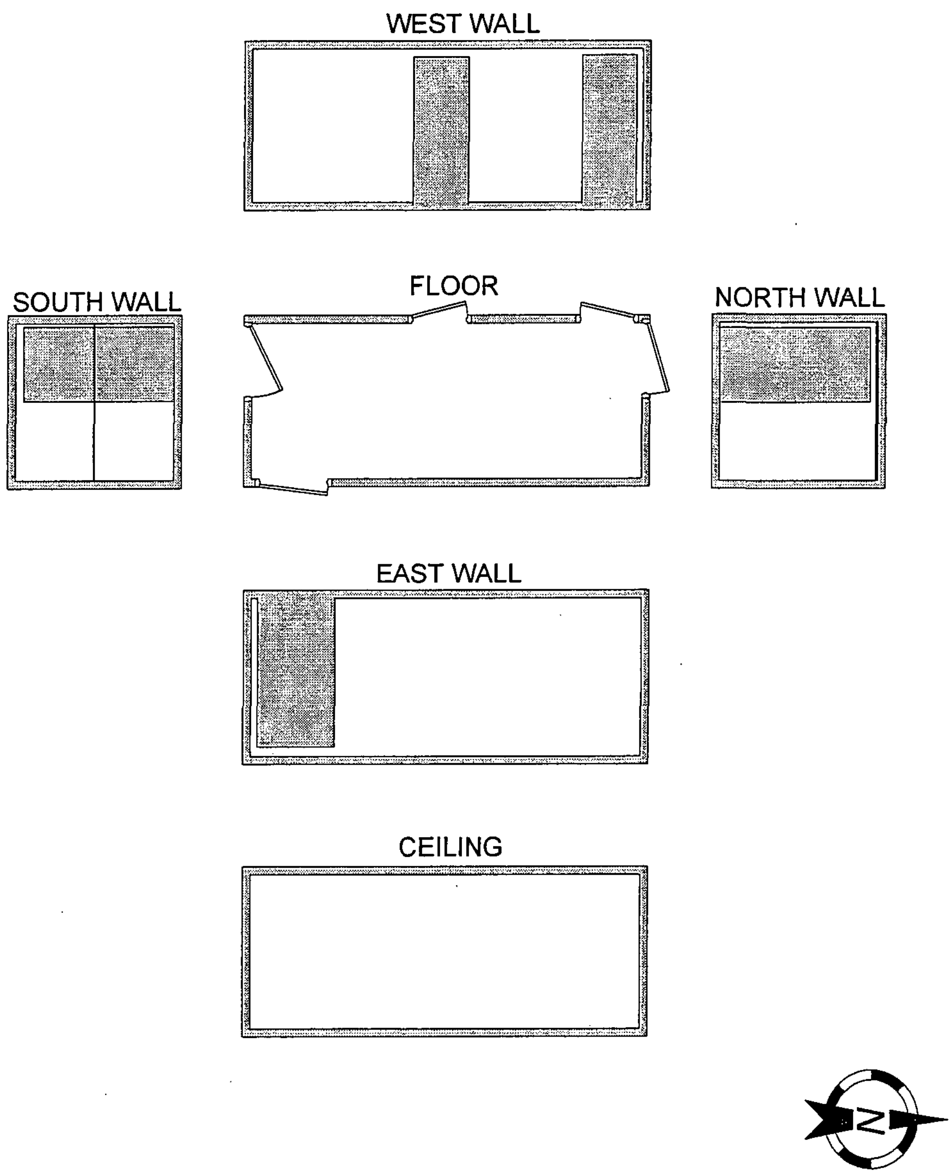
[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 1-7 (Offices, restrooms, and hallway)

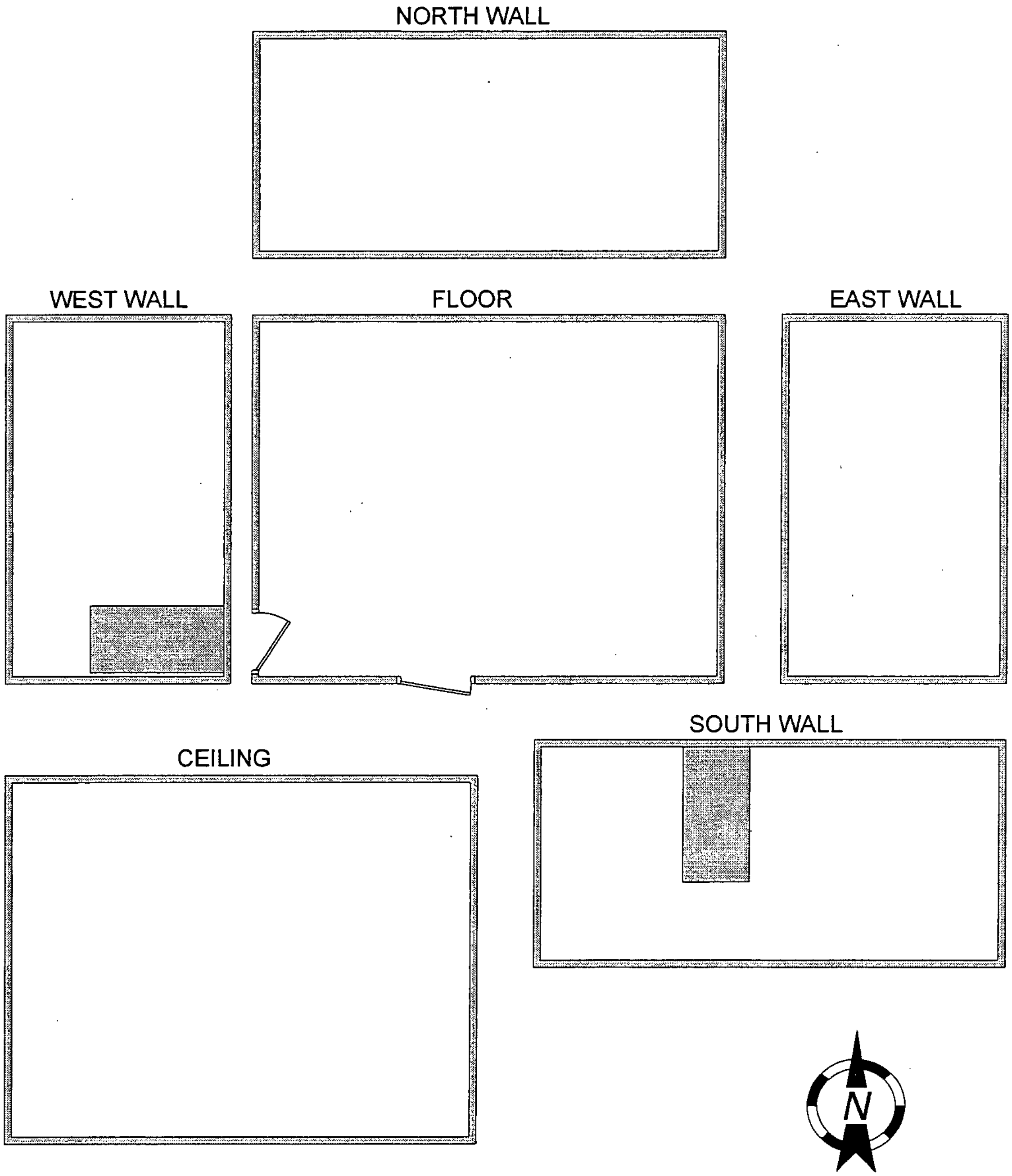
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
114	09/28/06	UN	1	Floor	F	1				184	80	140		0	0	Grad Room 1
114	09/28/06	UN	1	Floor	F	2				77	60	120		8	0	Grad Room 2
114	09/28/06	UN	1	Floor	F	3				90	80	180		0	0	Grad Room 3
114	09/28/06	UN	1	Floor	F	4				12	60	100		3	0	Grad Room 4
114	09/28/06	UN	1	Floor	F	5				96	60	120		0	0	Grad Room 5
114	09/28/06	UN	1	Floor	F	6				88	100	140		0	0	Grad Room 6
114	09/28/06	UN	1	Floor	F	7				109	60	140		0	0	Grad Room 7
114	09/28/06	UN	1	Floor	F	8				74	80	120		0	0	Grad Room 8
114	09/28/06	UN	1	Floor	F	9				52	60	120		0	0	Grad Room 9
114	09/28/06	UN	1	Floor	F	10				56	60	100		33	0	Grad Room 10
114	09/28/06	UN	1	Floor	F	11				417	120	220		23	0	Woman's room 11
114	09/28/06	UN	1	Floor	F	12				152	80	160		0	0	Woman's room 12
114	09/28/06	UN	1	Floor	F	13				337	100	160		0	0	Men's room 13
114	09/28/06	UN	1	Floor	F	14				105	80	180		28	0	Men's room 14
114	09/28/06	UN	1	Floor	F	15				83	100	180		0	0	hall 15
114	09/28/06	UN	1	Floor	F	16				114	80	120		8	0	hall 16
114	09/28/06	UN	1	Floor	F	17				158	100	140		0	0	hall 17
138	10/01/06	UN	1	Floor	F	18				219	180	260		0	0	18 hall
138	10/01/06	UN	1	Floor	F	19				266	120	280		3	0	19 hall
138	10/01/06	UN	1	Floor	F	20				247	120	260		33	0	20 hall
138	10/01/06	UN	1	Floor	F	21				212	120	260		0	0	21 hall
138	10/01/06	UN	1	Floor	F	22				294	140	260		0	0	22 hall
138	10/01/06	UN	1	Floor	F	23				247	120	240		8	0	23 hall
138	10/01/06	UN	1	Floor	F	24				313	120	240		23	0	24 hall
138	10/01/06	UN	1	Floor	F	25				217	120	220		38	0	25 Calc room
138	10/01/06	UN	1	Floor	F	26				242	100	220		0	0	26 Calc room
138	10/01/06	UN	1	Floor	F	27				258	120	240		18	0	27 Calc room
138	10/01/06	UN	1	Floor	F	28				309	160	240		0	0	28 Director off
138	10/01/06	UN	1	Floor	F	29				322	160	240		0	0	29 Director off
138	10/01/06	UN	1	Floor	F	30				281	160	260		0	0	30 Director off
157	11/08/06	UN	1	Floor	F	1							0			Grad Room 1
157	11/08/06	UN	1	Floor	F	2							0			Grad Room 2
157	11/08/06	UN	1	Floor	F	3							0			Grad Room 3
157	11/08/06	UN	1	Floor	F	4							0			Grad Room 4
157	11/08/06	UN	1	Floor	F	5							4			Grad Room 5
157	11/08/06	UN	1	Floor	F	6							0			Grad Room 6
157	11/08/06	UN	1	Floor	F	7							4			Grad Room 7
157	11/08/06	UN	1	Floor	F	8							4			Grad Room 8
157	11/08/06	UN	1	Floor	F	9							0			Grad Room 9
157	11/08/06	UN	1	Floor	F	10							0			Grad Room 10
157	11/08/06	UN	1	Floor	F	11							0			Woman's room 11
157	11/08/06	UN	1	Floor	F	12							0			Woman's room 12
157	11/08/06	UN	1	Floor	F	13							0			Men's room 13
157	11/08/06	UN	1	Floor	F	14							0			Men's room 14
157	11/08/06	UN	1	Floor	F	15							0			hall 15
157	11/08/06	UN	1	Floor	F	16							0			hall 16
157	11/08/06	UN	1	Floor	F	17							0			hall 17
164	11/08/06	UN	1	Floor	F	18							0			hall 18
164	11/08/06	UN	1	Floor	F	19							0			hall 19
164	11/08/06	UN	1	Floor	F	20							4			hall 20
164	11/08/06	UN	1	Floor	F	21							4			hall 21
164	11/08/06	UN	1	Floor	F	22							0			hall 22

University of Washington More Hall Annex Final Status Survey Results - Unit 1-7 (Offices, restrooms, and hallway)

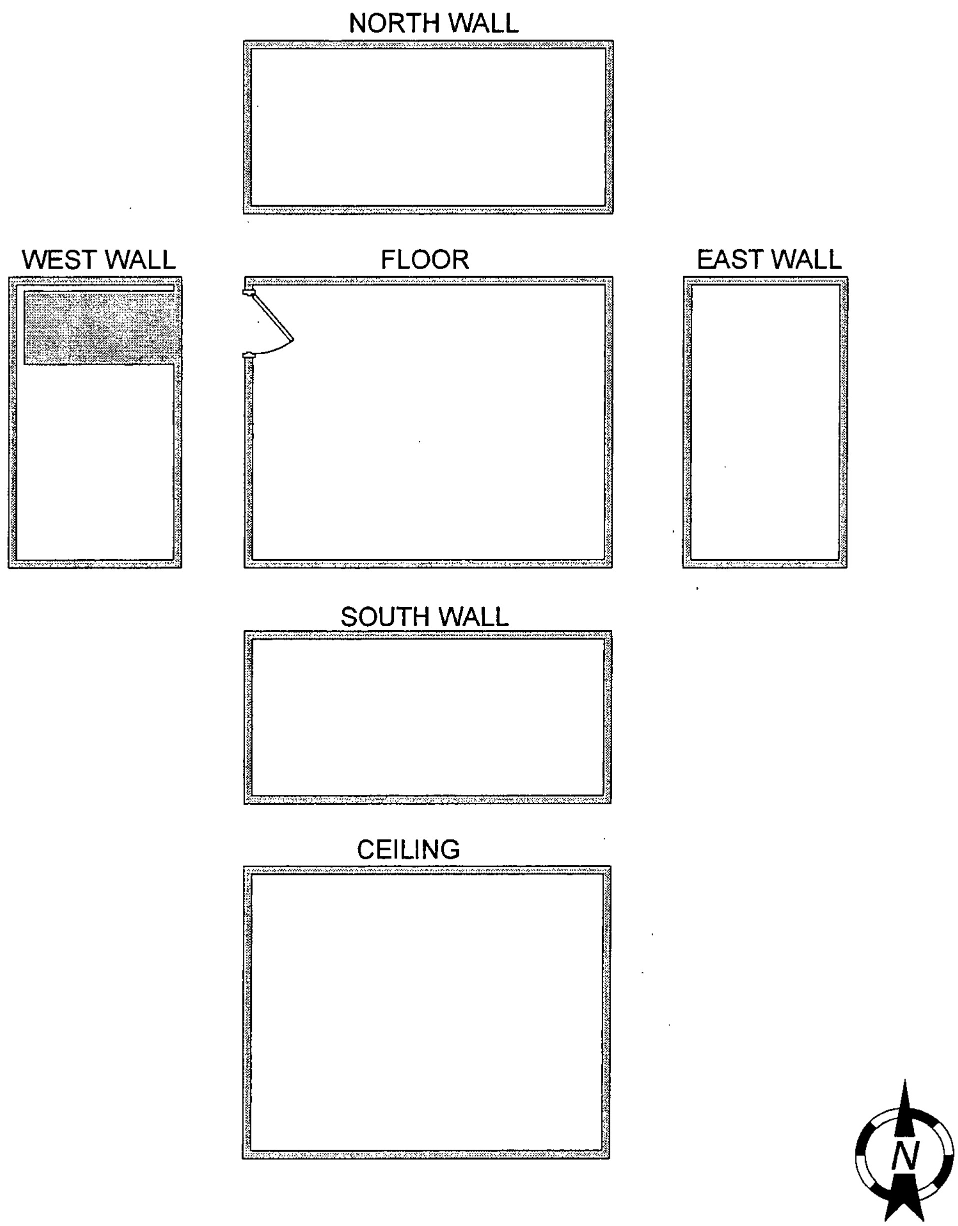
FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
164	11/08/06	UN	1	Floor	F	23							4			hll 23
164	11/08/06	UN	1	Floor	F	24							0			hll 24
164	11/08/06	UN	1	Floor	F	25							0			Calc Room 25
164	11/08/06	UN	1	Floor	F	26							0			Calc Room 26
164	11/08/06	UN	1	Floor	F	27							0			Calc Room 27
164	11/08/06	UN	1	Floor	F	28							0			Directors room 28
164	11/08/06	UN	1	Floor	F	29							0			Directors room 29
164	11/08/06	UN	1	Floor	F	30							0			Directors room 30



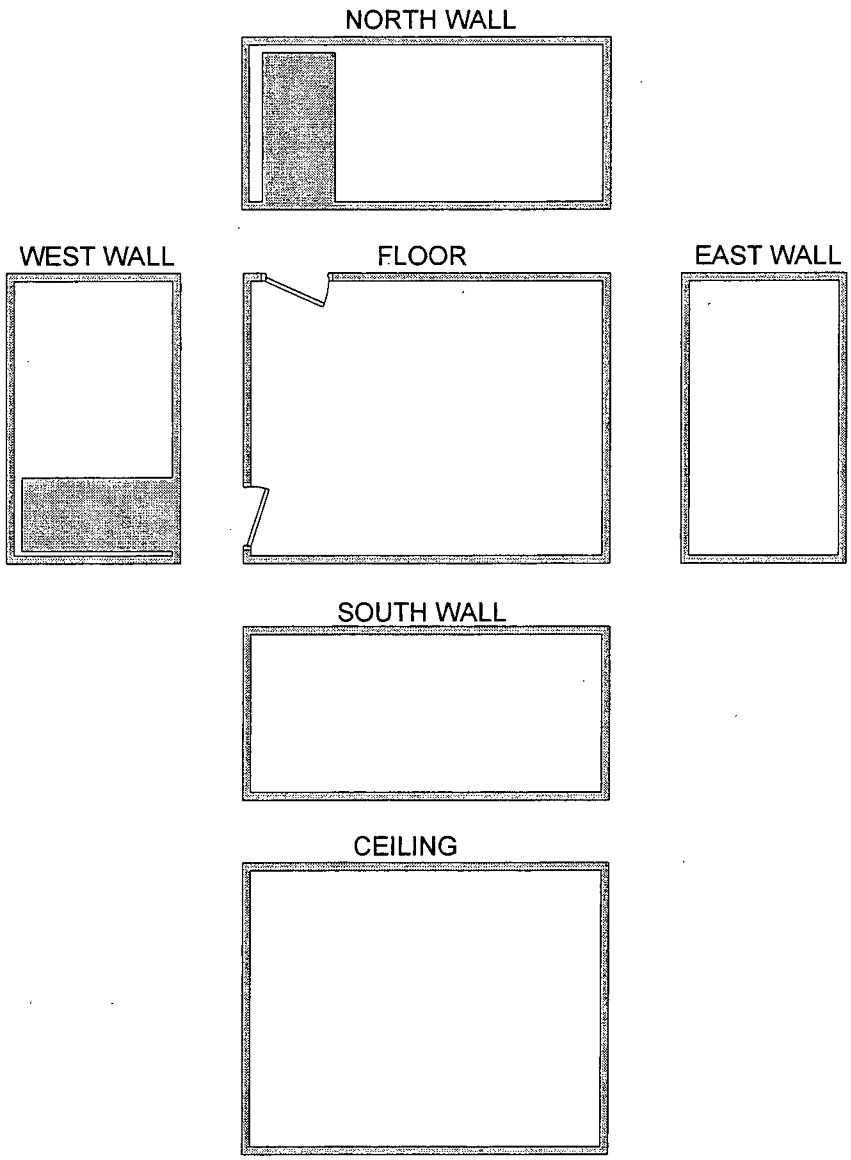
PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	CORRIDOR – 1ST FLOOR SURVEY UNIT 1-7		DRAWING 25



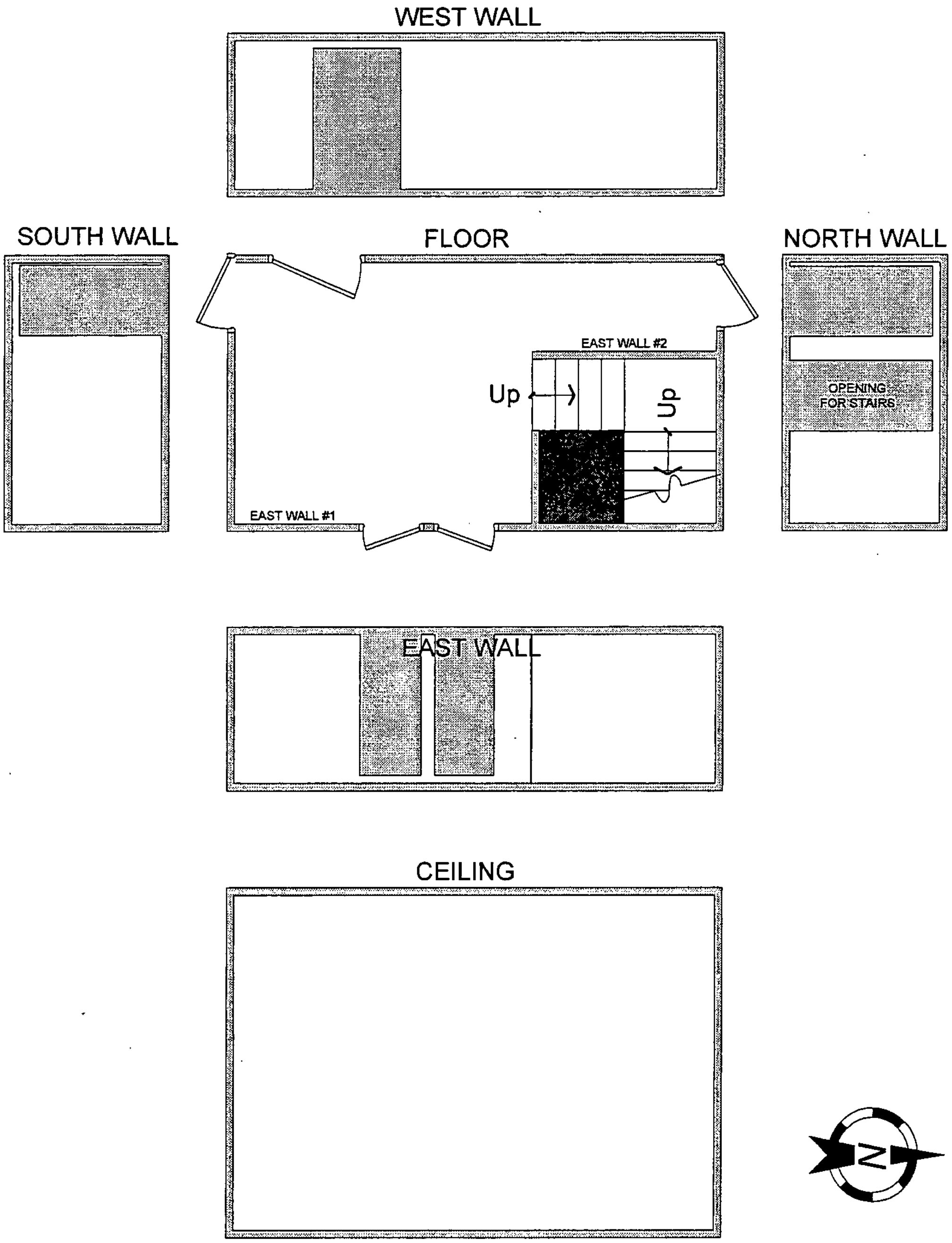
PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	GRADUATE ROOM SURVEY UNIT 1-7		DRAWING 26



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	DIRECTOR'S ROOM SURVEY UNIT 1-7		DRAWING 27



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	CALCULATING ROOM SURVEY UNIT 1-7		DRAWING 28



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	CONTROL OFFICE SURVEY UNIT 1-7		DRAWING 29

Attachment 32 - Sub-Unit 2-1-1 Control Room Ceiling, East, and North Walls

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 2-1-1

(Control room ceiling, east, and north walls)

Survey Unit Information					
Unit Designator:	2-1-1	Class:	GA	Certainty %:	95
Location Description:	Control room ceiling, east, and north walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	20	20	20	20	N/A
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	65	4	183	44	N/A
Mean value of results:	9	0	38	9	N/A
Standard Deviation of results:	16	1	52	14	N/A
Degree of Freedom [2]:	1.729	1.729	1.729	1.729	N/A
μ_α value:	16	0	58	15	N/A
Guideline level:	100	20	5000	1000	N/A

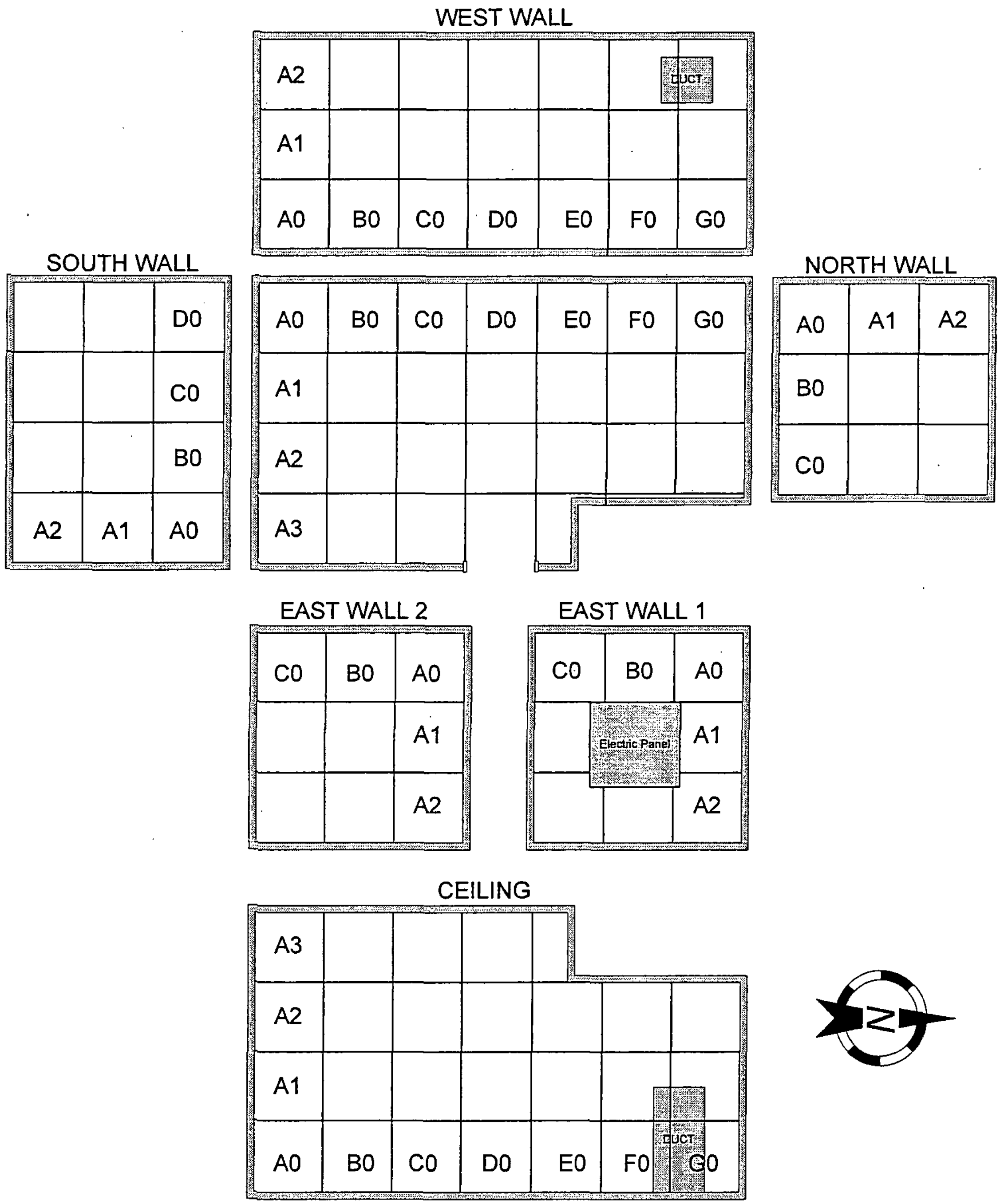
Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**N/A**

(1) as interpolated from NUREG/CR-5849 Table B-2

(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 2-1-1 (Control room ceiling, east, and north walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
005	08/11/06	GA	2	Northern E Wall	A	0	4	ND	ND	0	0	120	0	0		4m2 area includes vent duct
005	08/11/06	GA	2	Northern E Wall	A	2	0	ND	ND	0	0	120	0	44		4m2 area
005	08/11/06	GA	2	Northern E Wall	C	0	8	ND	ND	67	0	140	0	0		4m2 area
005	08/11/06	GA	2	Northern E Wall	C	2	0	ND	ND	54	0	140	0	2		4m2 area
006	08/11/06	GA	2	Southern E Wall	A	0	0	ND	ND	0	0	100	0	20		4m2 area
006	08/11/06	GA	2	Southern E Wall	A	2	8	ND	ND	0	0	100	4	30		4m2 area
006	08/11/06	GA	2	Southern E Wall	C	0	4	ND	ND	0	0	100	0	0		4m2 area
006	08/11/06	GA	2	Southern E Wall	C	2	0	ND	ND	0	0	100	0	2		4m2 area
008	08/12/06	GA	2	N Wall	A	0	0	ND	ND	57	0	120	0	29		4m2 area includes drainline
008	08/12/06	GA	2	N Wall	A	2	0	ND	ND	183	0	100	0	38		4m2 area includes drainline
008	08/12/06	GA	2	N Wall	C	0	0	ND	ND	158	0	100	0	0		4m2 area
011	08/12/06	GA	2	Ceiling	A	0	15	ND	ND	0	0	140	0	0		4m2
011	08/12/06	GA	2	Ceiling	A	2	30	ND	ND	62	0	120	0	1		4m2
011	08/12/06	GA	2	Ceiling	A	4	15	ND	ND	17	0	120	0	0		4m2
011	08/12/06	GA	2	Ceiling	C	0	10	ND	ND	44	0	140	0	6		4m2
011	08/12/06	GA	2	Ceiling	C	2	0	ND	ND	30	0	140	0	0		4m2
011	08/12/06	GA	2	Ceiling	C	4	0	ND	ND	26	0	120	0	10		4m2
011	08/12/06	GA	2	Ceiling	E	1	30	ND	ND	0	0	100	0	0		4m2
011	08/12/06	GA	2	Ceiling	E	4	0	ND	ND	0	0	120	0	6		4m2
011	08/12/06	GA	2	Ceiling	E	2	65	ND	ND	64	0	120	0	1		4m2



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	CONTROL ROOM SURVEY UNIT 2-1		DRAWING 30

Attachment 33 - Sub-Unit 2-1-2 Control Room Floor, South, and West Walls

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 2-1-2

(Control room floor, south, and west walls)

Survey Unit Information					
Unit Designator:	2-1-2	Class:	GA	Certainty %:	95
Location Description:	Control room floor, south, and west walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	17	17	17	17	6
Number of measurements needed [(1)]:	9	9	9	9	N/A
Maximum value of results:	6	0	53	39	0
Mean value of results:	1	0	8	7	0
Standard Deviation of results:	2	0	18	12	0
Degree of Freedom [(2)]:	1.746	1.746	1.746	1.746	2.015
μ_α value:	2	0	16	12	0
Guideline level:	100	20	5000	1000	5

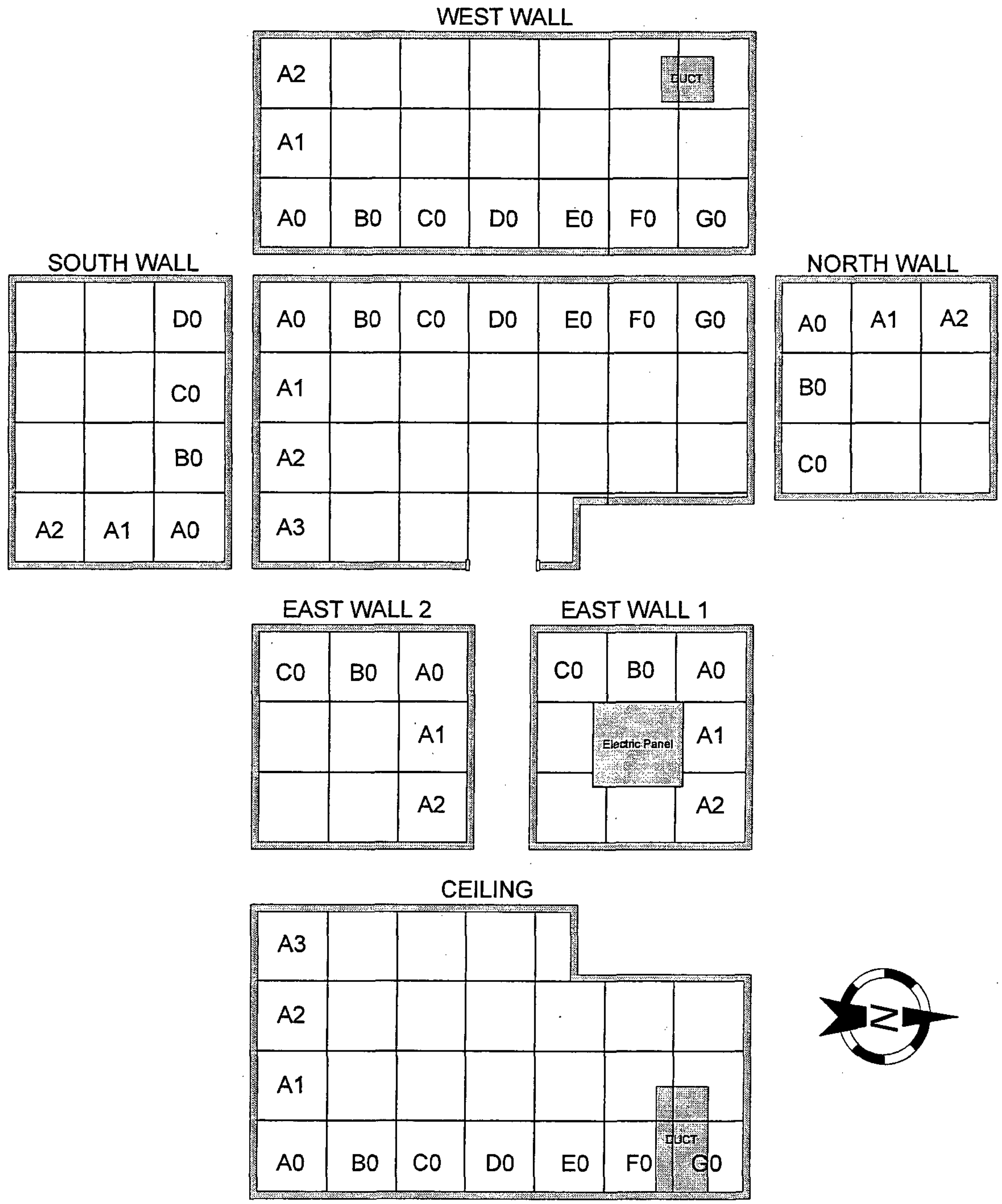
Decision Summary					
Are there sufficient measurements?	Yes	Yes	Yes	Yes	Yes
Is the max value < guideline level?	Yes	Yes	Yes	Yes	Yes
Is μ_α < guideline?	Yes	Yes	Yes	Yes	Yes
Does survey unit pass?	Yes	Yes	Yes	Yes	Yes

[(1)] as interpolated from NUREG/CR-5849 Table B-2

[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 2-1-2 (Control room floor, south, and west walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
002	08/11/06	GA	2	Floor	C	0	0	ND	ND	0	0	100	0	2	0	4m2 area
002	08/11/06	GA	2	Floor	C	2	4	ND	ND	0	0	100	0	11	0	4m2 area
002	08/11/06	GA	2	Floor	C	4	4	ND	ND	0	0	100	0	0	0	4m2 area
003	08/11/06	GA	2	Floor	A	0	0	ND	ND	0	0	60	0	0	0	4m2 area
003	08/11/06	GA	2	Floor	A	2	0	ND	ND	0	0	80	0	0	0	4m2 area
003	08/11/06	GA	2	Floor	A	4	0	ND	ND	0	0	80	0	34	0	4m2 area
004	08/11/06	GA	2	W Wall	A	0	0	ND	ND	0	0	80	0	0		4m2 area
004	08/11/06	GA	2	W Wall	A	2	0	ND	ND	0	0	100	0	0		4m2 area
004	08/11/06	GA	2	W Wall	C	0	5	ND	ND	0	0	80	0	0		4m2 area
004	08/11/06	GA	2	W Wall	C	2	0	ND	ND	0	0	80	0	39		4m2 area
004	08/11/06	GA	2	W Wall	E	0	0	ND	ND	0	0	80	0	2		4m2 area
004	08/11/06	GA	2	W Wall	E	2	0	ND	ND	0	0	80	0	0		4m2 area
004	08/11/06	GA	2	W Wall	G	0	0	ND	ND	0	0	80	0	0		4m2 area
009	08/12/06	GA	2	S Wall	A	0	1	ND	ND	53	0	100	0	15		4m2 area
009	08/12/06	GA	2	S Wall	A	2	6	ND	ND	51	0	120	0	15		4m2 area
009	08/12/06	GA	2	S Wall	C	0	0	ND	ND	21	0	100	0	0		4m2 area
009	08/12/06	GA	2	S Wall	C	2	0	ND	ND	14	0	120	0	0		4m2 area



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	CONTROL ROOM SURVEY UNIT 2-1		DRAWING 30

Attachment 34 - Sub-Unit 2-2-1 Lecture Briefing Room Ceiling, East, and North Walls

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 2-2-1

(Lecture briefing room ceiling, east, and north walls)

Survey Unit Information					
Unit Designator:	2-2-1	Class:	GA	Certainty %:	95
Location Description:	Lecture briefing room ceiling, east, and north walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm^2)**	**Removable Alpha Results (dpm/100cm^2)**	**Direct Beta Results (dpm/100cm^2)**	**Removable Beta Results (dpm/100cm^2)**	**Gamma Results (μR/hr)**
Number of measurements:	16	16	16	16	5
Number of measurements needed [(1)]:	9	9	9	9	N/A
Maximum value of results:	39	3	443	69	2
Mean value of results:	16	0	71	9	1
Standard Deviation of results:	13	1	123	20	1
Degree of Freedom [(2)]:	1.753	1.753	1.753	1.753	2.132
μ_α value:	22	1	125	17	2
Guideline level:	100	20	5000	1000	5

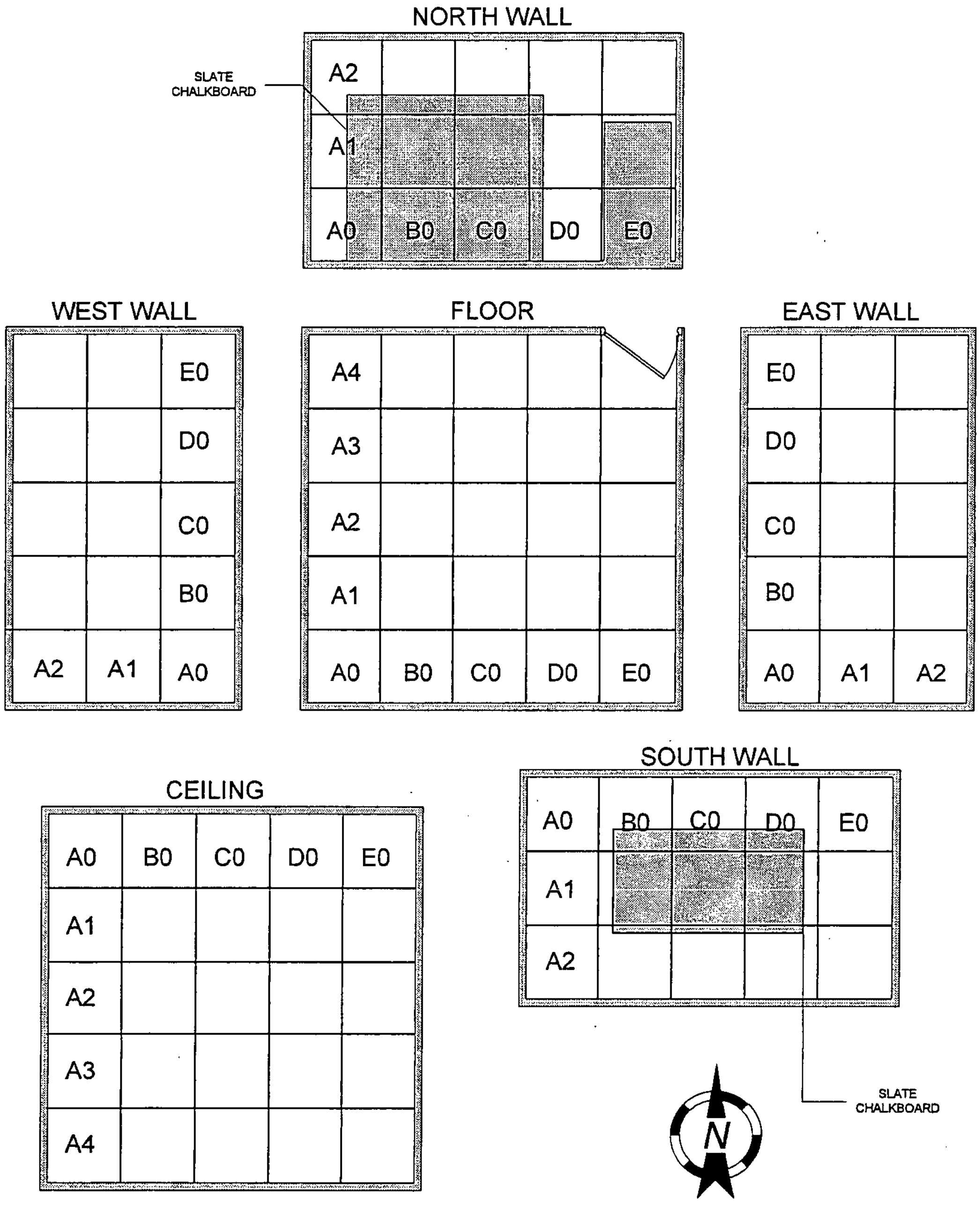
Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

(1) as interpolated from NUREG/CR-5849 Table B-2

(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 2-2-1 (Lecture briefing room ceiling, east, and north walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
007	08/12/06	GA	2	Ceiling	A	0	25	ND	ND	0	0	100	0	0		4m2 area
007	08/12/06	GA	2	Ceiling	A	2	5	ND	ND	0	0	100	0	0		4m2 area
007	08/12/06	GA	2	Ceiling	A	4	25	ND	ND	0	0	100	0	0		4m2 area
007	08/12/06	GA	2	Ceiling	C	0	0	ND	ND	0	0	120	0	1		4m2 area
007	08/12/06	GA	2	Ceiling	C	2	5	ND	ND	15	0	120	0	10		4m2 area
007	08/12/06	GA	2	Ceiling	C	4	10	ND	ND	24	0	100	0	1		4m2 area
059	09/07/06	GA	2	E Wall	A	0	17			222	40	200	0	0	1	East Wall, ehter
059	09/07/06	GA	2	E Wall	A	2	24			142	40	180	0	0	1	East Wall, Windows
059	09/07/06	GA	2	E Wall	C	0	36			443	40	280	0	0	2	East Wall, ehter
059	09/07/06	GA	2	E Wall	C	2	36			161	40	220	0	0	1	East Wall, Windows
059	09/07/06	GA	2	E Wall	E	0	5			121	40	180	0	0	2	East Wall, ehter, Windows
061	09/08/06	GA	2	N Wall	A	0	39			0	40	240	0	69		N. Wall, Blackboard
061	09/08/06	GA	2	N Wall	A	2	9			12	40	280	3	46		B. Board, Window, Wall
061	09/08/06	GA	2	N Wall	C	0	14			0	40	260	0	0		B. Board
061	09/08/06	GA	2	N Wall	C	2	4			0	40	260	0	0		B. Board, Window, Door
061	09/08/06	GA	2	N Wall	E	0	0			0	40	220	3	9		Door, Window, B. Board



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	LECTURE ROOM SURVEY UNIT 2-2		DRAWING 31

Attachment 35 - Sub-Unit 2-2-2 Lecture Briefing Room Floor, South, and West Walls

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 2-2-2

(Lecture briefing room floor, south, and west walls)

Survey Unit Information					
Unit Designator:	2-2-2	Class:	GA	Certainty %:	95
Location Description:	Lecture briefing room floor, south, and west walls				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	15	15	15	15	10
Number of measurements needed [1]:	9	9	9	9	N/A
Maximum value of results:	42	4	198	63	2
Mean value of results:	10	1	87	6	2
Standard Deviation of results:	13	2	57	18	0
Degree of Freedom [2]:	1.761	1.761	1.761	1.761	1.833
μ_α value:	16	2	112	14	2
Guideline level:	100	20	5000	1000	5

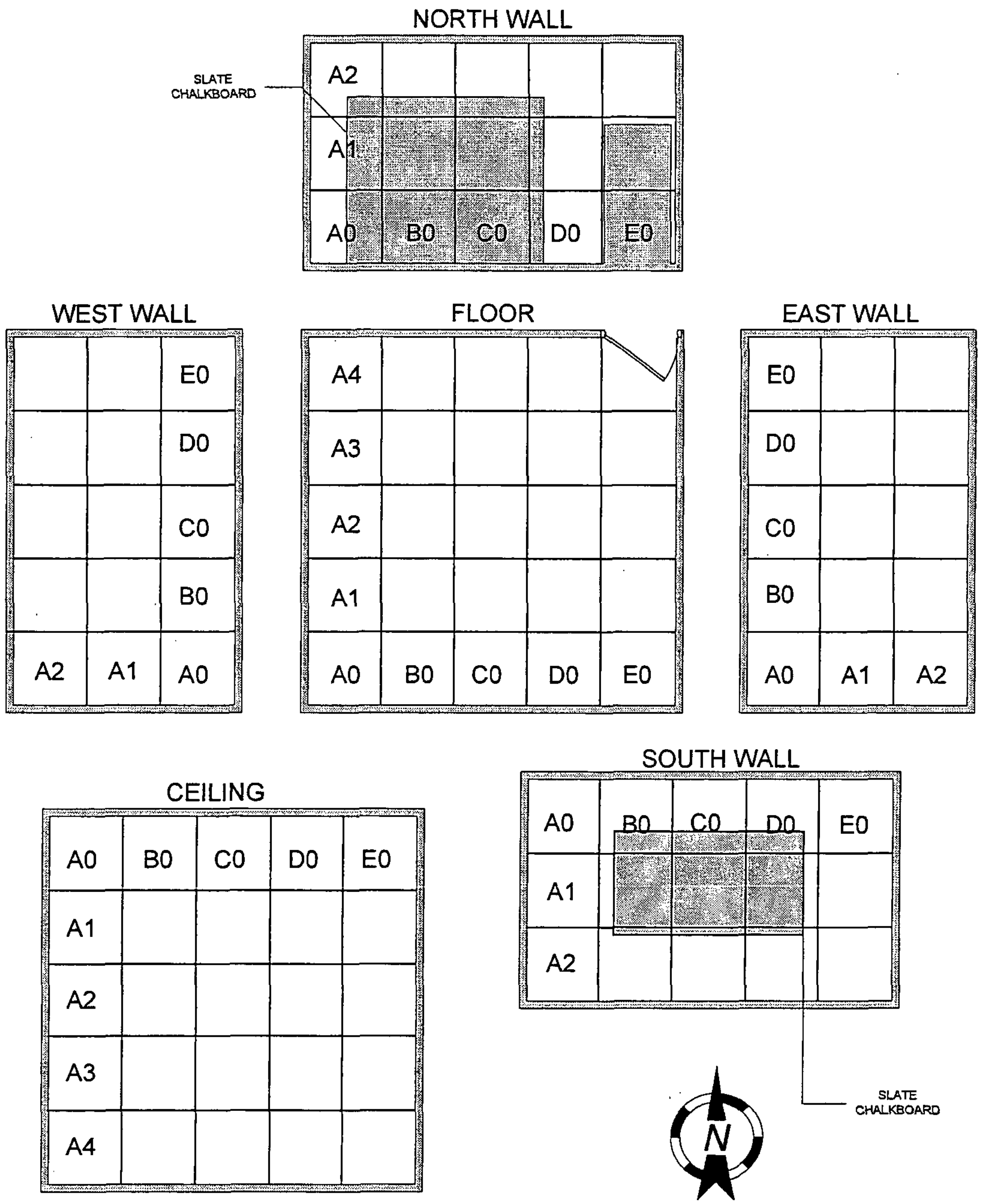
Decision Summary					
Are there sufficient measurements?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

[1] as interpolated from NUREG/CR-5849 Table B-2

[2] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 2-2-2 (Lecture briefing room floor, south, and west walls)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
055	09/07/06	GA	2	Floor	A	0	5			82	40	180	0	0	2	
055	09/07/06	GA	2	Floor	A	2	11			78	40	200	0	0	2	
055	09/07/06	GA	2	Floor	C	0	0			80	40	200	0	0	2	
055	09/07/06	GA	2	Floor	C	2	11			41	40	160	4	0	2	
055	09/07/06	GA	2	Floor	E	0	0			126	40	200	4	0	2	
058	09/07/06	GA	2	S Wall	A	0	0			82	40	210	0	0	1	South Wall, Blackboard
058	09/07/06	GA	2	S Wall	A	2	0			179	40	220	0	0	1	Blackboard, Window
058	09/07/06	GA	2	S Wall	C	0	36			198	40	260	4	63	2	Blackboard, Wall
058	09/07/06	GA	2	S Wall	C	2	42			136	40	210	4	0	1	Blackboard, Window
058	09/07/06	GA	2	S Wall	E	0	11			113	40	200	0	0	2	S. Wall, B.B. Window
062	09/08/06	GA	2	W Wall	A	0	0			59	40	280	0	0		West Wall, Window
062	09/08/06	GA	2	W Wall	A	2	14			0	40	210	0	0		West Wall, Window
062	09/08/06	GA	2	W Wall	C	0	14			77	40	280	0	31		West Wall, Window
062	09/08/06	GA	2	W Wall	C	2	4			0	40	220	0	0		West Wall, Window
062	09/08/06	GA	2	W Wall	E	0	0			48	40	240	0	0		West Wall, Window
063	09/08/06	GA	2	Floor	A	0					4800	6400				Gamma Scans Over Floor, 100%
063	09/08/06	GA	2	Floor	B	0					5000	6500				Gamma Scans Over Floor, 100%
063	09/08/06	GA	2	Floor	C	0					4900	6500				N/A
063	09/08/06	GA	2	Floor	D	0					5200	6700				N/A
063	09/08/06	GA	2	Floor	E	0					5200	6800				N/A



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	LECTURE ROOM SURVEY UNIT 2-2		DRAWING 31

Attachment 36 - Unit 2-3 Stairs, 2nd Floor Foyer, Fan Room, and Mechanical Room

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 2-3

(Stairs, 2nd floor foyer, fan room, mechanical room)

Survey Unit Information					
Unit Designator:	2-3	Class:	UN	Certainty %:	95
Location Description:	Stairs, 2nd floor foyer, fan room, mechanical room				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	N/A	57	56	57	52
Number of measurements needed [(1)]:	N/A	9	9	9	N/A
Maximum value of results:	N/A	8	401	123	0
Mean value of results:	N/A	1	141	17	0
Standard Deviation of results:	N/A	2	82	24	0
Degree of Freedom [(2)]:	N/A	1.673	1.674	1.673	1.676
μ_α value:	N/A	2	159	22	0
Guideline level:	N/A	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**

(1) as interpolated from NUREG/CR-5849 Table B-2

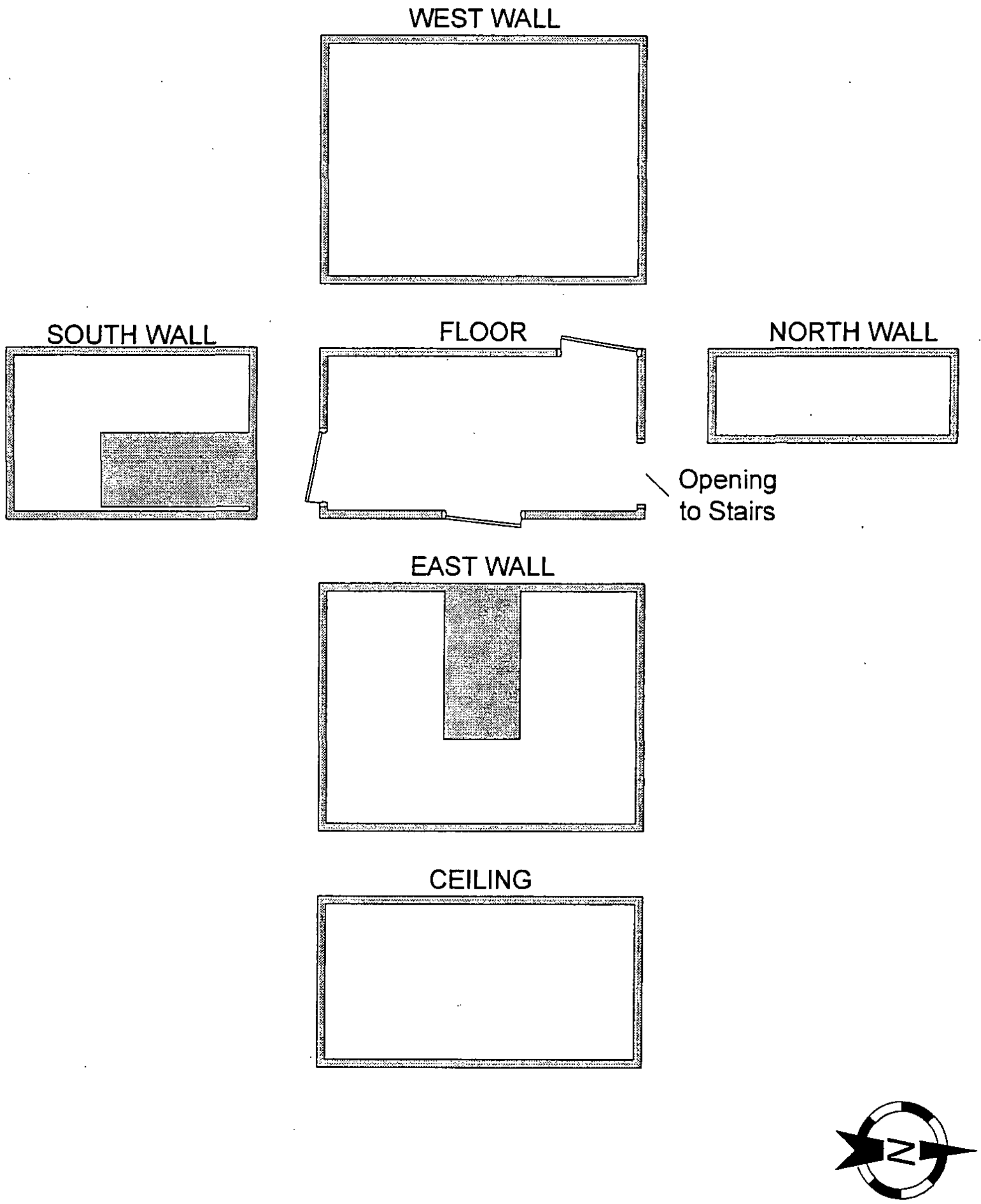
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 2-3 (Stairs, 2nd floor foyer, fan room, mechanical room)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
010	08/12/06	UN	2	Floor	A	0	1	ND	ND	154	0	160	0	6	0	Floor SW Corner
010	08/12/06	UN	2	W Wall	A	1	0			127			0	61	0	Pipe End W Wall
010	08/12/06	UN	2	Floor	A	2	1	ND	ND	156	0	120	0	0	0	Floor NW Corner
010	08/12/06	UN	2	SW Wall	A	3	15	ND	ND	94	0	140	0	0	0	Inside Vent Duct SW Wall
010	08/12/06	UN	2	W Wall	A	4	15	ND	ND	142	0	120	0	0	0	W Wall
010	08/12/06	UN	2	Floor	A	5	6	ND	ND	144	0	240	0	29	0	Floor Center
010	08/12/06	UN	2	Floor	A	6	1	ND	ND	111	0	120	0	10	0	Floor NE Corner
010	08/12/06	UN	2	Floor	A	7	15	ND	ND	179	0	160	0	10	0	Floor SE Corner
010	08/12/06	UN	2	N Wall	A	8	11	ND	ND	97	0	140	0	0	0	N Wall
010	08/12/06	UN	2	E Wall	A	9	15	ND	ND	140	0	120	4	10	0	E Wall
010	08/12/06	UN	2	S Wall	A	10	15	ND	ND	107	0	120	0	0	0	S Wall
010	08/12/06	UN	2	E Wall	A	11	11	ND	ND	111	0	120	0	0	0	Inside Vent Duct E Wall
010	08/12/06	UN	2	E Wall	A	12							8	24	0	Smear Top of Vent E Wall
014	08/15/06	UN	2	Vent	M	N/A	3	0	1	0	90	220	0	0	0	Ventilation exhaust in South fan loft - South inside
014	08/15/06	UN	2	Vent	M	N/A	3	0	1	74	90	300	0	0	0	Ventilation exhaust in South fan loft - South outside
014	08/15/06	UN	2	Vent	M	N/A	7	0	0	0	90	200	8	0	0	Ventilation exhaust in South fan loft - East Inside
014	08/15/06	UN	2	Vent	M	N/A	0	0	1	178	90	350	0	23	0	Ventilation exhaust in South fan loft - East outside
014	08/15/06	UN	2	Vent	M	N/A	3	0	0	187	90	350	0	0	0	Ventilation exhaust in South fan loft - Top outside
014	08/15/06	UN	2	Vent	M	N/A	20	0	1	0	90	220	4	13	0	Ventilation exhaust in South fan loft - Top inside
014	08/15/06	UN	2	Vent	M	N/A	3	0	0	88	90	300	0	0	0	Ventilation exhaust in South fan loft - North Inside
014	08/15/06	UN	2	Vent	M	N/A	3	0	1	0	90	220	0	32	0	Ventilation exhaust in South fan loft - North outside
014	08/15/06	UN	2	Vent	M	N/A	3	0	2	6	90	250	0	0	0	Ventilation exhaust in South fan loft - West Inside
112	09/28/06	UN	2	Floor	F	1				143	80	120	0	27	0	#1 loft near fan room
112	09/28/06	UN	2	Floor	F	2				176	60	140	0	0	0	#2 loft near h20 tanks
112	09/28/06	UN	2	Floor	F	3				145	80	120	0	0	0	#3 loft near FAC box
112	09/28/06	UN	2	Floor	F	4				207	100	140	0	0	0	#4 loft near HVAC
112	09/28/06	UN	2	Floor	F	5				143	100	160	4	63	0	#5 loft near h20 main
112	09/28/06	UN	2	Floor	F	6				61	80	120	4	2	0	#6 loft airduct
112	09/28/06	UN	2	Floor	F	7				216	100	150	4	123	0	#7 loft near AHXC
112	09/28/06	UN	2	Floor	F	8				242	100	200	8	17	0	#8 loft near HVAE
112	09/28/06	UN	2	Wall	W	9				134	100	140	0	0	0	#9 loft wall near cir pm
112	09/28/06	UN	2	Wall	W	10				171	60	120	0	42	0	#10 loft wall near
112	09/28/06	UN	2	Wall	W	11				61	100	140	0	58	0	#11 loft wall
112	09/28/06	UN	2	Floor	F	12				94	100	140	0	0	0	#12 loft 3rd step down
112	09/28/06	UN	2	Floor	F	13				109	120	160	4	0	0	#13 loft 7th step down
112	09/28/06	UN	2	Floor	F	14				52	100	180	0	37	0	#14 2nd floor hall
112	09/28/06	UN	2	Floor	F	15				107	100	160	0	32	0	#15 2nd floor hall
112	09/28/06	UN	2	Floor	F	16				207	100	200	0	47	0	#16 2nd floor wall
112	09/28/06	UN	2	Floor	F	17				297	100	180	0	32	0	#17 2nd floor wall
112	09/28/06	UN	2	Floor	F	18				171	100	180	0	27	0	#18 2nd floor St. well
112	09/28/06	UN	2	Floor	F	19				211	100	160	0	0	0	#19 2nd Stair down for
112	09/28/06	UN	2	Floor	F	20				222	100	180	0	0	0	#20 2nd floor St. well
112	09/28/06	UN	2	Floor	F	21				286	100	160	0	27	0	#21 2nd floor 5th step down
112	09/28/06	UN	2	Floor	F	22				182	100	150	0	0	0	#22 2nd floor St. well
112	09/28/06	UN	2	Floor	F	23				251	100	160	0	22	0	#23 2nd floor St. well
112	09/28/06	UN	2	Floor	F	24				268	120	200	0	58	0	#24 2nd floor 9th step
112	09/28/06	UN	2	Floor	F	25				401	100	180	0	7	0	#25 2nd floor 12th step
112	09/28/06	UN	2	Floor	F	26				165	100	160	0	12	0	#26 2nd floor St. well
112	09/28/06	UN	2	Floor	F	27				275	10	140	0	7	0	#27 2nd floor St. well
112	09/28/06	UN	2	Floor	F	28				107	80	130	0	58	0	#28 2nd floor St. well
112	09/28/06	UN	2	Floor	F	29				76	60	130	0	17	0	#29 2nd floor St. well
112	09/28/06	UN	2	Floor	F	30				88	60	120	0	7	0	#30 2nd floor St. well 21 st

University of Washington More Hall Annex Final Status Survey Results - Unit 2-3 (Stairs, 2nd floor foyer, fan room, mechanical room)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
139	10/02/06	UN	2	Vent	M	1				110	100	200		0		1 # fresh air intake
139	10/02/06	UN	2	Vent	M	2				96	100	180		0		2 HVAC 020301
139	10/02/06	UN	2	Vent	M	3				175	100	180		0		3 HVAC 020202
139	10/02/06	UN	2	Vent	M	4				56	80	160		0		4 HVAC 020201
139	10/02/06	UN	2	Vent	M	5				75	100	180		0		5 fresh air intake
165	11/08/06	UN	1	Floor	F	1							0			Fresh air intake 1
165	11/08/06	UN	1	Floor	F	2							4			2 HVAC 020301
165	11/08/06	UN	1	Floor	F	3							4			3 HVAC 020202
165	11/08/06	UN	1	Floor	F	4							0			4 HVAC 020201
165	11/08/06	UN	1	Floor	F	5							4			5 Frsh air intake



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	HALLWAY - 2ND FLOOR SURVEY UNIT 2-3		DRAWING 32

Attachment 37 - Unit 3-1 Building Exterior

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 3-1

(Building exterior)

Survey Unit Information					
Unit Designator:	3-1	Class:	UN	Certainty %:	95
Location Description:	Building exterior				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results (dpm/100cm²)**	**Removable Alpha Results (dpm/100cm²)**	**Direct Beta Results (dpm/100cm²)**	**Removable Beta Results (dpm/100cm²)**	**Gamma Results (μR/hr)**
Number of measurements:	N/A	36	36	36	36
Number of measurements needed [(1)]:	N/A	9	9	9	N/A
Maximum value of results:	N/A	4	875	20	1
Mean value of results:	N/A	0	256	1	0
Standard Deviation of results:	N/A	1	133	5	0
Degree of Freedom [(2)]:	N/A	1.690	1.690	1.690	1.690
μ_α value:	N/A	0	294	2	0
Guideline level:	N/A	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is the max value < guideline level?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Is μ_α < guideline?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**
Does survey unit pass?	**N/A**	**Yes**	**Yes**	**Yes**	**Yes**

[(1)] as interpolated from NUREG/CR-5849 Table B-2

[(2)] from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 3-1 (Building exterior)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
001	06/07/06	UN	Ext	E Wall	1	N/A							0	0		E wall
001	06/07/06	UN	Ext	N Wall	2	N/A							0	0		N wall
001	06/07/06	UN	Ext	N Wall	3	N/A							0	0		N wall
001	06/07/06	UN	Ext	N Wall	4	N/A							0	0		N wall
001	06/07/06	UN	Ext	Floor	5	N/A							0	0		N deck
001	06/07/06	UN	Ext	E Wall	6	N/A							0	0		E wall
001	06/07/06	UN	Ext	Floor	7	N/A							0	0		E deck
001	06/07/06	UN	Ext	E Wall	8	N/A							0	0		E wall
001	06/07/06	UN	Ext	S Wall	9	N/A							0	1		S wall
001	06/07/06	UN	Ext	Floor	10	N/A							0	0		S deck
001	06/07/06	UN	Ext	S Wall	11	N/A							0	0		S wall
001	06/07/06	UN	Ext	S Wall	12	N/A							0	0		S wall
001	06/07/06	UN	Ext	S Wall	13	N/A							0	0		S wall
001	06/07/06	UN	Ext	Floor	14	N/A							0	0		Deck SE drain
001	06/07/06	UN	Ext	Floor	15	N/A							0	0		Deck SSE drain
001	06/07/06	UN	Ext	E Wall	16	N/A							0	0		E wall
001	06/07/06	UN	Ext	Floor	17	N/A							0	0		Loading dock
001	06/07/06	UN	Ext	E Wall	18	N/A							0	0		E wall
001	06/07/06	UN	Ext	E Wall	19	N/A							0	0		E wall
001	06/07/06	UN	Ext	N Wall	20	N/A							0	0		N wall
001	06/07/06	UN	Ext	Exterior	21	N/A							0	0		Asphalt N
001	06/07/06	UN	Ext	N Wall	22	N/A							0	0		N wall
001	06/07/06	UN	Ext	N Wall	23	N/A							0	0		N wall
001	06/07/06	UN	Ext	Exterior	24	N/A							0	0		Doorway N
001	06/07/06	UN	Ext	N Wall	25	N/A							0	0		N wall
001	06/07/06	UN	Ext	S Wall	26	N/A							0	0		S wall
001	06/07/06	UN	Ext	S Wall	27	N/A							0	0		S wall
001	06/07/06	UN	Ext	S Wall	28	N/A							0	0		S wall
001	06/07/06	UN	Ext	S Wall	29	N/A							4	0		S wall
001	06/07/06	UN	Ext	Exterior	30	N/A							0	0		Hatch S
021	08/19/06	UN	Ext	Roof	A	0	8	ND	ND	44	0	175	0	0	1	1m2 Ontop North Ret Tnk
021	08/19/06	UN	Ext	Roof	A	1	0	ND	ND	227	0	200	0	0	1	1m2 Ontop North Ret Tnk
021	08/19/06	UN	Ext	Roof	A	2	8	ND	ND	598	0	420	0	20	1	1m2 Ontop South Ret Tnk
021	08/19/06	UN	Ext	Roof	A	3	16	ND	ND	875	0	220	0	0	1	1m2 Ontop South Ret Tnk
021	08/19/06	UN	Ext	Roof	A	4	3	ND	ND	235	0	160	0	0	1	1m2 Under South Ret Tnk
021	08/19/06	UN	Ext	Roof	A	5	0	ND	ND	365	0	280	0	20	1	1m2 Under North Ret Tnk
126	09/30/06	UN	Ext	E Wall	1					233	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	N Wall	2					306	80	220			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	N Wall	3					214	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	N Wall	4					183	80	260			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	Floor	5					223	80	220			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	E Wall	6					216	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	Floor	7					212	80	260			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	E Wall	8					242	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	S Wall	9					235	80	220			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	Floor	10					214	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	S Wall	11					235	80	260			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	S Wall	12					300	80	220			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	S Wall	13					262	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	Floor	14					267	80	260			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	Floor	15					217	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	E Wall	16					219	80	260			0	Smears taken on survey FSS-001

University of Washington More Hall Annex Final Status Survey Results - Unit 3-1 (Building exterior)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
126	09/30/06	UN	Ext	Floor	17					239	80	220			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	E Wall	18					237	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	E Wall	19					221	80	260			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	N Wall	20					229	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	Exterior	21					258	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	N Wall	22					244	80	260			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	N Wall	23					76	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	Exterior	24					231	80	220			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	N Wall	25					214	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	S Wall	26					212	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	S Wall	27					262	80	260			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	S Wall	28					240	80	240			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	S Wall	29					239	80	220			0	Smears taken on survey FSS-001
126	09/30/06	UN	Ext	Exterior	30					214	80	240			0	Smears taken on survey FSS-001

Attachment 38 - Unit 3-2 Retention Tanks and Valve Gallery

FSS Statistical Summary and Survey Data

Final Status Decision Summary for Unit 3-2

(Retention tanks and valve gallery)

Survey Unit Information					
Unit Designator:	3-2	Class:	AA	Certainty %:	95
Location Description:	Retention tanks and valve gallery				

Measurement Results Summary					
All Surfaces	**Direct Alpha Results ($dpm/100cm^2$)**	**Removable Alpha Results ($dpm/100cm^2$)**	**Direct Beta Results ($dpm/100cm^2$)**	**Removable Beta Results ($dpm/100cm^2$)**	**Gamma Results ($\mu R/hr$)**
Number of measurements:	63	69	63	69	23
Number of measurements needed (1):	9	9	9	9	N/A
Maximum value of results:	79	8	878	70	2
Mean value of results:	6	0	168	9	0
Standard Deviation of results:	12	1	124	15	1
Degree of Freedom (2):	1.671	1.669	1.671	1.669	1.717
μ_α value:	9	1	194	12	1
Guideline level:	100	20	5000	1000	5

Decision Summary					
Are there sufficient measurements?	Yes	Yes	Yes	Yes	Yes
Is the max value < guideline level?	Yes	Yes	Yes	Yes	Yes
Is μ_α < guideline?	Yes	Yes	Yes	Yes	Yes
Does survey unit pass?	Yes	Yes	Yes	Yes	Yes

(1) as interpolated from NUREG/CR-5849 Table B-2

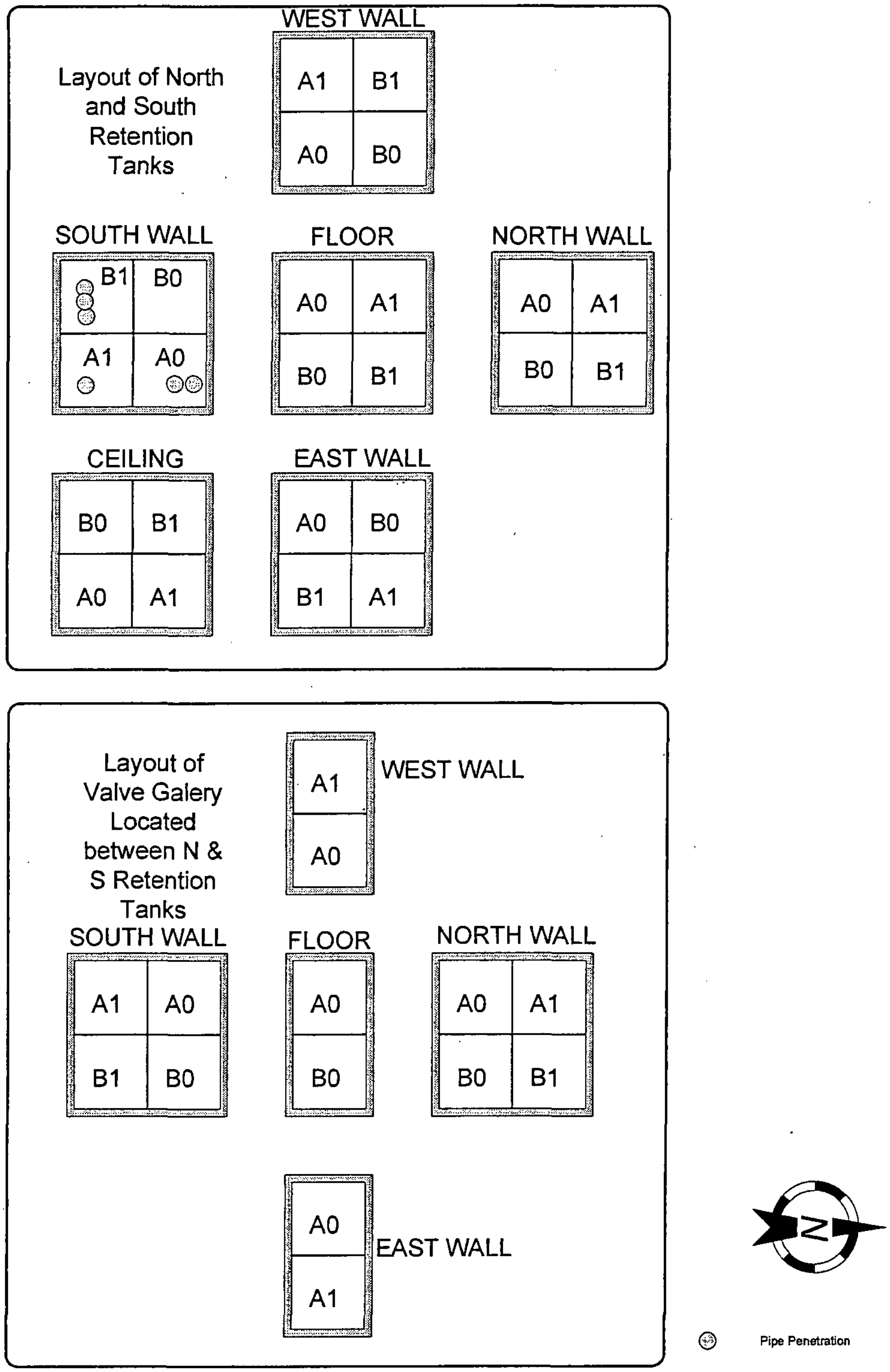
(2) from NUREG/CR-5849 Table B-1 for the listed certainty %

University of Washington More Hall Annex Final Status Survey Results - Unit 3-2 (Retention tankand valve gallery)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net μR	Comments
015	08/16/06	AA	Ext	W Wall	A	0	0	ND	ND	0	0	140	0	70		1m2 W Wall S Retension Tank
015	08/16/06	AA	Ext	W Wall	A	1	10	ND	ND	117	0	120	2	0		1m2 W Wall S Retension Tank
015	08/16/06	AA	Ext	W Wall	B	0	0	ND	ND	154	0	140	2	0		1m2 W Wall S Retension Tank
015	08/16/06	AA	Ext	W Wall	B	1	2	ND	ND	412	0	140	0	0		1m2 W Wall S Retension Tank
015	08/16/06	AA	Ext	N Wall	A	0	22	ND	ND	174	0	140	0	0		1m2 N Wall S Retension Tank
015	08/16/06	AA	Ext	N Wall	A	1	0	ND	ND	101	0	140	0	5		1m2 N Wall S Retension Tank
015	08/16/06	AA	Ext	N Wall	B	0	2	ND	ND	128	0	160	2	0		1m2 N Wall S Retension Tank
015	08/16/06	AA	Ext	N Wall	B	1	0	ND	ND	181	0	140	0	0		1m2 N Wall S Retension Tank
015	08/16/06	AA	Ext	S Wall	A	0	6	ND	ND	457	0	160	0	0		1m2 S Wall S Retension Tank
015	08/16/06	AA	Ext	S Wall	A	1	0	ND	ND	161	0	180	0	19		1m2 S Wall S Retension Tank
015	08/16/06	AA	Ext	S Wall	B	0	0	ND	ND	130	0	180	0	38		1m2 S Wall S Retension Tank
015	08/16/06	AA	Ext	S Wall	B	1	0	ND	ND	170	0	140	0	0		1m2 S Wall S Retension Tank
015	08/16/06	AA	Ext	E Wall	A	0	2	ND	ND	170	0	140	0	19		1m2 E Wall S Retention tank
015	08/16/06	AA	Ext	E Wall	A	1	0	ND	ND	165	0	160	0	19		1m2 E Wall S Retention tank
015	08/16/06	AA	Ext	E Wall	B	0	0	ND	ND	174	0	260	2	0		1m2 E Wall S Retention tank
015	08/16/06	AA	Ext	E Wall	B	1	0	ND	ND	110	0	140	0	28		1m2 E Wall S Retention tank
016	08/17/06	AA	Ext	Floor	A	0	22	ND	ND	147	0	200	0	0	2	1m2 Floor - South Retention tank
016	08/17/06	AA	Ext	Floor	A	1	9	ND	ND	156	0	140	0	0	2	1m2 Floor - South Retention tank
016	08/17/06	AA	Ext	Floor	B	0	26	ND	ND	878	0	180	0	0	2	1m2 Floor - South Retention tank
016	08/17/06	AA	Ext	Floor	B	1	17	ND	ND	195	0	200	4	0	2	1m2 Floor - South Retention tank
016	08/17/06	AA	Ext	Ceiling	A	0	5	ND	ND	337	0	140	0	0		1m2 Ceiling - South retention tank
016	08/17/06	AA	Ext	Ceiling	A	1	5	ND	ND	101	0	120	0	0		1m2 Ceiling - South retention tank
016	08/17/06	AA	Ext	Ceiling	B	0	1	ND	ND	164	0	140	0	0		1m2 Ceiling - South retention tank
016	08/17/06	AA	Ext	Ceiling	B	1	17	ND	ND	182	0	140	0	0		1m2 Ceiling - South retention tank
018	08/18/06	AA	Ext	W Wall	A	0	0	ND	ND	94	0	140	0	0		1m2 W Wall - North retention tank
018	08/18/06	AA	Ext	W Wall	A	1	0	ND	ND	105	0	140	0	0		1m2 W Wall - North retention tank
018	08/18/06	AA	Ext	W Wall	B	0	9	ND	ND	135	0	200	0	23		1m2 W Wall - North retention tank
018	08/18/06	AA	Ext	W Wall	B	1	0	ND	ND	101	0	120	0	0		1m2 W Wall - North retention tank
018	08/18/06	AA	Ext	N Wall	A	0	0	ND	ND	88	0	120	0	19		1m2 N Wall - North retention tank
018	08/18/06	AA	Ext	N Wall	A	1	0	ND	ND	111	0	140	0	0		1m2 N Wall - North retention tank
018	08/18/06	AA	Ext	N Wall	B	0	0	ND	ND	39	0	140	4	0		1m2 N Wall - North retention tank
018	08/18/06	AA	Ext	N Wall	B	1	0	ND	ND	118	0	140	0	0		1m2 N Wall - North retention tank
018	08/18/06	AA	Ext	S Wall	A	0	0	ND	ND	97	0	140	0	0		1m2 S Wall - North retention tank
018	08/18/06	AA	Ext	S Wall	A	1	4	ND	ND	147	0	140	4	0		1m2 S Wall - North retention tank
018	08/18/06	AA	Ext	S Wall	B	0	0	ND	ND	128	0	120	0	14		1m2 S Wall - North retention tank
018	08/18/06	AA	Ext	S Wall	B	1	0	ND	ND	145	0	120	0	0		1m2 S Wall - North retention tank
018	08/18/06	AA	Ext	E Wall	A	0	0	ND	ND	150	0	140	0	42		1m2 E Wall - North retention tank
018	08/18/06	AA	Ext	E Wall	A	1	4	ND	ND	124	0	160	0	0		1m2 E Wall - North retention tank
018	08/18/06	AA	Ext	E Wall	B	0	9	ND	ND	145	0	140	0	28		1m2 E Wall - North retention tank
018	08/18/06	AA	Ext	E Wall	B	1	4	ND	ND	109	0	140	0	0		1m2 E Wall - North retention tank
019	08/18/06	AA	Ext	S Wall	B	1							0	32		Penetration #1 S Wall - North retention tank
019	08/18/06	AA	Ext	S Wall	B	1							8	0		Penetration #2 S Wall - North retention tank
019	08/18/06	AA	Ext	S Wall	B	1							0	23		Penetration #3 S Wall - North retention tank
019	08/18/06	AA	Ext	S Wall	A	0							0	0		Penetration #4 S Wall - North retention tank
019	08/18/06	AA	Ext	S Wall	A	0							0	32		Penetration #5 S Wall - North retention tank
019	08/18/06	AA	Ext	S Wall	A	1							0	23		Penetration #6 S Wall - North retention tank
020	08/19/06	AA	Ext	Floor	A	0	0	ND	ND	0	0	80	0	11	0	1m2 Floor - North Retention tank
020	08/19/06	AA	Ext	Floor	A	1	8	ND	ND	174	0	100	0	30	0	1m2 Floor - North Retention tank
020	08/19/06	AA	Ext	Floor	B	0	0	ND	ND	231	0	100	0	2	0	1m2 Floor - North Retention tank
020	08/19/06	AA	Ext	Floor	B	1	12	ND	ND	187	0	110	0	16	0	1m2 Floor - North Retention tank
020	08/19/06	AA	Ext	Ceiling	A	0	0	ND	ND	59	0	120	0	0		1m2 Ceiling - North retention tank
020	08/19/06	AA	Ext	Ceiling	A	1	0	ND	ND	40	0	120	0	0		1m2 Ceiling - North retention tank

University of Washington More Hall Annex Final Status Survey Results - Unit 3-2 (Retention tankand valve gallery)

FSS #	Date	Class	Floor	Surface	X Coord.	Y Coord.	Alpha Direct DPM	Alpha Scan Min. (cpm)	Alpha Scan Max. (cpm)	Beta Direct DPM	Beta Scan Min. (cpm)	Beta Scan Max. (cpm)	Alpha Wipe DPM	Beta Wipe DPM	Net µR	Comments
020	08/19/06	AA	Ext	Ceiling	B	0	3	ND	ND	0	0	120	0	6		1m2 Ceiling - North retention tank
020	08/19/06	AA	Ext	Ceiling	B	1	0	ND	ND	39	0	120	0	57		1m2 Ceiling - North retention tank
077	09/12/06	AA	Ext	Floor	A	0	2	0	0	234	150	240	0	0	0	Valve Gallery - Floor
077	09/12/06	AA	Ext	Floor	B	0	6	0	0	205	160	220	0	3	0	Valve Gallery
077	09/12/06	AA	Ext	W Wall	A	0	6	0	0	207	140	260	0	0	0	Valve Gallery - West Wall
077	09/12/06	AA	Ext	W Wall	A	1	11	0	0	231	140	200	0	13	0	Valve Gallery
077	09/12/06	AA	Ext	N Wall	A	0	2	0	0	212	120	180	0	0	0	Valve Gallery - North Wall
077	09/12/06	AA	Ext	N Wall	A	1	2	0	0	42	100	140	0	0	0	Valve Gallery
077	09/12/06	AA	Ext	N Wall	B	0	2	0	0	210	140	180	0	0	0	Valve Gallery
077	09/12/06	AA	Ext	N Wall	B	1	6	0	0	157	120	180	0	0	0	Valve Gallery
077	09/12/06	AA	Ext	E Wall	A	0	79	0	1	185	120	240	0	0	0	Valve Gallery - East Wall Includes Ladder
077	09/12/06	AA	Ext	E Wall	A	1	2	0	0	172	120	180	0	18	0	Valve Gallery - Includes Ladder
077	09/12/06	AA	Ext	S Wall	A	0	2	0	0	240	120	240	0	0	0	Valve Gallery - South Wall
077	09/12/06	AA	Ext	S Wall	A	1	2	0	0	141	120	200	0	0	0	Valve Gallery
077	09/12/06	AA	Ext	S Wall	B	0	20	0	0	238	140	210	0	0	0	Valve Gallery
077	09/12/06	AA	Ext	S Wall	B	1	34	0	0	302	140	240	0	0	0	Valve Gallery
077	09/12/06	AA	Ext	S Wall	A	0	29	0	0	253	100	240	0	13	0	Valve Gallery - Sump
077	09/12/06	AA	Ext	Floor	A	0					7800	8500				Valve Gallery - Gamma Scans Over Floor, 100%
077	09/12/06	AA	Ext	Floor	B	0					7850	8300				Valve Gallery - Gamma Scans Over Floor, 100%



PROJECT	UNIVERSITY OF WASHINGTON NUCLEAR REACTOR DECOMMISSIONING	Enercon Services	Scale: NTS Drawn by: DM
DRAWING	VALVE GALLERY/RETENTION TANKS SURVEY UNIT 3-4		DRAWING 33

Attachment 39 - Excavation Soil Sample Radiochemistry Analytical Results

TELEDYNE
BROWN ENGINEERING, INC.
A Teledyne Technologies Company
2508 Quality Lane
Knoxville, TN 37931-3133

Cory DeWitt
Enercon
4499 Old William Penn Highway
Murrysville PA 15668

Report of Analysis/Certificate of Conformance

09/29/2006

LIMS #: L29888
Project ID#: EN005-3EREG-06
Received: 09/14/2006
Delivery Date: 09/28/2006
P.O. #: MCIL VI001
Release #:
SDG #:

This is to certify that Teledyne Brown Engineering - Environmental Services located at 2508 Quality Lane, Knoxville, Tennessee, 37931, has analyzed, tested and documented samples as specified in the applicable purchase order.

This also certifies that requirements of applicable codes, standards and specifications have been fully met and that any quality assurance documentation which verified conformance to the purchase order is on file and may be examined upon request.

I hereby certify that the above statements are true and correct.

Keith Jeter

Keith Jeter
Operations Manager

TELEDYNE
BROWN ENGINEERING, INC.
A Teledyne Technologies Company
2508 Quality Lane
Knoxville, TN 37931-3133

Cory DeWitt
Enercon
4499 Old William Penn Highway
Murrysville PA 15668

LIMS #: L29888
Project ID#: EN005-3EREG-06
Received: 09/14/2006
Delivery Date: 09/28/2006
P.O. #: MCIL VI001
Release #:
SDG #:

Cross Reference Table

Client ID	Laboratory ID	Station ID(if applicable)
W1 1	L29888-1	
W2 2	L29888-2	
S 3	L29888-3	
N 1	L29888-4	
N 2	L29888-5	
W1 5	L29888-6	
S 2	L29888-7	
SS1	L29888-8	
SS10	L29888-9	
SS11	L29888-10	
SS4	L29888-11	
SS8	L29888-12	

Report of Analysis

09/29/06 15:17

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L29888

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: **W1 1**	Collect Start: 08/29/2006 12:00	Matrix: Soil (S)
Station:	Collect Stop:	Volume:
Description:	Receive Date: 09/14/2006	% Moisture: 6.44
LIMS Number: L29888-1		

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**5.12E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
K-40	2007	**6.70E+00**	1.38E+00		pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	+	Yes
CR-51	2007	<		**7.77E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
MN-54	2007	<		**5.68E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CO-57	2007	<		**5.20E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CO-58	2007	<		**6.46E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
FE-59	2007	<		**1.63E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CO-60	2007	<		**4.74E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
[illegible]65	2007	<		**1.69E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
[illegible]4	2007	<		**6.15E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
[illegible]95	2007	<		**6.72E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
ZR-95	2007	<		**1.25E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
MO-99	2007	<		**1.23E+02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
RU-103	2007	<		**6.19E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
RU-106	2007	<		**5.91E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
AG-110M	2007	<		**6.15E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
SB-124	2007	<		**7.29E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
SB-125	2007	<		**1.58E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
I-131	2007	<		**3.41E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CS-134	2007	<		**5.63E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CS-137	2007	<		**6.55E-02**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
BA-140	2007	<		**5.68E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
LA-140	2007	<		**2.41E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CE-141	2007	<		**1.25E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CE-144	2007	<		**3.52E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
EU-152	2007	<		**1.40E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
EU-154	2007	<		**1.04E-01**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
RA-226	2007	<		**1.39E+00**	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No

Flag Values
- U = Compound/Analyte not detected or less than 3 sigma
- \+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
- U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
- High = Activity concentration exceeds customer reporting value
- Spec. = MDC exceeds customer technical specification
- L = Low recovery
- H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

09/29/06 15:17

L29888

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3EREG-06

Sample ID: **W1 1**
Station:
Description:
LIMS Number: L29888-1

Collect Start: 08/29/2006 12:00
Collect Stop:
Receive Date: 09/14/2006

Matrix: Soil
Volume:
% Moisture: 6.44

(S)

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-228	2007	**2.05E-01**	8.54E-02		pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	+	Yes
TH-232	2007	<		3.55E-01	pCi/g Dry		397.18	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L29888

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: **W2 2**
Station:
Description:
LIMS Number: L29888-2

Collect Start: 08/29/2006 12:00
Collect Stop:
Receive Date: 09/14/2006

Matrix: Soil (S)
Volume:
% Moisture: 7.59

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**1.00E+00**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
K-40	2007	**7.76E+00**	**1.67E+00**		pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	+	Yes
CR-51	2007	<		**1.11E+00**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
MN-54	2007	<		**9.15E-02**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CO-57	2007	<		**9.43E-02**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CO-58	2007	<		**1.21E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
FE-59	2007	<		**2.81E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CO-60	2007	<		**8.68E-02**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
[illegible]65	2007	<		**1.61E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
[illegible]94	2007	<		**9.32E-02**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
[illegible]95	2007	<		**1.18E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
ZR-95	2007	<		**1.98E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
MO-99	2007	<		**1.99E+02**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
RU-103	2007	<		**9.31E-02**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
RU-106	2007	<		**8.97E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
AG-110M	2007	<		**8.95E-02**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
SB-124	2007	<		**1.01E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
SB-125	2007	<		**2.55E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
I-131	2007	<		**5.40E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CS-134	2007	<		**8.58E-02**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CS-137	2007	<		**7.19E-02**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
BA-140	2007	<		**1.29E+00**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CE-141	2007	<		**2.65E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
CE-144	2007	<		**8.33E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
EU-152	2007	<		**2.12E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
EU-154	2007	<		**2.05E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
RA-226	2007	<		**2.71E+00**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No
TH-228	2007	<		**1.62E-01**	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	Yes

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

09/29/06 15:17

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L29888

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: **W2 2**	Collect Start: 08/29/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 7.59	
LIMS Number: L29888-2			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-232	2007	<		5.29E-01	pCi/g Dry		386.99	g dry	08/29/06 12:00	09/20/06	1800	Sec	U	No

Flag Values
- U = Compound/Analyte not detected or less than 3 sigma
- \+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
- U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
- High = Activity concentration exceeds customer reporting value
- Spec = MDC exceeds customer technical specification
- L = Low recovery
- H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

L29888

Enercon

Cory DeWitt

EN005-3EREG-06

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Sample ID: S 3	Collect Start: 08/28/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 6.84	
LIMS Number: L29888-3			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**9.39E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
K-40	2007	**7.64E+00**	1.79E+00		pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	+	Yes
CR-51	2007	<		**1.11E+00**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
MN-54	2007	<		**1.14E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CO-57	2007	<		**9.40E-02**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CO-58	2007	<		**1.02E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
FE-59	2007	<		**1.97E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CO-60	2007	<		**1.08E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
[illegible]-65	2007	<		**2.34E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
[illegible]94	2007	<		**8.29E-02**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
[illegible]-95	2007	<		**1.43E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
ZR-95	2007	<		**1.78E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
MO-99	2007	<		**2.00E+02**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
RU-103	2007	<		**1.38E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
RU-106	2007	<		**7.01E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
AG-110M	2007	<		**9.55E-02**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
SB-124	2007	<		**9.54E-02**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
SB-125	2007	<		**2.32E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
I-131	2007	<		**6.68E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CS-134	2007	<		**7.49E-02**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CS-137	2007	<		**1.07E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
BA-140	2007	<		**8.67E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
LA-140	2007	<		**4.27E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CE-141	2007	<		**2.41E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CE-144	2007	<		**7.43E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
EU-152	2007	<		**2.25E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
EU-154	2007	<		**1.94E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
RA-226	2007	<		**2.46E+00**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L29888

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID:	S 3	Collect Start:	08/28/2006 12:00	Matrix:	Soil (S)
Station:		Collect Stop:		Volume:	
Description:		Receive Date:	09/14/2006	% Moisture:	6.84
LIMS Number:	L29888-3				

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-228	2007	<		**1.71E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	Yes
TH-232	2007	<		**6.30E-01**	pCi/g Dry		401.64	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	Yes

Sample ID:	N 1	Collect Start:	08/28/2006 12:00	Matrix:	Soil (S)
Station:		Collect Stop:		Volume:	
Description:		Receive Date:	09/14/2006	% Moisture:	
LIMS Number:	L29888-4				

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
PLE	NA	<											U	

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

L29888

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3EREG-06

Sample ID: N 2
Station:
Description:
LIMS Number: L29888-5

Collect Start: 08/28/2006 12:00
Collect Stop:
Receive Date: 09/14/2006

Matrix: Soil (S)
Volume:
% Moisture: 5.52

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**8.98E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
K-40	2007	**8.12E+00**	1.83E+00		pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	+	Yes
CR-51	2007	<		**1.25E+00**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
MN-54	2007	<		**1.07E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CO-57	2007	<		**9.12E-02**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CO-58	2007	<		**1.32E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
FE-59	2007	<		**1.86E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CO-60	2007	<		**9.49E-02**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
[illegible]65	2007	<		**2.28E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
[illegible]4	2007	<		**9.92E-02**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
NB-95	2007	<		**1.36E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
ZR-95	2007	<		**1.48E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
MO-99	2007	<		**1.81E+02**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
RU-103	2007	<		**1.08E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
RU-106	2007	<		**6.91E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
AG-110M	2007	<		**8.11E-02**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
SB-124	2007	<		**1.05E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
SB-125	2007	<		**2.59E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
I-131	2007	<		**6.84E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CS-134	2007	<		**8.63E-02**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CS-137	2007	<		**1.06E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
BA-140	2007	<		**1.11E+00**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
LA-140	2007	<		**2.92E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CE-141	2007	<		**2.57E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
CE-144	2007	<		**6.87E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
EU-152	2007	<		**2.79E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
EU-154	2007	<		**1.89E-01**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No
RA-226	2007	<		**2.84E+00**	pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

09/29/06 15:17

L29888

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: N 2
Station:
Description:
LIMS Number: L29888-5

Collect Start: 08/28/2006 12:00
Collect Stop:
Receive Date: 09/14/2006

Matrix: Soil (S)
Volume:
% Moisture: 5.52

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-228	2007	**4.79E-01**	2.11E-01		pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	+	Yes
TH-232	2007	**3.40E-01**	1.73E-01		pCi/g Dry		382.24	g dry	08/28/06 12:00	09/20/06	1800	Sec	+	Yes

Flag Values

U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L29888

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: W1 5	Collect Start: 08/29/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 4.78	
LIMS Number: L29888-6			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**7.75E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
K-40	2007	**7.20E+00**	1.45E+00		pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	+	Yes
CR-51	2007	<		**1.01E+00**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
MN-54	2007	<		**7.51E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
CO-57	2007	<		**7.67E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
CO-58	2007	<		**9.95E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
FE-59	2007	<		**1.85E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
CO-60	2007	<		**5.92E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
[illegible]65	2007	<		**1.62E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
[illegible]94	2007	<		**5.81E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
[illegible]95	2007	<		**1.06E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
ZR-95	2007	<		**1.70E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
MO-99	2007	<		**1.61E+02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
RU-103	2007	<		**9.18E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
RU-106	2007	<		**5.64E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
AG-110M	2007	<		**6.74E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
SB-124	2007	<		**8.08E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
SB-125	2007	<		**1.95E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
I-131	2007	<		**4.89E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
CS-134	2007	<		**6.82E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
CS-137	2007	<		**7.96E-02**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
BA-140	2007	<		**7.82E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
LA-140	2007	<		**3.64E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
CE-141	2007	<		**2.09E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
CE-144	2007	<		**6.38E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
EU-152	2007	<		**2.17E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
EU-154	2007	<		**1.53E-01**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	No
RA-226	2007	<		**1.83E+00**	pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	U	Yes

Flag Values

U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value.
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

09/29/06 15:17

L29888

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3EREG-06

Sample ID: W1 5	Collect Start: 08/29/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 4.78	
LIMS Number: L29888-6			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-228	2007	**4.00E-01**	1.73E-01		pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	+	Yes
TH-232	2007	**4.04E-01**	1.23E-01		pCi/g Dry		464.97	g dry	08/29/06 12:00	09/21/06	1800	Sec	+	Yes

Flag Values
- U = Compound/Analyte not detected or less than 3 sigma
- \+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
- U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
- High = Activity concentration exceeds customer reporting value
- Spec = MDC exceeds customer technical specification
- L = Low recovery
- H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L29888

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: **S 2**	Collect Start: 08/28/2006 12:00	Matrix: Soil (S)
Station:	Collect Stop:	Volume:
Description:	Receive Date: 09/14/2006	% Moisture: 3.80
LIMS Number: L29888-7		

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**8.41E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
K-40	2007	**8.07E+00**	1.55E+00		pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	+	Yes
CR-51	2007	<		**1.16E+00**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
MN-54	2007	<		**8.60E-02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
CO-57	2007	<		**8.04E-02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
CO-58	2007	<		**9.77E-02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
FE-59	2007	<		**1.87E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
CO-60	2007	<		**6.64E-02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
ZN-65	2007	<		**1.51E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
NB-94	2007	<		**8.21E-02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
NB-95	2007	<		**1.04E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
ZR-95	2007	<		**1.68E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
MO-99	2007	<		**1.93E+02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
RU-103	2007	<		**1.24E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
RU-106	2007	<		**7.86E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
AG-110M	2007	<		**5.96E-02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
SB-124	2007	<		**9.09E-02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
SB-125	2007	<		**2.00E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
I-131	2007	<		**4.69E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
CS-134	2007	<		**7.58E-02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
CS-137	2007	<		**6.88E-02**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
BA-140	2007	<		**8.74E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
LA-140	2007	<		**2.95E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
CE-141	2007	<		**2.29E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
CE-144	2007	<		**6.11E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
EU-152	2007	<		**2.42E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
EU-154	2007	<		**1.68E-01**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No
RA-226	2007	<		**2.03E+00**	pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
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U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

09/29/06 15:17

L29888

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3EREG-06

Sample ID: **S 2**	Collect Start: 08/28/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 3.80	
LIMS Number: L29888-7			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-228	2007	**2.08E-01**	1.04E-01		pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	+	Yes
TH-232	2007	**3.03E-01**	1.30E-01		pCi/g Dry		414.73	g dry	08/28/06 12:00	09/21/06	1800	Sec	+	Yes

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
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H = High recovery

Bolded text indicates reportable value.

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Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

L29888

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: SS1
Station:
Description:
LIMS Number: L29888-8

Collect Start: 08/21/2006 12:00
Collect Stop:
Receive Date: 09/14/2006

Matrix: Soil (S)
Volume:
% Moisture: 6.59

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**1.02E+00**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
K-40	2007	**7.16E+00**	1.75E+00		pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes
CR-51	2007	<		**1.56E+00**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MN-54	2007	<		**7.53E-02**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-57	2007	<		**1.02E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-58	2007	<		**1.47E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
FE-59	2007	<		**3.25E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-60	2007	<		**1.23E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]-65	2007	<		**2.07E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]94	2007	<		**7.63E-02**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]-95	2007	<		**1.51E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
ZR-95	2007	<		**2.35E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MO-99	2007	<		**2.00E+03**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-103	2007	<		**1.56E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-106	2007	<		**8.68E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
AG-110M	2007	<		**9.74E-02**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-124	2007	<		**1.32E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-125	2007	<		**2.55E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
I-131	2007	<		**1.44E+00**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-134	2007	<		**1.08E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-137	2007	**1.72E-01**	7.76E-02		pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes
BA-140	2007	<		**2.04E+00**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
LA-140	2007	<		**7.34E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-141	2007	<		**3.22E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-144	2007	<		**8.80E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-152	2007	<		**3.17E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-154	2007	<		**1.95E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RA-226	2007	<		**2.50E+00**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No

Flag Values
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L = Low recovery
H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
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MDC - Minimum Detectable Concentration

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Report of Analysis

09/29/06 15:17

L29888

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3EREG-06

Sample ID:	**SS1**	Collect Start:	08/21/2006 12:00	Matrix:	Soil (S)
Station:		Collect Stop:		Volume:	
Description:		Receive Date:	09/14/2006	% Moisture:	6.59
LIMS Number:	L29888-8				

Radionuclide	SOP#	Activity Conc.	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-228	2007	<		**1.65E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	Yes
TH-232	2007	<		**5.85E-01**	pCi/g Dry		366.69	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
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No = Peak not identified in gamma spectrum
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Report of Analysis

09/29/06 15:17

L29888

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: SS10
Station:
Description:
LIMS Number: L29888-9

Collect Start: 08/21/2006 12:00
Collect Stop:
Receive Date: 09/14/2006

Matrix: Soil (S)
Volume:
% Moisture: 4.00

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**1.27E+00**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
K-40	2007	**7.61E+00**	1.56E+00		pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes
CR-51	2007	<		**1.36E+00**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MN-54	2007	<		**1.08E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-57	2007	<		**8.76E-02**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-58	2007	<		**6.80E-02**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
FE-59	2007	<		**3.03E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-60	2007	<		**7.70E-02**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]-65	2007	<		**1.57E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]94	2007	<		**8.72E-02**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]-95	2007	<		**1.08E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
ZR-95	2007	<		**2.05E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MO-99	2007	<		**1.88E+03**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-103	2007	<		**1.38E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-106	2007	<		**8.49E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
AG-110M	2007	<		**6.20E-02**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-124	2007	<		**1.11E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-125	2007	<		**1.84E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
I-131	2007	<		**1.26E+00**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-134	2007	<		**8.49E-02**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-137	2007	<		**7.48E-02**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
BA-140	2007	<		**1.69E+00**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
LA-140	2007	<		**5.63E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-141	2007	<		**2.90E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-144	2007	<		**7.35E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-152	2007	<		**2.23E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-154	2007	<		**1.67E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RA-226	2007	<		**2.16E+00**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No

Flag Values
- U = Compound/Analyte not detected or less than 3 sigma
- + = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
- U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
- High = Activity concentration exceeds customer reporting value
- Spec = MDC exceeds customer technical specification
- L = Low recovery
- H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration.

Report of Analysis

09/29/06 15:17

L29888

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: SS10
Station:
Description:
LIMS Number: L29888-9

Collect Start: 08/21/2006 12:00
Collect Stop:
Receive Date: 09/14/2006

Matrix: Soil (S)
Volume:
% Moisture: 4.00

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-228	2007	<		**1.63E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	Yes
TH-232	2007	<		**4.83E-01**	pCi/g Dry		434.25	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

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No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L29888

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: SS11	Collect Start: 08/21/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 4.19	
LIMS Number: L29888-10			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**1.49E+00**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
K-40	2007	**9.60E+00**	**2.12E+00**		pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes
CR-51	2007	<		**2.02E+00**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MN-54	2007	<		**1.63E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-57	2007	<		**1.16E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-58	2007	<		**1.60E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
FE-59	2007	<		**4.04E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-60	2007	<		**1.05E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]-65	2007	<		**3.53E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]94	2007	<		**9.49E-02**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]95	2007	<		**1.48E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
ZR-95	2007	<		**3.01E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MO-99	2007	<		**2.65E+03**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-103	2007	<		**1.70E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-106	2007	<		**1.33E+00**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
AG-110M	2007	<		**1.38E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-124	2007	<		**1.82E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-125	2007	<		**3.03E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
I-131	2007	<		**1.47E+00**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-134	2007	<		**1.05E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-137	2007	**2.95E-01**	**1.34E-01**		pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes
BA-140	2007	<		**2.18E+00**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
LA-140	2007	<		**6.42E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-141	2007	<		**3.83E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-144	2007	<		**9.77E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-152	2007	<		**2.97E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-154	2007	<		**2.25E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RA-226	2007	<		**3.36E+00**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No

Flag Values

- U = Compound/Analyte not detected or less than 3 sigma
- \+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
- U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
- High = Activity concentration exceeds customer reporting value
- Spec = MDC exceeds customer technical specification
- L = Low recovery
- H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

09/29/06 15:17

L29888

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: SS11	Collect Start: 08/21/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 4.19	
LIMS Number: L29888-10			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-228	2007	**3.21E-01**	2.08E-01		pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes
TH-232	2007	<		**7.41E-01**	pCi/g Dry		298.89	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
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High = Activity concentration exceeds customer reporting value
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MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

L29888

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: SS4	Collect Start: 08/21/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 2.00	
LIMS Number: L29888-11			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**8.54E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
K-40	2007	**8.86E+00**	1.62E+00		pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes
CR-51	2007	<		**1.41E+00**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MN-54	2007	<		**9.57E-02**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-57	2007	<		**8.74E-02**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-58	2007	<		**1.20E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
FE-59	2007	<		**2.43E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-60	2007	<		**1.19E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]-65	2007	<		**2.46E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]94	2007	<		**7.58E-02**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]-95	2007	<		**1.30E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
ZR-95	2007	<		**1.55E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MO-99	2007	<		**1.90E+03**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-103	2007	<		**1.13E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-106	2007	<		**7.57E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
AG-110M	2007	<		**8.03E-02**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-124	2007	<		**1.04E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-125	2007	<		**2.31E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
I-131	2007	<		**1.23E+00**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-134	2007	<		**7.55E-02**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-137	2007	<		**9.08E-02**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
BA-140	2007	<		**1.79E+00**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
LA-140	2007	<		**3.98E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-141	2007	<		**2.96E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-144	2007	<		**6.88E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-152	2007	<		**2.43E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-154	2007	<		**1.78E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RA-226	2007	<		**2.54E+00**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No

Flag Values
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H = High recovery

No = Peak not identified in gamma spectrum.
Yes = Peak identified in gamma spectrum.
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MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

09/29/06 15:17

L29888

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: SS4	Collect Start: 08/21/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 2.00	
LIMS Number: L29888-11			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-228	2007	**2.41E-01**	1.28E-01		pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes
TH-232	2007	<		**4.65E-01**	pCi/g Dry		467.55	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
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MDC - Minimum Detectable Concentration

Report of Analysis

09/29/06 15:17

L29888

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3EREG-06

Sample ID: SS8	Collect Start: 08/21/2006 12:00	Matrix: Soil	(S)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 09/14/2006	% Moisture: 4.70	
LIMS Number: L29888-12			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
BE-7	2007	<		**1.04E+00**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
K-40	2007	**6.85E+00**	1.80E+00		pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes
CR-51	2007	<		**1.51E+00**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MN-54	2007	<		**1.07E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-57	2007	<		**1.02E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-58	2007	<		**1.41E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
FE-59	2007	<		**3.47E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CO-60	2007	<		**6.48E-02**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]65	2007	<		**1.83E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]4	2007	<		**7.90E-02**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
[illegible]95	2007	<		**1.78E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
ZR-95	2007	<		**1.72E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
MO-99	2007	<		**2.81E+03**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-103	2007	<		**1.33E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RU-106	2007	<		**9.61E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
AG-110M	2007	<		**8.87E-02**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-124	2007	<		**1.10E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
SB-125	2007	<		**2.81E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
I-131	2007	<		**1.29E+00**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-134	2007	<		**6.68E-02**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CS-137	2007	<		**8.67E-02**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
BA-140	2007	<		**2.18E+00**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-141	2007	<		**3.23E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
CE-144	2007	<		**8.01E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-152	2007	<		**3.19E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
EU-154	2007	<		**2.04E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
RA-226	2007	<		**2.73E+00**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	No
TH-228	2007	**3.01E-01**	1.52E-01		pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	+	Yes

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis
09/29/06 15:17

L29888

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3EREG-06

Sample ID: SS8
Station:
Description:
LIMS Number: L29888-12

Collect Start: 08/21/2006 12:00
Collect Stop:
Receive Date: 09/14/2006

Matrix: Soil (S)
Volume:
% Moisture: 4.70

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
TH-232	2007	<		**5.36E-01**	pCi/g Dry		383.71	g dry	08/21/06 12:00	09/22/06	1800	Sec	U	Yes

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Attachment 40 - Bioshield Concrete Characterization Analytical Results

TELEDYNE
BROWN ENGINEERING, INC.
A Teledyne Technologies Company
2508 Quality Lane
Knoxville, TN 37931-3133

MAY 3 0 2006

Cory DeWitt
Enercon
4499 Old William Penn Highway
Murrysville PA 15668

Report of Analysis/Certificate of Conformance

05/30/2006

LIMS #: L28599

Project ID#: EN005-3P61-06

Received: 05/10/2006

Delivery Date: 05/24/2006

P.O. #: MCIL VI001

Release #:

SDG #:

This is to certify that Teledyne Brown Engineering - Environmental Services located at 2508 Quality Lane, Knoxville, Tennessee, 37931, has analyzed, tested and documented samples as specified in the applicable purchase order.

This also certifies that requirements of applicable codes, standards and specifications have been fully met and that any quality assurance documentation which verified conformance to the purchase order is on file and may be examined upon request.

I hereby certify that the above statements are true and correct.

Keith Jeter

Keith Jeter
Operations Manager

Cross Reference Table

Client ID	Laboratory ID	Station ID(if applicable)
W4	L28599-1	
W5	L28599-2	
W6	L28599-3	
W7	L28599-4	
W8	L28599-5	
W9	L28599-6	
W10	L28599-7	
W11	L28599-8	

Report of Analysis

05/30/06 16:32

L28599

Enercon

Cory DeWitt

EN005-3P61-06

Sample ID:	W4	Collect Start:	05/02/2006 09:30	Matrix:	Solids (SD)
Station:		Collect Stop:		Volume:	
Description:		Receive Date:	05/10/2006	% Moisture:	
LIMS Number:	L28599-1				

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
C-14	032-80	<		**8.95E-07**	uci/g		2.0076	g wet		05/26/06	50	M	U	
H-3	2003	**4.87E-04**	4.61E-06		uci/g		2.0076	g wet		05/27/06	50	M	+	
BE-7	2007	<		**1.10E-05**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
K-40	2007	<		**4.52E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	Yes
CR-51	2007	<		**1.19E-05**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
MN-54	2007	<		**1.51E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
CO-57	2007	<		**2.12E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U*	No
CO-58	2007	<		**1.72E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
FE-59	2007	<		**3.60E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
CO-60	2007	**4.31E-05**	1.36E-06		uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	+	Yes
ZN-65	2007	<		**6.29E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U*	No
NB-94	2007	<		**1.27E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
NB-95	2007	<		**1.66E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
ZR-95	2007	<		**3.04E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
MO-99	2007	<		**7.54E-04**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
RU-103	2007	<		**1.43E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
RU-106	2007	<		**1.17E-05**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
AG-110M	2007	<		**1.32E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
SB-124	2007	<		**1.39E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
SB-125	2007	<		**2.82E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
I-131	2007	<		**4.56E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U*	No
CS-134	2007	<		**1.15E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
CS-137	2007	<		**1.41E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
BA-140	2007	<		**1.02E-05**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
LA-140	2007	<		**1.44E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
CE-141	2007	<		**1.82E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
CE-144	2007	<		**5.76E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
EU-152	2007	**1.37E-04**	4.01E-06		uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	+	Yes

Flag Values
- U = Compound/Analyte not detected or less than 3 sigma
- + = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
- U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
- High = Activity concentration exceeds customer reporting value
- Spec = MDC exceeds customer technical specification
- L = Low recovery
- H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

05/30/06 16:32

L28599

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3P61-06

Sample ID:	W4	Collect Start:	05/02/2006 09:30	Matrix:	Solids (SD)
Station:		Collect Stop:		Volume:	
Description:		Receive Date:	05/10/2006	% Moisture:	
LIMS Number:	L28599-1				

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
EU-154	2007	**7.31E-06**	1.71E-06		uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	+	Yes
RA-226	2007	<		**2.03E-05**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
TH-228	2007	<		**1.63E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No
TH-232	2007	<		**5.59E-06**	uci/g		238.51	g wet	05/02/06 09:30	05/19/06	900	Sec	U	No

Flag Values

U = Compound/Analyte not detected or less than 3 sigma
+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

05/30/06 16:32

L28599

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3P61-06

Sample ID: W5	Collect Start: 05/02/2006 10:00	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-2			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values			
C-14	032-80	**1.12E-05**	5.55E-07		uci/g		2.8705	g wet		05/27/06	50	M	+			
H-3	2003	**5.05E-04**	3.91E-06		uci/g		2.8705	g wet		05/27/06	50	M	+			
BE-7	2007	<		**8.35E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
K-40	2007	<		**5.77E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U*		No	
CR-51	2007	<		**9.42E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
MN-54	2007	<		**1.14E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
CO-57	2007	<		**1.50E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U*		No	
CO-58	2007	<		**1.27E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
FE-59	2007	<		**2.87E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
CO-60	2007	**4.49E-05**	1.23E-06		uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	+		Yes	
ZN-65	2007	<		**4.76E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U*		No	
NB-94	2007	<		**9.71E-07**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
NB-95	2007	<		**1.24E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
ZR-95	2007	<		**2.31E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
MO-99	2007	<		**5.79E-04**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
RU-103	2007	<		**1.08E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
RU-106	2007	<		**9.07E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
AG-110M	2007	<		**1.03E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
SB-124	2007	<		**1.07E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
SB-125	2007	<		**2.27E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
I-131	2007	<		**3.57E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
CS-134	2007	<		**8.98E-07**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
CS-137	2007	<		**1.08E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
BA-140	2007	<		**8.08E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
LA-140	2007	<		**9.93E-07**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
CE-141	2007	<		**1.42E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
CE-144	2007	<		**4.48E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U		No	
EU-152	2007	**1.05E-04**	3.10E-06		uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	+		Yes	

Flag Values

U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
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MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

05/30/06 16:32

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L28599

Enercon

Cory DeWitt

EN005-3P61-06

Sample ID:	W5	Collect Start:	05/02/2006 10:00	Matrix:	Solids (SD)
Station:		Collect Stop:		Volume:	
Description:		Receive Date:	05/10/2006	% Moisture:	
LIMS Number:	L28599-2				

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
EU-154	2007	<		**3.02E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U*	No
RA-226	2007	<		**1.59E-05**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U	No
TH-228	2007	<		**1.34E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U	No
TH-232	2007	<		**4.56E-06**	uci/g		269.48	g wet	05/02/06 10:00	05/19/06	900	Sec	U	No

Flag Values:

U	=	Compound/Analyte not detected or less than 3 sigma
+	=	Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U*	=	Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High	=	Activity concentration exceeds customer reporting value
Spec	=	MDC exceeds customer technical specification
L	=	Low recovery
H	=	High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
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MDC - Minimum Detectable Concentration

Report of Analysis

05/30/06 16:32

L28599

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3P61-06

Sample ID: W6	Collect Start: 05/02/2006 10:30	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-3			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values			
C-14	032-80	**9.21E-06**	6.58E-07		uci/g		2.165	g wet		05/27/06	50	M	+			
H-3	2003	**2.79E-04**	3.39E-06		uci/g		2.165	g wet		05/27/06	50	M	+			
BE-7	2007	<		**4.59E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
K-40	2007	<		**2.65E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		Yes	
CR-51	2007	<		**4.84E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
MN-54	2007	<		**5.85E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
CO-57	2007	<		**7.87E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U*		No	
CO-58	2007	<		**6.98E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
FE-59	2007	<		**1.30E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
CO-60	2007	**8.01E-06**	5.54E-07		uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	+		Yes	
ZN-65	2007	<		**2.40E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U*		No	
NB-94	2007	<		**4.80E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
NB-95	2007	<		**6.84E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
ZR-95	2007	<		**1.22E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
MO-99	2007	<		**3.25E-04**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
RU-103	2007	<		**5.91E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
RU-106	2007	<		**4.73E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
AG-110M	2007	<		**5.14E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
SB-124	2007	<		**5.47E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
SB-125	2007	<		**1.09E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
I-131	2007	<		**1.89E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
CS-134	2007	<		**4.88E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
CS-137	2007	<		**5.45E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
BA-140	2007	<		**4.23E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
LA-140	2007	<		**7.09E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
CE-141	2007	<		**7.32E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
CE-144	2007	<		**2.42E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U		No	
EU-152	2007	**1.80E-05**	9.30E-07		uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	+		Yes	

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
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Report of Analysis

05/30/06 16:32

L28599

Enercon

Cory DeWitt

EN005-3P61-06

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Sample ID: W6	Collect Start: 05/02/2006 10:30	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-3			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
EU-154	2007	<		**1.58E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U*	No
RA-226	2007	<		**8.59E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U	No
TH-228	2007	<		**6.61E-07**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U	Yes
TH-232	2007	<		**2.43E-06**	uci/g		244.93	g wet	05/02/06 10:30	05/19/06	900	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
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Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

05/30/06 16:32

L28599

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3P61-06

Sample ID: W7	Collect Start: 05/02/2006 11:00	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-4			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
C-14	032-80	**2.24E-06**	5.97E-07		uci/g		1.9631	g wet		05/27/06	50	M	+	
H-3	2003	**1.89E-04**	2.97E-06		uci/g		1.9631	g wet		05/27/06	50	M	+	
BE-7	2007	<		**2.43E-06**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
K-40	2007	**2.44E-06**	1.26E-06		uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	+	Yes
CR-51	2007	<		**2.74E-06**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
MN-54	2007	<		**3.14E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
CO-57	2007	<		**4.22E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U*	No
CO-58	2007	<		**3.62E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
FE-59	2007	<		**7.60E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
CO-60	2007	**5.12E-06**	2.83E-07		uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	+	Yes
ZN-65	2007	<		**1.33E-06**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U*	No
NB-94	2007	<		**2.54E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
NB-95	2007	<		**3.68E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
ZR-95	2007	<		**6.45E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
MO-99	2007	<		**1.64E-04**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
RU-103	2007	<		**3.33E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
RU-106	2007	<		**2.61E-06**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
AG-110M	2007	<		**2.71E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
SB-124	2007	<		**2.85E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
SB-125	2007	<		**6.32E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
I-131	2007	<		**9.48E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
CS-134	2007	<		**2.50E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
CS-137	2007	<		**2.78E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
BA-140	2007	<		**2.31E-06**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
LA-140	2007	<		**3.19E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
CE-141	2007	<		**4.04E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
CE-144	2007	<		**1.31E-06**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
EU-152	2007	**1.45E-05**	4.86E-07		uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	+	Yes

Flag Values
- U = Compound/Analyte not detected or less than 3 sigma
- \+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
- U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
- High = Activity concentration exceeds customer reporting value
- Spec = MDC exceeds customer technical specification
- L = Low recovery
- H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

05/30/06 16:32

L28599

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3P61-06

Sample ID: W7
Station:
Description:
LIMS Number: L28599-4

Collect Start: 05/02/2006 11:00
Collect Stop:
Receive Date: 05/10/2006

Matrix: Solids (SD)
Volume:
% Moisture:

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
EU-154	2007	<		**8.52E-07**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U*	No
RA-226	2007	<		**4.48E-06**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No
TH-228	2007	**4.57E-07**	2.50E-07		uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	+	Yes
TH-232	2007	<		**1.19E-06**	uci/g		257.61	g wet	05/02/06 11:00	05/19/06	1800	Sec	U	No

Flag Values

U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
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MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

05/30/06 16:32

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L28599

Enercon

Cory DeWitt

EN005-3P61-06

Sample ID: W8	Collect Start: 05/02/2006 11:30	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-5			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values		
C-14	032-80	**1.65E-06**	5.55E-07		uci/g		2.0802	g wet		05/27/06	50	M	+		
H-3	2003	**1.47E-04**	2.56E-06		uci/g		2.0802	g wet		05/27/06	50	M	+		
BE-7	2007	<		**2.23E-06**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
K-40	2007	**6.31E-06**	1.87E-06		uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	+		Yes
CR-51	2007	<		**2.76E-06**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
MN-54	2007	<		**3.42E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
CO-57	2007	<		**4.39E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U*		No
CO-58	2007	<		**3.88E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
FE-59	2007	<		**6.66E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
CO-60	2007	**2.33E-06**	2.59E-07		uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	+		Yes
ZN-65	2007	<		**1.23E-06**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U*		No
NB-94	2007	<		**2.88E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
NB-95	2007	<		**3.68E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
ZR-95	2007	<		**5.93E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
MO-99	2007	<		**1.49E-04**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
RU-103	2007	<		**2.94E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
RU-106	2007	<		**2.44E-06**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
AG-110M	2007	<		**2.80E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
SB-124	2007	<		**3.07E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
SB-125	2007	<		**5.62E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
I-131	2007	<		**9.88E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
CS-134	2007	<		**2.70E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
CS-137	2007	<		**3.10E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
BA-140	2007	<		**2.26E-06**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
LA-140	2007	<		**2.78E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
CE-141	2007	<		**3.93E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
CE-144	2007	<		**1.34E-06**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U		No
EU-152	2007	**8.51E-06**	5.11E-07		uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	+		Yes

Flag Values
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H = High recovery

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MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

05/30/06 16:32

L28599

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3P61-06

Sample ID: W8	Collect Start: 05/02/2006 11:30	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-5			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
EU-154	2007	<		**8.83E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U*	No
RA-226	2007	<		**4.78E-06**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U	No
TH-228	2007	<		**3.51E-07**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U	Yes
TH-232	2007	<		**1.32E-06**	uci/g		229.23	g wet	05/02/06 11:30	05/19/06	1501	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
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H = High recovery

Bolded text indicates reportable value.

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Yes = Peak identified in gamma spectrum
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MDC - Minimum Detectable Concentration

Report of Analysis

05/30/06 16:32

L28599

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3P61-06

Sample ID: W9
Station:
Description:
LIMS Number: L28599-6

Collect Start: 05/02/2006 12:30
Collect Stop:
Receive Date: 05/10/2006

Matrix: Solids (SD)
Volume:
% Moisture:

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values		
C-14	032-80	**1.25E-06**	6.32E-07		uci/g		1.7925	g wet		05/27/06	50	M	+		
H-3	2003	**1.23E-04**	2.57E-06		uci/g		1.7925	g wet		05/27/06	50	M	+		
BE-7	2007	<		**1.72E-06**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
K-40	2007	**7.08E-06**	1.89E-06		uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	+		Yes
CR-51	2007	<		**1.90E-06**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
MN-54	2007	<		**2.15E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
CO-57	2007	<		**3.02E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U*		No
CO-58	2007	<		**2.23E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
FE-59	2007	<		**4.51E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
CO-60	2007	**9.15E-07**	1.50E-07		uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	+		Yes
ZN-65	2007	<		**9.04E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U*		No
NB-94	2007	<		**1.86E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
NB-95	2007	<		**2.60E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
ZR-95	2007	<		**4.85E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
MO-99	2007	<		**1.15E-04**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
RU-103	2007	<		**2.26E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
RU-106	2007	<		**1.69E-06**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
AG-110M	2007	<		**1.96E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
SB-124	2007	<		**2.38E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
SB-125	2007	<		**5.09E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
I-131	2007	<		**7.74E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
CS-134	2007	<		**2.25E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
CS-137	2007	<		**1.97E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
BA-140	2007	<		**1.61E-06**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
LA-140	2007	<		**4.03E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
CE-141	2007	<		**3.17E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
CE-144	2007	<		**9.22E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U		No
EU-152	2007	**5.72E-06**	3.46E-07		uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	+		Yes

Flag Values
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+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
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L = Low recovery
H = High recovery

No = Peak not identified in gamma spectrum
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MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

05/30/06 16:32

L28599

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3P61-06

Sample ID: **W9**	Collect Start: 05/02/2006 12:30	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-6			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
EU-154	2007	<		**6.11E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U*	No
RA-226	2007	<		**3.55E-06**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U	No
TH-228	2007	**3.88E-07**	1.93E-07		uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	+	Yes
TH-232	2007	<		**8.18E-07**	uci/g		203.66	g wet	05/02/06 12:30	05/19/06	1800	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

05/30/06 16:32

L28599

Enercon

Cory DeWitt

EN005-3P61-06

Sample ID: W10	Collect Start: 05/02/2006 01:00	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-7			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values			
C-14	032-80	**1.46E-06**	4.36E-07		uci/g		2.6671	g wet		05/27/06	50	M	+			
H-3	2003	**2.52E-04**	2.90E-06		uci/g		2.6671	g wet		05/27/06	50	M	+			
BE-7	2007	<		**3.21E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
K-40	2007	<		**1.53E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			Yes
CR-51	2007	<		**3.58E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
MN-54	2007	<		**4.46E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
CO-57	2007	<		**6.05E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U*			No
CO-58	2007	<		**5.07E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
FE-59	2007	<		**1.01E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
CO-60	2007	**5.39E-06**	3.99E-07		uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	+			Yes
ZN-65	2007	<		**1.77E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U*			No
NB-94	2007	<		**3.82E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
NB-95	2007	<		**5.00E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
ZR-95	2007	<		**8.46E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
MO-99	2007	<		**2.44E-04**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
RU-103	2007	<		**4.42E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
RU-106	2007	<		**3.48E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
AG-110M	2007	<		**3.94E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
SB-124	2007	<		**4.23E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
SB-125	2007	<		**8.75E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
I-131	2007	<		**1.35E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
CS-134	2007	<		**3.64E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
CS-137	2007	<		**4.23E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
BA-140	2007	<		**3.10E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
LA-140	2007	<		**5.16E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
CE-141	2007	<		**5.45E-07**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
CE-144	2007	<		**1.76E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U			No
EU-152	2007	**1.75E-05**	7.31E-07		uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	+			Yes

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis
05/30/06 16:32

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L28599

Enercon

Cory DeWitt

EN005-3P61-06

Sample ID: **W10**	Collect Start: 05/02/2006 01:00	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-7			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
EU-154	2007	<		**1.22E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U*	No
RA-226	2007	<		**6.32E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U	No
TH-228	2007	**6.33E-07**	2.65E-07		uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	+	Yes
TH-232	2007	<		**1.66E-06**	uci/g		251.55	g wet	05/02/06 01:00	05/19/06	1440	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
\+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

05/30/06 16:32

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

L28599

Enercon

Cory DeWitt

EN005-3P61-06

Sample ID: **W11**	Collect Start: 05/02/2006 01:30	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-8			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values		
C-14	032-80	**9.29E-06**	6.27E-07		uci/g		2.3037	g wet		05/27/06	50	M	+		
H-3	2003	**6.82E-04**	5.07E-06		uci/g		2.3037	g wet		05/27/06	50	M	+		
BE-7	2007	<		**8.00E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
K-40	2007	<		**5.43E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U*		No
CR-51	2007	<		**8.86E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
MN-54	2007	<		**1.09E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
CO-57	2007	<		**1.44E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U*		No
CO-58	2007	<		**1.22E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
FE-59	2007	<		**2.61E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
CO-60	2007	**4.42E-05**	1.08E-06		uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	+		Yes
ZN-65	2007	<		**4.47E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U*		No
NB-94	2007	<		**8.86E-07**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
NB-95	2007	<		**1.17E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
ZR-95	2007	<		**2.19E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
MO-99	2007	<		**5.80E-04**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
RU-103	2007	<		**1.03E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
RU-106	2007	<		**8.33E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
AG-110M	2007	<		**9.41E-07**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
SB-124	2007	<		**9.72E-07**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
SB-125	2007	<		**2.06E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
I-131	2007	<		**3.42E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U*		No
CS-134	2007	<		**8.16E-07**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
CS-137	2007	<		**9.75E-07**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
BA-140	2007	<		**7.58E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
LA-140	2007	<		**1.02E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
CE-141	2007	<		**1.34E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
CE-144	2007	<		**4.18E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U		No
EU-152	2007	**1.29E-04**	2.85E-06		uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	+		Yes

Flag Values
- U = Compound/Analyte not detected or less than 3 sigma
- \+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
- U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
- High = Activity concentration exceeds customer reporting value
- Spec = MDC exceeds customer technical specification
- L = Low recovery
- H = High recovery

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Bolded text indicates reportable value.

Report of Analysis

05/30/06 16:32

L28599

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3P61-06

Sample ID: **W11**	Collect Start: 05/02/2006 01:30	Matrix: Solids	(SD)
Station:	Collect Stop:	Volume:	
Description:	Receive Date: 05/10/2006	% Moisture:	
LIMS Number: L28599-8			

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
EU-154	2007	<		**2.89E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U*	No
RA-226	2007	<		**1.50E-05**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U	No
TH-228	2007	<		**1.27E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U	No
TH-232	2007	<		**3.97E-06**	uci/g		271.4	g wet	05/02/06 01:30	05/19/06	1200	Sec	U	No

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
Spec = MDC exceeds customer technical specification
L = Low recovery
H = High recovery

Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

ENERCON Services, Inc.

Chain of Custody Record

L28599 P-14E ~~L-14C~~ PAM 5/15/06

Laboratory Contact		Project Manager: Corey Dewitt	Site Contact: Dan Jordan	Date: 5/9/2006	COC No: 0004
Name:	Teledyne Brown Engineering	Tel/Fax: 724-733-8711	Lab Contact: Rebecca Charles	Carrier: FedEx	Page 1 of 1
Address:	Sample Receiving	Analysis Turnaround Time			Job No. 10492
	2508 Quality Lane	☐ Other (Specify) ________ days			
	Knoxville TN 37931	☐ 30 Days			
Phone:	865-934-0379	☐ 21 Days			SDG No.
FAX:		☑ 14 Days			
Project:	University of Washington	☐ 7 Days			
P.O #:	MCILVI001				

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	AlphaSpec (Uranium)	TCLP Metals	Gamma Spec Activation Products	Gamma Spec Fission Products	Tritium	C-14	Eu-152	Eu-154	Co-60	10CFR Part 61 Analysis	Preservation	Sample Specific Notes:
W4	5/1/2006	9:30 AM	Concrete	Solid	1				x	x	x	x	x	x	x	x	N	
W5	5/2/2006	10:00 AM	Concrete	Solid	1				x	x	x	x	x	x	x		N	
W6	5/2/2006	10:30 AM	Concrete	Solid	1				x	x	x	x	x	x	x		N	
W7	5/2/2006	11:00 AM	Concrete	Solid	1				x	x	x	x	x	x	x		N	
W8	5/2/2006	11:30 AM	Concrete	Solid	1				x	x	x	x	x	x	x		N	
W9	5/2/2006	12:30 PM	Concrete	Solid	1				x	x	x	x	x	x	x		N	
W10	5/2/2006	1:00 AM	Concrete	Solid	1				x	x	x	x	x	x	x		N	
W11	5/2/2006	1:30 AM	Concrete	Solid	1				x	x	x	x	x	x	x		N	

Preservation Used: 1 = Ice, 2= HCl, 3= H_2SO_4, 4=HNO_3, 5=NaOH, 6= Other ________, N =None

Possible Hazard Identification

☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☑ Disposal by Lab ☑ Archive for 30 Months / Weeks / X Days (circle one)

Special Instructions/QC Requirements & Comments: Email results to Dan Jordan at djordan@enercon.com. Phone 804-384-8081. Bill Project using this COC as a reference. Enercon billing contact is Corey Dewitt at cdewitt@enercon.com Phone 724-733-8711.

Relinquished by	Company	Date/Time	Received by	Company	Date/Time
Relinquished by: Dan Jordan	Company: Enercon	Date/Time: 5-9-06 / 4:00PM	Received by: Pat Marshall	Company: TBE	Date/Time: 5/10/06 1100
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

Attachment 41 - Final Bioshield Analysis for Hard to Detect Radionuclides

Co/Eu to Hard-to-Detect Nuclide Ratio Analysis

Regulatory Guide 1.86 Criteria		
Removable β–γ dpm/100cm^2	Co/Eu Total dpm/100cm^2	H-3 Total dpm/100cm^2
1000	5000	5000

Reduced Total Criteria		
Reduced β–γ dpm/100cm^2	Derived H-3 dpm/100cm^2	Unity Value
1700	3160	0.97

Reduced Removable Criteria		
Removable β–γ dpm/100cm^2	Derived H-3 dpm/100cm^2	Unity Value
340	632	0.97

HTD Sample Analysis Ratio					
Co/Eu (pCi/g)			HTD (pCi/g)		HTD to Co/Eu Ratio
Co-60	Eu-152	Eu-154	H-3	C-14	
1.06E+00	3.62E+00	nd	8.70E+00	nd	**1.86**

Report of Analysis

12/01/06 16:13

L30509

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Enercon

Cory DeWitt

EN005-3EREG-06A

Sample ID: W13
Station:
Description:
LIMS Number: L30509-1

Collect Start: 11/08/2006 17:30
Collect Stop:
Receive Date: 11/16/2006

Matrix: Solids (SD)
Volume:
% Moisture:

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values		
C-14	2003	<		**9.38E-01**	pCi/g		5.7033	g wet		12/01/06	10	M	U	Spec	
H-3	2003	**8.70E+00**	1.01E+00		pCi/g		5.7033	g wet		12/01/06	10	M	+		
BE-7	2007	<		**3.21E-01**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
K-40	2007	**4.54E+00**	4.36E-01		pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	+		Yes
CR-51	2007	<		**4.10E-01**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
MN-54	2007	<		**3.56E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
CO-57	2007	<		**7.19E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U*		No
CO-58	2007	<		**3.94E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
FE-59	2007	<		**8.44E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
CO-60	2007	**1.06E+00**	4.01E-02		pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	+		Yes
ZN-65	2007	<		**8.35E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
NB-94	2007	<		**3.19E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
NB-95	2007	<		**4.19E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
ZR-95	2007	<		**7.25E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
MO-99	2007	<		**3.69E+01**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
RU-103	2007	<		**4.13E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
RU-106	2007	<		**3.06E-01**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
AG-110M	2007	<		**3.41E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
SB-124	2007	<		**3.58E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
SB-125	2007	<		**8.65E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
I-131	2007	<		**1.59E-01**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
CS-134	2007	<		**2.89E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
CS-137	2007	<		**3.54E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U	Spec	No
BA-140	2007	<		**3.15E-01**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
LA-140	2007	<		**6.83E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
CE-141	2007	<		**7.73E-02**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
CE-144	2007	<		**2.36E-01**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U		No
EU-152	2007	**3.62E+00**	1.41E-01		pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	+		Yes

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
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L = Low recovery
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Bolded text indicates reportable value.

No = Peak not identified in gamma spectrum
Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Report of Analysis

12/01/06 16:13

L30509

Enercon

TELEDYNE BROWN ENGINEERING, INC.
A Teledyne Technologies Company

Cory DeWitt

EN005-3EREG-06A

Sample ID: W13
Station:
Description:
LIMS Number: L30509-1

Collect Start: 11/08/2006 17:30
Collect Stop:
Receive Date: 11/16/2006

Matrix: Solids (SD)
Volume:
% Moisture:

Radionuclide	SOP#	Activity Conc	Uncertainty 2 Sigma	MDC	Units	Run #	Aliquot Volume	Aliquot Units	Reference Date	Count Date	Count Time	Count Units	Flag Values	
EU-154	2007	<		**1.28E-01**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U*	No
RA-226	2007	<		**7.69E-01**	pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	U	Yes
TH-228	2007	**6.48E-01**	5.10E-02		pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	+	Yes
TH-232	2007	**5.47E-01**	8.63E-02		pCi/g		414.37	g dry	11/08/06 17:30	11/28/06	23400	Sec	+	Yes

Flag Values
U = Compound/Analyte not detected or less than 3 sigma
+ = Activity concentration exceeds MDC and 3 sigma; peak identified(gamma only)
U* = Compound/Analyte not detected. Peak not identified, but forced activity concentration exceeds MDC and 3 sigma
High = Activity concentration exceeds customer reporting value
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L = Low recovery
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Bolded text indicates reportable value.

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Yes = Peak identified in gamma spectrum
**** Results are reported on an as received basis unless otherwise noted

MDC - Minimum Detectable Concentration

Attachment 42 – Summary of Air Sample Results

Summary of Air Sample Results

University of Washington Nuclear Reactor D&D

Breathing Zone Air Samples

	DAC
Alpha	7.00E-12
Beta	8.00E-09

Alpha	Average	1.09E-13		Max	6.39E-13
	% DAC =	2%			9%

Beta	Average	7.89E-11		Max	4.80E-10
	% DAC =	1%			6%

General Area Air Samples

	DAC
Alpha	7.00E-12
Beta	8.00E-09

Alpha	Average	2.97E-14		Max	1.51E-12
	% DAC =	0%			22%

Beta	Average	3.75E-11		Max	4.72E-09
	% DAC =	0%			59%

Notes:

- All values listed in µCi/ml
- DAC values derived from 10CFR20 Appendix B Table 1, Column 3.

DAC Relation to ALI

The derived air concentration (DAC) values are derived limits intended to control chronic occupational exposures. The relationship between the DAC and the ALI is given by: DAC=ALI(in µCi)/(2000 hours per working year x 60 minutes/hour x 2 x 10^4 ml per minute)=[ALI/2.4x10^9] µCi/ml, where 2x10^4 ml is the volume of air breathed per minute at work by "Reference Man" under working conditions of "light work." (10 CFR 20 Appendix B, pg 357, January 2006)

In other words, a worker must breathe an air concentration at a level of 10% of the DAC for 2000 hours to receive 10% of the ALI for a given nuclide.